

# POLICY LEARNING FOR INDUSTRIAL DEVELOPMENT AND THE ROLE OF DEVELOPMENT COOPERATION

RESEARCH PROJECT -  
JAPANESE EXPERIENCES OF INDUSTRIAL  
DEVELOPMENT AND DEVELOPMENT COOPERATION:  
ANALYSIS OF TRANSLATIVE ADAPTATION PROCESSES [VOL.1]

Edited by : Izumi Ohno, Kuniaki Amatsu, and Akio Hosono



# **Policy Learning for Industrial Development and the Role of Development Cooperation**

Research Project - Japanese Experiences of  
Industrial Development  
and Development Cooperation:  
Analysis of Translative Adaptation Processes  
[Volume 1]

Edited by  
Izumi Ohno, Kuniaki Amatsu, and Akio Hosono

JICA Ogata Sadako Research Institute  
for Peace and Development

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## FOREWORD

Industrial development is a key driver of structural transformation in developing countries. It generates sustained incomes, creates productive and decent jobs, and promotes knowledge spillover and technological innovation. As the twenty-first century advances, the landscape of industrial development has become more complex. The recent decades have seen the expansion of global production networks, alongside the advancement of information and communication technology (ICT) and the digital revolution. There is a drive toward realizing inclusive and sustainable industrial development as embraced in the Sustainable Development Goals (SDGs). The COVID-19 crisis also confirms the important role that industry plays in enhancing economic and social resilience and “building back better” the post-pandemic era.

While these megatrends may broaden opportunities for industrial catch-up, developing countries today face significant challenges because more sophisticated capabilities for learning foreign knowledge and technologies are required in an interconnected world. Now, more than ever, we need to pay attention to the practical aspects of industrial development. Nevertheless, there are few studies that analyze the process of learning and selectively adopting and adapting foreign technologies and knowledge, tailored to country-specific situations while taking account of the current global environment. More concrete analyses are needed on such aspects of industrial development to serve as useful references for policymakers, practitioners, and researchers in developing countries.

In this regard, Japan is positioned to make useful intellectual contributions. Japanese catch-up experiences since the Meiji modernization and during post-war economic development were characterized by learning and internalizing Western technologies and knowledge, which entailed efforts to adapt them into Japan’s own culture and system. We call this process “translative adaptation.” Moreover, the Japanese approach to industrial development has a unique feature of placing a focus on components of the real sector such as human resources, technologies and firms. These experiences and perspectives have been reflected in Japanese industrial development cooperation, which has been extended to various regions including Asia, Latin America, and Africa.

Against this background, the Japan International Cooperation Agency (JICA) Ogata Sadako Research Institute for Peace and Development (JICA Ogata Research Institute) has launched a research project entitled “Japanese Experiences of Industrial Development and Development Cooperation: Analysis of Translative Adaptation Processes”. It aims at identifying the characteristics of Japanese experiences of industrial development and development cooperation, while drawing implications for facilitating translative adaptation in developing countries. The research project focuses on three key areas: (i) industrial policy, (ii) quality and productivity improvement (QPI), and (iii) skill development. These are the areas where Japan has an accumulation of expertise through its own experiences in industrialization and development cooperation. Three thematic books are produced as interim results of this research project.

Among the three thematic books, this volume focuses not only on industrial policy but also on policy support for industrial development, which is one type of Japanese intellectual cooperation aimed at providing hands-on policy advice on the priority development agenda of partner countries. More specifically, it examines the role of industrial policy in promoting the structural transformation of catching-up economies through learning processes, and considers the role of Japanese development policy support to developing countries in facilitating their local learning and translative adaptation of foreign knowledge.

As this research project continues to evolve, we fully recognize that there remains room for further deepening its analysis. Nevertheless, we hope that the analyses of this volume will serve as useful references for policymakers, practitioners, and researchers in developing countries as well as the international community.

Tokyo, Japan

Akio Takahara  
Executive Director,  
JICA Ogata Sadako Research Institute  
for Peace and Development

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## Overview: Japanese Perspectives on Industrial Development and the Concept of Translative Adaptation

Izumi Ohno<sup>1</sup>

### 1. Introduction

It is widely acknowledged that industrialization is key to structural transformation of economies. Dani Rodrik states that the manufacturing sector is ‘the quintessential escalator for developing countries’ (Rodrik 2016, 3). As witnessed among East Asian development experiences including in Japan, manufacturing has played an important role in generating inclusive and sustainable growth and achieving economic catch-up. This is why national leaders in many developing countries have embraced catch-up aspirations through industrialization. Avoiding middle-income traps, overcoming premature de-industrialization,<sup>2</sup> and achieving economic transformation in Africa are typical examples of a priority development agenda.

Furthermore, due to the advance of globalization and digital transformation along with the age of the Sustainable Development Goals (SDGs), the scope of industrial development has been widening in the twenty-first century (Aiginger and Rodrik 2020; Otsubo and Otchia 2020). There are diverse paths to industrialization including information and communication technology (ICT) and green industries (Altenburg and Assmann 2017; Aiginger and Rodrik 2020), ‘servicification’ of manufacturing (manufacturing-related services) (Helble and Shepherd 2019), ‘industrialization of freshness’ (Cramer and Sender 2019), and

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<sup>1</sup> The author is grateful to Mr. Mitsuya Araki, Chief Editor of the International Development Journal, for his providing valuable information and insights of Japanese postwar development experiences.

<sup>2</sup> Dani Rodrik (2016) observes that there is a significant trend toward premature deindustrialization in developing countries and emerging economies in recent decades. Except for East Asia, the shares of industrial output and employment fall prematurely at levels of per capita income much lower than those at which developed economies started to deindustrialize.

‘leapfrog’ development. This implies that today the term ‘industrial policy’ can be applied more broadly (Stiglitz and Greenwald 2014; Otsubo and Otchia 2020) and that there is an even bigger potential to create productive and decent jobs, stimulate innovation, and enhance productivity across sectors. But, to make it a reality, developing countries need to enhance their policy capability (Ohno 2013b) and design and implement industrial policies adapted to today’s interdependent and connected world, while taking account of country-specific conditions.

Industrial policy has been one of the most debated issues among academics. However, in recent years views have converged, and the nature of debates has shifted from theoretical and ideological controversies to the practical aspects of industrial policy. Now, the main question is *how* to apply industrial policy and *what* instruments to select, rather than *whether* to engage in it (Rodrik 2008; Lutkenhorst 2018). Nevertheless, there are limited studies that analyze practical aspects of industrial policies from developing countries’ perspectives, especially how to formulate and implement them in ways that are country-specific and tailored to the current global context.

For two reasons, we believe that Japan can make useful intellectual contributions to the industrialization of developing countries by sharing its experiences of catch-up and development cooperation. First, Japan is the first non-Western industrializer, as the experiences of Meiji modernization and post-World War II economic development show. Based on the country’s experiences, Japanese researchers, practitioners, and private sector have fostered distinctive perspectives and approaches to industrial development (Ohno 2013a). These include: (i) the importance of learning, selective adopting, and adapting advanced technologies and knowledge to Japanese culture and systems (*translative adaptation*); and (ii) real-sector concern with concrete thinking, field (*gemba*) orientation, and close partnership between government and the private sector, as were observed in its industrial policies. Second, such perspectives have been strongly reflected in Japanese industrial development cooperation. Japanese researchers and aid practitioners have been deeply engaged in supporting the industrialization of developing countries for many decades, including through intellectual cooperation. Particularly, the support to industrial policy formulation and implementation is the area where relatively few donors possess experience offering intellectual support.

As traditional development challenges continue while the new shape of industrial development is emerging, it is important to revisit the Japanese perspectives on industrial policy and its experiences offering policy support for industrial development in order to draw implications for today's developing countries. These could be also useful to the international development community supporting their endeavor.

As an overview of the entire report, this chapter introduces key concepts and the Japanese perspectives on industrial development and policy support. It is structured as follows. Section 2 reviews debates over industrial policy and points out recent converging views on the need to give attention to practical aspects of industrial policymaking. Section 3 discusses the importance of local learning in the process of industrialization by introducing the concept of *translative adaptation*, terminology used by Japanese anthropologist Keiji Maegawa (1994, 1998, 2000). Section 4 introduces Japanese perspectives on industrial development and development cooperation, fostered through its own catch-up experiences. Section 5 presents Japanese policy support for industrial development as one of the options for its intellectual cooperation. It then introduces the development thinking and policy engagement of two prominent intellectual leaders—Saburo Okita (1914-93), architect of Japan's postwar economic reconstruction program as planner and economist, and Shigeru Ishikawa (1918-2014), Japanese development economist known for the theory of underdevelopment of the market economy. The final section summarizes the remaining chapters.

## **2. Why Industrial Policy Now?**

Despite the general recognition of the importance of industrial development, there have been protracted debates over the justification for and usefulness of industrial policy over the past decades. The debates were largely ideological, divided by two extreme views between proponents of the free market versus government-led economic development.

According to Stiglitz and Greenwald, who are proponents of industrial policy, this policy can be defined as 'any set of policies designed to encourage particular sectors or technologies' and 'any policy redirecting an economy's sectoral allocation where market incentives are misaligned with public objectives' (Stiglitz and Greenwald 2014, 22, 378). Lutkenhorst also defines industrial policy as 'deliberate measures taken by governments

to drive structural change in a desired direction’ (Lutkenhorst 2018, 53). More recently, Aiginger and Rodrik (2020) discuss the broadening scope of industrial policy, including future- and welfare-oriented perspectives to address social and environmental challenges. Taking account of these definitions as well as extensive literature reviews conducted by Warwick (2013) and UNCTAD (2016),<sup>3</sup> we define industrial policy broadly as any type of intervention or government policy that attempts to improve the business environment or alter the structure of economic activity toward sectors, technologies, or tasks that are expected to offer better prospects for economic growth or societal welfare than would occur in the absence of such intervention.

Consistent with this definition, industrial policies can be classified into horizontal (or functional) and vertical (or selective) policies. The former aims at improving the general business environment and promoting specific activities across sectors, while the latter aims at propelling specific activities or sectors (UNCTAD 2016). Compared to horizontal industrial policy where fewer disagreements are observed, vertical industrial policy has often been a point of controversy as more interventionist. Nevertheless, in reality we find that distinction between functional and selective industrial policies are less relevant than the literature suggests. As Salazar-Xirinachs et al. (2014, 20) note, when applied practically ‘even the most “general” policy measures favor some sectors over others.’

## **2.1. Evolution of industrial policy debates**

For a long time, the World Bank and the International Monetary Fund (IMF) have been regarded as the advocates of neo-classical economic ideology, which are cautious about the government’s role in industrial development. They assume that the government failures are more risky than the market failures and that the market mechanisms (if functioning) would emancipate the power of the private sector and promote industrial development. Therefore, the 1980s and 1990s saw aggressive implementation of structural adjustment operations in developing countries by the World Bank and the IMF. Based on a minimalist approach

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<sup>3</sup> Also see Otsubo and Otchia (2020) for literature reviews on industrial policy debates. They summarize three streams of research: (i) studies on the definition, instruments, and the rational, and country experiences; (ii) studies on new and emerging issues related to industrial development; and (iii) those on industrial policy evaluation (in terms of evaluation methodologies and their application).

to the role of government in industrialization, these operations urged the governments in developing countries to implement privatization, de-regulation, and trade and financial sector liberalization.

However, these views—so called ‘the Washington Consensus’—were challenged by various scholars. Among others, Amsden, Wade, and Chang argue that the neo-classical approach cannot explain the actual development outcome of East Asia where industrial policy has been accepted and practiced for long (Amsden 1989; Wade 1990; Chang 2002; Ohno 2013b). Chang also notes that not only high-performing economies of East Asia such as South Korea and Taiwan, but also many of the advanced countries including the original ‘late comers’ such as Germany, Japan, and even the United States historically adopted industrial policy, and that today’s developing countries should be given more policy space for industrial catch-up (Chang 2002). Shigeru Ishikawa also argued forcefully that the Washington Consensus did not acknowledge the possibility of underdeveloped market economies prevalent in low-income developing countries, and that this was why structural adjustment operations were less successful in Sub-Saharan Africa than East Asia (Ishikawa 1991, 1996; see also section 6.2).

At the urge of the Japanese government, the World Bank published a report on *The East Asian Miracle* (World Bank 1993). While recognizing the need for selective intervention policies implemented by the governments of high performing economies in East Asia (Japan, South Korea, and Taiwan), the report cautiously concluded that it was difficult to apply these policies in developing countries with poor institutional capacity and that developing countries should focus on policies that get basic conditions right, in combination with export promotion policies (Ohno 2013a).

While the World Bank maintained this stance for some time, the latest decade has seen notable changes in industrial policy debates. By the late 1990s, ideological debates over the two extremes—free market versus state-led growth—appeared to have faded away. When Joseph Stiglitz assumed the position of Chief Economist of the World Bank (1997-2000), he stressed the important role of the government and warned against excessive globalization. Justin Lin, who also served as Chief Economist (2008-12), proposed the theory of new structural economics, regarding industrial policy as an instrument for structural transformation of the

economy (Lin 2011). Furthermore, the global financial crisis in 2008 highlighted the risks of excessive reliance on market mechanisms and financial liberalization, and reminded us of the role of public policies in ensuring sustainable and inclusive development. The recent COVID-19 pandemic also confirms the importance of industry as a provider of essential supplies and secure workplaces.

## **2.2. From theoretical debates to practice**

As of now, the focus of the debates has shifted from ideological and theoretical aspects to practice (Rodrik 2008). The main issue of interest has moved from the question of '*if* to engage in industrial policy to *how* to apply it and what instruments to select' (Lutkenhorst 2018, 53). Compared to earlier debates around the potentials and the perils of industrial policy, today's discourse focuses more on the appropriateness of different methodologies as exemplified in Lin and Chang (2009).

In fact, leading economists have proposed various methodologies for industrial promotion, such as growth diagnostics (or the 'HRV' model named after the Harvard professors who pioneered it, Hausmann, Rodrik, and Velasco), and the Growth Identification and Facilitation Framework (GIF, as proposed by Lin). Additional various terminology has been employed such as learning, industrial, and technology policies (LIT) (Norman and Stiglitz 2015) and Technology and Innovation Policy (TIP) (Cherif and Hasanov 2019) to soften the negative image associated with industrial policy.<sup>4</sup> Other scholars such as Kenichi Ohno recommend proactive industrial policies and urge the governments of latecomer countries to enhance their policy capabilities through the step-by-step learning of international practices from comparative perspectives (Ohno 2013b).

For example, growth diagnostics is a systematic decision-tree methodology for undertaking country diagnosis and identifying the most binding constraints to growth (Hausmann et al. 2005). This focus on a limited number of key binding constraints to growth specific to each country is a major departure from the traditional approach of directing the Washington

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<sup>4</sup> It is interesting to note that the recent IMF working paper discusses industrial policy, using the terminology Technology and Innovation Policy (TIP) and even phrasing it as True Industrial Policy (Cherif and Hasanov 2019).

Consensus-style reforms in all countries. Yet, growth diagnostics has several weaknesses. First, it is driven by economic analysis, with limited attention to the political feasibility of proposed measures. Its prime concern is to identify '*what should be done*' to initiate growth—against international standards or best practices as benchmarks—rather than '*what can be done*' given the existing political and institutional constraints. Second, even if country-specific constraints are identified by this methodology (for example, bad infrastructure, low human capital, low domestic saving, property rights), they remain too general to be informative. Such findings may not be necessarily new to policymakers in developing countries. Consequently, growth diagnostics may not serve as practical guidelines for the formulation of country-specific growth strategies, leaving the task to the self-discovery of individual countries (Felipe and Usui 2008; Ohno and Ohno 2013).

Lin proposes GIF as a method to identify any latent comparative advantage industries and support their growth. GIF is based on his theory of new structural economics, and its conceptual basis is rooted in historical experience. Lin argues that in the catching-up stage, successful countries in general have targeted the industries in countries with a similar endowment structure and somewhat higher per capita income (Lin 2017)—typically, with a per capita income not much higher than twice the level of the country at hand. But, there are also views that GIF is too mechanical to be practically applied in actual industrial policy making (Ohno 2013b).

On this point, there are well-known Lin-Chang debates over GIF. While both are strong proponents of industrial policies, Ha-Joon Chang challenges Lin, by presenting a somewhat different interpretation of 'comparative advantage.' He contends that confining the policy scope to the extrapolation of past heritage (trends) is too narrow to accelerate technological upgrades or structural transformation. He argues that in order to catch up in income and technology, a latecomer country must create new comparative advantages, not just follow obvious ones. In this way, 'Lin cautions against careless choice of industries while Chang stresses creativity and risk-taking in policymaking' (Ohno 2013b, 35).

### **2.3. Reality on the ground—rising interest in industrial policy by developing countries**

In reality, many countries beyond East Asia are increasingly interested in industrial development and even prioritized it in respective development strategies. In Africa, the African Union (AU) proclaimed that ‘No country or region in the world has achieved prosperity and a decent socio-industrial life for its citizens without the development of a robust industrial sector’ (AU et al. 2008, 1). The Strategy for the Implementation of the Plan of Action for the Accelerated Industrial Development of Africa (AIDA), formulated by the AU in collaboration with the United Nations Industrial Development Organization (UNIDO) and the United Nations Economic Commissions for Africa (UNECA), is a typical example of this endeavor. Moreover, *The African Union Agenda 2063: The Africa We Want* (Agenda 2063) shows the continent’s aspiration for becoming a prosperous Africa, based on inclusive growth and sustainable development (AU 2013). Regarding economic transformation as one of the priority goals, *The Agenda 2063* emphasizes the importance of sustainable and inclusive growth, STI-driven manufacturing/ industrialization and value addition, and economic diversification and resilience. It also proposes regional industrialization hubs linked to the global value chains (AU 2013).

Ethiopia is a notable case in this regard. Although it is one of poorest countries in Sub-Saharan Africa, Ethiopia has sustained an economic growth of 10 per cent on average over the recent decade. The government has placed high priority on structural transformation and made conscious policy efforts in promoting industrialization. Arkebe Oqubay, senior policymaker and economist in Ethiopia, in his book *Made in Africa* (Oqubay 2015), analyzes how the Ethiopian government proactively designed and implemented industrial policy in three sectors (cement, floriculture, and leather footwear and apparel) through trial and error, giving attention to sector-specific details such as industrial structure, role of industry associations, and global value chains.

Now that many countries have been interested in industrial policy, the key question becomes the right way to develop it (Cherif and Hasanov 2019). So, the main issue is on the practical aspects of industrial policy, namely, its process and policy content. These include: (i) the process of setting industrial vision and strategies, and formulating and implementing policy measures; and (ii) the policy content, such as priority industries, a

mix of vertical and horizontal policy measures and their sequencing, and institutional arrangements, based on the deep understanding of the actual situation in the private sector. The debate on the proper role of government, for example, cannot be resolved in the theoretical realm alone because theory and practice are intertwined. For example, if there exist effective channels of public-private partnership, government and private firms can come to trust each other and constantly share information on global and domestic situations as well as strengths and weaknesses of local industries (Ohno 2013b, 34). Under such circumstance, government and the private sector can collaborate toward 'creating winners' for development under a shared industrial vision instead of 'picking winners' directed by the government (UNCTAD 2016). Many industrial policies have failed not due to the lack of theoretical justification but largely because of crude and inappropriate application. What the governments of developing countries need is 'hands-on instruction on how to design and execute concrete policies rather than a theoretical debate on the justification or desirability of industrial policy' (Ohno 2013b, xi-xii).

#### ***2.4. Contemporary issues on industrial policy***

The landscape of industrial development has become much more complex in the globalized world of the twenty-first century. Three mega trends are particularly worth noting (see also Chapter 10). The first is the expansion of global value chains (GVCs). The advances in communication technology and reduced logistic costs have enabled the fragmentation and geographic dispersion of individual segments of a production process while still allowing for sufficient control and coordination (Baldwin 2011; AfDB et al. 2014). This fragmentation provides opportunities for developing countries to participate in GVCs without nurturing a full-set of national industries in key sectors (Baldwin 2011) or outside the 'Flying Geese pattern' of regional production networks.

Second, the digital revolution is changing the shape of industrialization. Digital technology is transforming the process of manufacturing, enhancing efficiency and connectivity of various industrial activities through Internet of Things (IoT), and driving innovation. It also contributes to creating new businesses, typically the modern service sectors with high productivity such as ICT, financial services, and business services. As a result, manufacturing and the other sectors are becoming interdependent and mutually reinforcing (Helble and Shepherd 2019). Digital technology

also enables the emergence of start-ups, which may lead to 'leapfrog' development.

Third, there is an increased focus on societal and environmental challenges, as well as the private sector's role in providing innovative solutions for sustainable and inclusive development in the age of the Sustainable Development Goals (SDGs). Unlike the Millennium Development Goals (MDGs) which focused on poverty reduction, the SDGs include the goals related to industry, innovation, and economic growth, emphasizing such values as inclusiveness and environmental sustainability. The SDGs also regard the private sector as a key actor in achieving 17 goals through the provision of business solutions for global challenges. This global trend could importantly affect the structure of overall economic activity toward inclusive and sustainable industrialization. In this regard, Aiginger and Rodrik (2020) suggest the greening of industrial policy and new forms of industrial policy steered by employment concerns.

The COVID-19 pandemic which broke out in early 2020 has strengthened a case for inclusive, sustainable, and resilient industrial development toward 'building back better' recovery. The COVID-19 crisis has also provided an opportunity to consider the role of industrial policy from economic security perspectives in both advanced and developing countries.

These mega trends suggest that developing countries today have enhanced opportunities to industrialize, through GVC participation, the creation of leapfrog technologies, and new business models emphasizing sustainability. At the same time, they face significant challenges. In a world of GVCs, global competition is becoming even more fierce. Also, as lead firms come to occupy a key role in determining the nature of global production networks, it becomes all the more important to upgrade the capacity of host governments to deliberately exercise GVC-oriented industrial policies (Gereffi and Sturgeon 2013). These could cover such measures as the targeted attraction of foreign direct investment (FDI) and foreign buyers, local enterprise capacity building, technology transfer (including linkage development between FDI and local enterprises), efficient logistics, and industrial human resource development (JICA and GRIPS 2016). Furthermore, to make best use of digital technologies and facilitate GVC participation, skill development among the workforce and the future generation is absolutely necessary. It is important to build

effective education and training systems suitable for the digital age (World bank 2016).

For these reasons, we argue that there is a strengthened case for industrial policy in today's developing countries. As Cimoli et al. (2009, 542) state, 'more interdependent economies are likely to require more and more sophisticated measures of policy intervention by the weaker economies.' It is all the more important and necessary for developing countries to enhance their policy capability, by learning the practical aspects of industrial policymaking.

### **3. Methodology Matters: Learning and Translative Adaptation in Industrial Policymaking**

Once the need for industrial policy is accepted in today's context, we should focus on its practical aspects, namely: (i) setting vision and strategic direction; (ii) designing industrial policy instruments; and (iii) establishing a proper process of industrial policymaking. The first two aspects require an analysis of the international environment surrounding a particular country, an understanding of peculiar features of its society and economy, as well as an analysis and elucidation of the conditions newly facing the country at that point in time. This is how the Japanese government designed its postwar economic recovery program right after the World War II (1945-46) (see Section 4), as well as its industrial policy for the high-growth era of the 1960-70s (see Chapter 4). It also applies to the Chinese Communist Party's decision to adopt and implement its open-door reform policy in the late 1970s (Lin and Zhang 2019). The third aspect requires effective channels of public-private partnership, as explained earlier. It is important to 'design a setting in which private and public actors come together to solve problems in the productive sphere, each side learning about the opportunities and constraints faced by the other' (Rodrik 2004, 3).

These underscore the need for developing countries to build an internal mechanism that continuously absorbs external knowledge and adapts to the local context, so that they can design and implement country-owned development strategies (i.e. industrial policy). We should give more attention to how to develop the government's capacity for industrial policymaking, as well as private sector's response capacity, instead of using capacity constraints as an excuse for denying industrial policy.

Here, we would like to introduce the concept of *translative adaptation* and highlight the importance of building mechanisms that facilitate local learning.

### **3.1. *Translative adaptation as dynamic interaction between foreign and local systems***

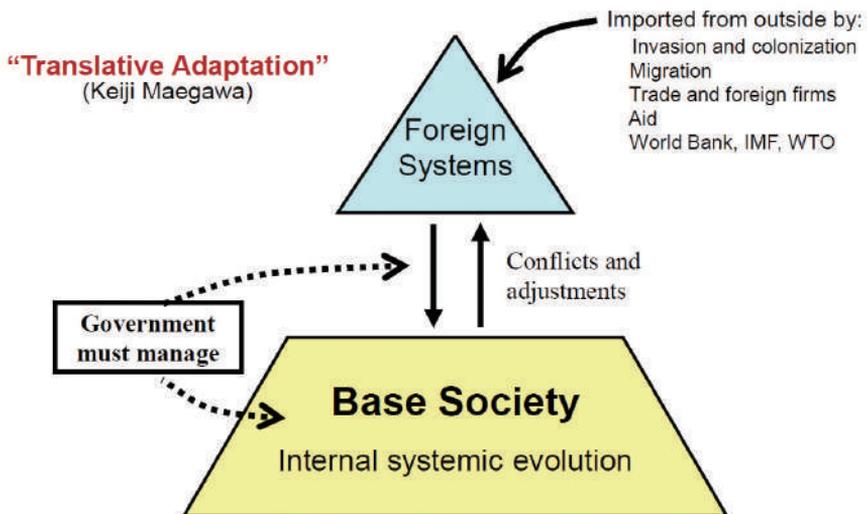
*Translative adaptation* is the concept presented by Keiji Maegawa, Japanese economic anthropologist. It refers to the process of systemic merger and the resultant dynamic interaction between a dominant foreign system and a local society. As cited below, it is about the adaptive acceptance of advanced systems and new culture by latecomer countries—often introduced from abroad through foreign aid and globalization—in the process of modernization. In this process, dynamic interaction between foreign and local systems takes place, where foreign elements would be reinterpreted and adjusted to the existing value structure and local institutions (Maegawa 1994, 1998, 2000).

[M]any nations and societies have adopted Western institutions and objects from without in order to survive (or by their own choice). However, it is important to recognize that they did not accept Western inventions in their original forms. Any item in one culture will change its meaning when transplanted to another culture, as seen widely in ethnography around the world. [...] The essence of what has been called ‘modernization’ is the adaptive acceptance of Western civilization under the persistent form of the existing culture. That is, actors in the existing system have adapted to the new system by reinterpreting each element of Western culture (i.e., ‘civilization’) in their own value structure, modifying yet maintaining the existing institutions. I shall call this ‘translative adaptation.’ (Maegawa 1994, English translation pp.174-75; underline by the author)

It is important to note that translative adaptation attaches high importance to indigenous perspectives and local learning. Development is an interactive process incorporating both ‘foreign’ and ‘indigenous’ elements (Iwasaki 1996; Ohno 2000). On the one hand, latecomer countries face the need to acquire the ‘foreign’ elements—such as modern technology,

knowledge, and organizational structure—in such forms as aid, trade, and investment by the private sector. On the other hand, each country has ‘indigenous’ elements—such as values and social institutions unique to that country—that regulate and determine the effectiveness of imported items because the ‘economy is embedded in society’ (Polanyi 1944, 57). It is often the case that a dominant foreign system imposes its norms and rules on a local society and that the latter may be forced to accept them in the face of external pressure. Nevertheless, there are examples, such as in Meiji Japan, where policymakers successfully managed the development process by selectively adopting foreign elements while retaining the basic structure of the indigenous society. In Japanese, we describe such an attempt as *Wakon Yozai* (Japanese spirit with Western learning).

Shigeru Ishikawa, a Japanese development economist, presents a similar perspective in his research without using the term ‘translative.’ Ishikawa stresses the importance of understanding the initial conditions within respective developing countries, including the stages of market development, and suggests the need to foster the will and capability within these countries to ‘adapt’ policy prescriptions advised by foreign donors to local reality (Ishikawa 1991). He emphasizes the critical role of the government in this undertaking. The perspectives of Maegawa and Ishikawa are illustrated in Figure 1.1.



Source: Adapted from Figure 1.2 in Kenichi Ohno (1998), p.14.

Figure 1.1. Development Process as Systemic Interaction

### **3.2. Importance of indigenous learning**

Stiglitz stresses knowledge as the most important source of growth, with reference to the seminal works by Robert Solow and Kenneth Arrow. As *Creating a Learning Society* (Stiglitz and Greenwald 2014) stresses, development entails learning how to learn. What separates developed from developing countries is not just a gap in resources, but a gap in knowledge. About learning, Stiglitz emphasizes two points: (i) the importance of indigenous learning; and (ii) the role of industrial policy to promote the learning process and create a learning society. He argues that industrial policies are not about picking winners but about correcting market failures in general, and creating a learning society in particular (Stiglitz and Greenwald 2014).

First, the acquisition and diffusion of knowledge must be done via indigenous learning through society-wide efforts. This is because '[a] critical aspect of "learning" is that it takes place locally and must adapt to local differences in culture and economic practice' (Stiglitz and Greenwald 2014, 375). Therefore, 'learning' prescriptions that work in some environments will not work in others (Stiglitz and Greenwald 2014). Second, manufacturing typically has greater learning spillovers than other sectors, and this is why industrial policy can be justified for promoting indigenous learning. Stiglitz emphasizes the vital role of industrial policy in creating a learning society. In this regard, he is critical about The Washington Consensus policies, derived from excessive reliance on the neoclassical model, because they paid no attention to learning. In focusing exclusively on static efficiency, these policies may have actually resulted in growth and standards of living that were lower than they otherwise would have been. Stiglitz concludes that the dynamic nature and effects of learning can outweigh short-term static losses in efficiency. These perspectives are clearly articulated as follows:

[A]ll countries have an industrial policy, but the industrial policy which is chosen by developed countries is chosen to advance their own economies, or special interests in their own economy. Even if it were easy to borrow their ideas from the developed countries, or special interests in their own economies and even if it is possible to design industrial policies that enhance the flow of knowledge from developed to developing countries, strengthening cross-border flows

of knowledge should not be the only focus of developing country industrial policy. [...] This highlights a difference between developed and developing countries, and a reason why it is important that developing countries have their own innovation policies and an industrial policy which promotes indigenous learning. (Stiglitz and Greenwald 2014, 377; underline by the author)

Such an indigenous learning process is a key element of Maegawa's translative adaptation (Maegawa 1994, 1998, 2000). Knowledge relevant to human capital accumulation cannot be bought off-the-shelf because improvement requires internalization of foreign knowledge by local residents (Ohno 2000).<sup>5</sup> International best practices—whether they are a Technical and Vocational Education and Training (TVET) system or a quality and productivity improvement approach (*Kaizen*)—have little impact unless they are effectively put to use in the local context. For example, Chakroun (2010) and Steiner-Khamsi (2006, 2014) express concern about policy borrowing and lending, as merely transferring policies from one political system to another, in the context of vocational education and training (VET) reforms. They attach greater importance on policy learning, putting strong emphasis on the development of national capacities to lead the design and implementation of reforms, by the act of local adaptation, modification, or reframing of an imported reform.

These discussions have important implications for the approach to development cooperation. Development cooperation must be provided in such a way as to facilitate the learning process by recipient partners. Donors should duly recognize that '[t]here is no "best practice" that any country can adopt that will guarantee success' (Oqubay and Ohno 2019, 3). They should have a deep understanding of uniqueness of respective partner countries and provide tailor-made advice in the process of knowledge and technology transfer. This goes beyond just sharing the best practice 'off-the-shelf' between donors and partner countries. There is a need to establish the deeper intellectual partnerships through interactive

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<sup>5</sup> Andrew, Pritchett, and Woolcock (2017) also argue that merely transplanting a best practice model is counterproductive to state capacity building, by using the concept of 'isomorphic mimicry' (which is 'looks like' substitutes for 'does'). In the context of development cooperation, this refers to the situation where developing countries are encouraged to conform the agenda set by the international community and adopt global best practice whether or not they are adapted to the local context.

dialogue.

Here, we would like to emphasize the critical importance of country ownership on policy ideas and content. Respecting country ownership has been a central agenda among the international aid community as an effort to enhance aid effectiveness (OECD 2005). However, there are cases where donors expect that ownership is a political commitment by recipient countries to donor preferences (Fraser and Whitfield 2008). We argue that this is not the case. True ownership should mean the capacity of a developing country to choose from alternative policy prescriptions. When a country decides to rely on external advice or foreign models, policy makers must conduct a thorough assessment of alternatives and carefully adapt the policy content and sequencing to the country-specific context in the design and implementation stage (Ohno and Ohno 2008).

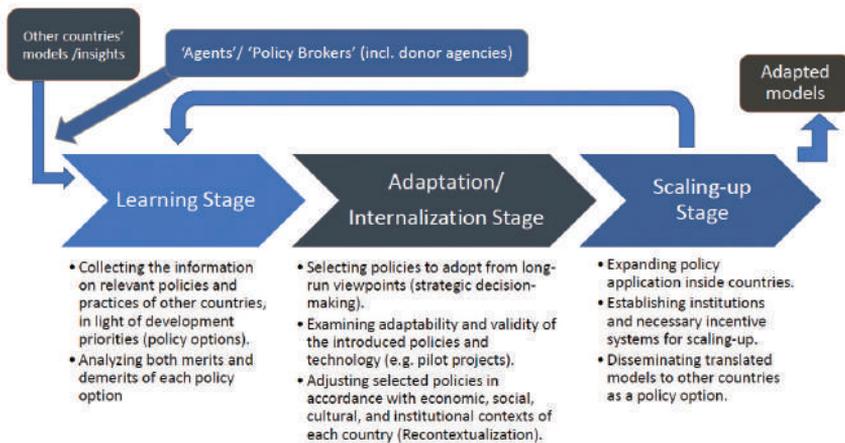
### ***3.3. Three-stages of technology transfer and learning***

Then, a key question is what are the conditions and mechanism that enable a latecomer country to absorb foreign elements effectively without losing the local value structure, and how can the country in question learn appropriate methods and procedures for merging domestic and foreign elements. Here, we argue that the detailed analysis of the process of translative adaptation and learning is needed, especially concerning: (i) how developing countries can acquire capabilities of indigenous learning; and (ii) how external partners, such as donor agencies, can facilitate and promote indigenous learning of developing countries.

In this regard, Kikuchi (2011) introduces a useful framework for understanding the process of technology transfer from advanced to developing countries. For developing countries, this can be regarded as the process of indigenous learning and adaptation of foreign technology, both soft and hard. Kikuchi's framework involves a three-staged process of technology transfer, based on the Japanese postwar experience of learning production management technology (which later was called *Kaizen*) from the United States and Europe and diffusing it after localization. These stages are: (i) learning new technology from advanced countries; (ii) examining the adaptability and validity of the introduced technology in Japan; and (iii) diffusing the technology at full-scale.

While focusing on the stages of learning specific technologies, Kikuchi's

framework can be applied to the policy learning process. Figure 1.2 shows our proposed three-stages that enable translative adaptation and local learning of industrial policymaking and implementation, building on Kikuchi's framework and the aforementioned views articulated in the existing literature (Stone 2001; Steiner-Khamisi 2006, 2014; Chakroun 2010). More specifically, the government is expected to: (i) collect the information on relevant policies and practices from other countries and analyze the merits and demerits of each policy option (learning stage); (ii) select what policies to adopt, examine the adaptability of the introduced policies, and adapt them to its own country-context (adaptation/internalization stage); and expand policy application nationwide and if successful, even disseminate these experiences to other countries as a policy option (scaling-up stage).



Source: Adapted from Junichi Mori's presentation at the 31st JASID Conference (Dec.6, 2020), which is based on Kikuchi (2011), Stone (2001), Steiner Khamsi (2006, 2014), and Chakroun (2010).

**Figure 1.2. Three-stage Process of Policy Learning and Translative Adaptation**

In fact, successful cases of Japanese industrial development cooperation can be analyzed using this framework. The Productivity Development Project in Singapore (1983-90) and the Quality and Productivity Improvement Project in Ethiopia (so called *Kaizen* project, 2009-present), supported by the Japan International Cooperation Agency (JICA), are good examples. Over many years JICA has assisted in enhancing firm capability in developing countries by transferring Japanese methods for

quality and productivity improvement. Both Singapore and Ethiopia received JICA support to introduce *Kaizen*. However, these countries took initiatives to modify and adapt the Japanese methods to their country-specific circumstances rather than simply copying them.<sup>6</sup> The Technology Promotion Association (Thailand-Japan) (TPA), a non-profit organization (NPO) that supports industrial human resource development, is another brilliant example. TPA was established in 1973 to promote industrial development in Thailand, at the initiative of Thai students who graduated from Japanese universities and ex-trainees of the Association for Overseas Technical Cooperation and Sustainable Partnerships (AOTS). TPA has developed in four stages: (i) 'technology transfer': learning from Japanese experts; (ii) 'technology promotion': nurturing Thai experts while reducing dependence on Japanese experts; (iii) 'technology diffusion': building the capacity of local companies through training and consulting activities; and (iv) 'technology education': the establishment of Thai-Nichi Institute of Technology (TNI) as a university specialized in Japanese-style manufacturing by the Thai people for the Thai people (Ohno 2017).<sup>7</sup>

### **3.4. Learning and translative adaptation in industrial policymaking**

In sum, in the context of development, translative adaptation can be understood as the process of global integration by a latecomer country while maintaining strong country ownership over policy content, institutions, technology choices, social systems, and values. It is also the process of industrial catch up—acquiring foreign knowledge and technology, adapting to country-specific circumstances, scaling up, and eventually institutionalizing them.

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<sup>6</sup> For details, see Volume II (quality and productivity improvement) of this research project (Jin and Ohno 2022) regarding the Singaporean and African experiences of introducing *Kaizen*. *Kaizen* is a Japanese management approach of continuous improvement to achieve enhanced quality and productivity. It was originally developed during the postwar period in Japan, where it supported the high growth of the Japanese manufacturing sector. It is a participatory approach that places importance on human resource development. (JICA website: [https://www.jica.go.jp/english/news/field/2018/180625\\_01.html](https://www.jica.go.jp/english/news/field/2018/180625_01.html).)

<sup>7</sup> Additional information on TPA was provided by the presentation by Hiroyuki Yoneda, former Executive Director of Japan-Thailand Economic Cooperation Society (JTECS), 'JTECS-TPA-TNI model: Introducing a successful case of Japanese technical cooperation,' July 2016 as part of the Research Project 'Building Strategic Network with Asian Human Resources Familiar with Japanese *Monozukuri*,' supported by Asia Pacific Research Institute (APIR).

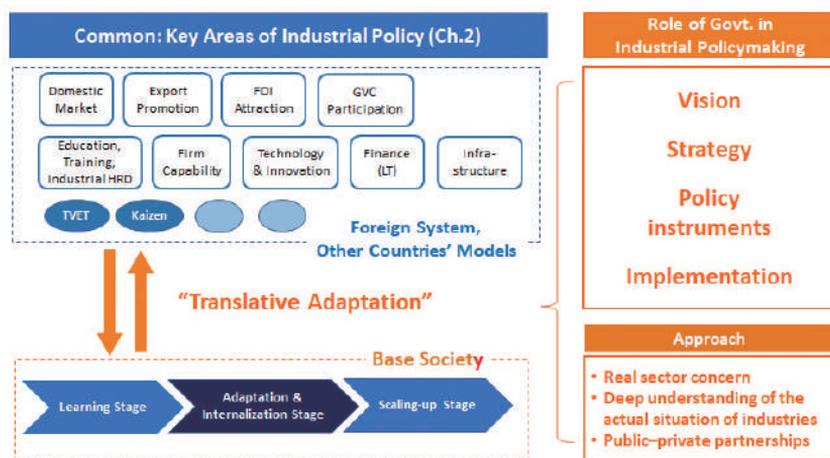
As the above discussions suggest, translative adaptation does not naturally occur as a result of market mechanisms. To succeed, the process must be managed with careful deliberation and trial and error. Mindsets and institutions that facilitate a smooth systemic merger must be designed and installed. The government has a critical role to play in establishing the systemic aspect of learning—as a learner (policy learning) and a facilitator of learning by the private sector (technology learning)—with a thorough understanding of each country’s situation and surrounding external environment (Oqubay and Ohno 2019).

The key ingredients of translative adaptation and effective local learning can be summarized as follows. The first three points are those that developing countries must be mindful of, while the last is for donors who are urged to rethink their role in development cooperation.

- Attention to the uniqueness of each country and society by understanding country-specific circumstances (e.g., resource endowments, stages of development, social structure, and values), and envisioning and designing diverse paths to development;
- Country ownership that promotes the proactive role of government (policy learning) and private sector development (technology learning);
- Process orientation with room for trial and error to establish systems that properly correspond to the stages of learning, adaptation and internalization, and scaling-up; and
- Rethinking the role of development cooperation, giving due consideration to the above three aspects to facilitate translative adaptation and effective learning of partner countries.

Figure 1.3 provides a framework for considering the translative adaptation and local learning process in the context of industrial policymaking.

Provided that industrialization is a national goal, the government is expected to assume three roles when designing and implementing industrial policies: (i) presenting overall vision and strategic direction of the country’s industrialization; (ii) designing and implementing policy instruments; and (iii) establishing a proper process of industrial policy formulation and implementation, through close partnership with the private sector. The industrial vision determines strategic direction and priorities, and specific policy instruments are prepared and applied either



Source: Elaborated by the author.

**Figure 1.3. Translative Adaptation in Industrial Policymaking**

horizontally across industrial sectors or vertically for selected sectors.

First, there are nine areas of industrial policy: (i) education, training, and industrial human resource development; (ii) firm capability, (iii) technology and innovation; (iv) finance; (v) infrastructure; (vi) domestic markets; (vii) export promotion; (viii) FDI attraction; and (ix) GVC participation. As analyzed in Chapter 2, foreign experts and donors generally accept and recommend these areas as key components of industrial policy packages for developing countries.<sup>8</sup> In each area, relevant policy instruments can be designed (for example, TVET, *Kaizen*, or industrial zones). If applied across sectors, they can serve as horizontal industrial policies. If targeted at selected sectors or industries, they can function as vertical industrial policies.

Second, it is often the case that developing countries receive advice from foreign experts and donors on these industrial policy instruments or a broader policy package. Some of them may be models copied from advanced countries or emerging economies. Here, it is important to ensure that the introduction of knowledge, technology, and institutions based on

<sup>8</sup> See Chapter 2, which discusses types of industrial policies, key areas, and the process of their formulation and implementation, based on the existing literature (such as Crespi et. al 2014; Andreoni 2017; Ohno 2013b).

foreign advice be accompanied by the process of indigenous learning with translative adaptation in respective countries. This requires an internal mechanism within a country that absorbs foreign knowledge and adapts to the local context and scaling-up, as indicated by Figure 1.2 of three-stage process of policy learning. While such a process of indigenous learning should take place in both the public and private sectors, the government's role is critical in supporting the learning of the private sector, especially in the early stage of development where the private sector is often weak.

Third, it should be noted that in the case of a latecomer, the government itself is learning industrial policymaking. Although Meiji Japan is often hailed as a successful case of industrial catch-up, leaders there made many mistakes and corrected them through trial and error, until they finally developed and concretized their nationally-owned industrialization vision (see Chapter 5). Furthermore, to be effective in setting industrialization vision, strategies, and specific policy instruments, the governments of developing countries must possess strong interest in the real economy, deep knowledge of the actual situation of industries, and mechanisms for communicating with the private sector. The experiences during the Japanese postwar economic reconstruction and high-growth eras clearly show how economic technocrats at that time worked proactively in all these aspects and supported national leaders (see Section 5 and Chapter 4).

Bearing these points in mind, in the remaining chapters of this volume, we analyze diverse country cases of industrial policies in terms of their scope, method for policy formulation and implementation, and learning experiences. We also present examples of Japanese industrial policy support as a possible way to facilitate local learning and translative adaptation in developing countries.

#### **4. Revisiting Japanese Experiences of Industrial Development and Development Cooperation**

In this section, we examine key features of the Japanese approach to industrial development and development cooperation from a comparative perspective suggested by Yanagihara (1998). We also discuss diverse approaches to development cooperation among donors and consider their implications for the learning and translative adaptation processes by partner countries.

#### **4.1. Framework vs. ingredients approach to economic development**

Yanagihara makes an interesting comparison between the Japanese and Western approaches to economic development (Yanagihara 1998). According to him, there are two contrasting ways of understanding and analyzing economic development. One focuses on the 'framework' of an economic system and its management; the other focuses on an economy as the sum total of its 'ingredients' or component parts. The 'framework' represents rules of the game according to which economic agents make decisions and take action in a given economy. In contrast, the 'ingredients' approach refers to tangible organizational units such as firms, official bureaus, and industrial projects and their aggregations such as industries, sectors, and regions. The ingredients approach conceives of the economy as a collection of these components. It takes a deep interest in how individual players are doing in the field and the outcome of each game. As general tendency, the 'framework' approach is prevalent in Western (especially Anglo-Saxon) donors, while the 'ingredients' approach is more common in Japan and East Asia (Ohno 2013a, 146).

It is possible to draw an analogy between the two contrasting approaches and the debates over industrial policy. The 'framework' approach supports a small government, limiting its role to the regulatory framework for the market mechanism, while the 'ingredients' approach supports a more proactive role of the government, giving attention to key sectors and actors within the economy. These differences are typically observed in industrial policy debates as explained in the previous section.

The Japanese approach to industrial development is unique in its real sector concern, where project details and concrete methods matter. Japanese development cooperation exhibits a profound interest in individual sectors and concrete projects at *gemba*—a place where real action takes place such as factories and crop fields. While the Western or Anglo-Saxon approach, as typically exhibited by the World Bank, the UK, and the US, has a strong focus on overall fairness and the improvement of the investment climate such as Ease of Doing Business (Ohno 2013), Japanese development cooperation tends to pay greater attention to technology, labor cost and quality, demand trends, product mixes, industrial structure, marketing and logistics efficiency, and the like, in the concrete context of targeted sectors and regions. Training factory workers for *Kaizen* (Japanese-style

quality and productivity improvement), laying out capital equipment efficiently, and matching crop species with particular soil are among things that are seriously discussed (Ohno and Ohno 2013; Ohno 2013a).

Certainly, Japan's approach to development cooperation shares many commonalities with the Western approach. Both approaches are necessary, and they are complementary and mutually reinforcing. Nevertheless, as a matter of emphasis, the Western donors tend to focus on the policy and institutional framework, such as market functions, principles of government interventions and budgets and public investment, empowerment and participation monitoring, administrative efficiency, and accountability. Japan is more interested in the real sector, with attention to the abilities and problems of individual firms in the private sector that play a key role in the market economy, the structure economy, as well as human, technological, production, and logistical details of individual industrial sectors and regions in recipient countries (Ohno 2013a). Let us think about a football game. To realize a fair game, clearly defined rules and referees facilitating a level-playing field must be put in place. At the same time, individual players must be coached in a tailor-made way so as to maximize their talents. The two approaches are complementary.

#### ***4.2. Normative vs. hands-on approach in development cooperation***

Another perspective which distinguishes Japan from other donors is their practical approach to development cooperation. Broadly speaking, the practice of development cooperation can be classified in two ways. One is a normative approach and the other is a hands-on approach. The former focuses on advising international best practices formed in developed countries as norms (Steiner-Khamsi 2014). This approach sets benchmarks and ranks developing countries against them. For example, the Doing Business Indicators and the Worldwide Governance Indicators extract desirable attributes of business-friendly government and governance from the Western best practices.<sup>9</sup> While Growth Diagnostics, which look for unique binding constraints to growth in each country, may be an important departure from the Washington Consensus approach, its logic

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<sup>9</sup> See the World Bank's websites: <https://www.doingbusiness.org/en/doingbusiness>, <https://info.worldbank.org/governance/wgi/>.

tree still tries to find a country's weakness against international norms.

The latter, hands-on approach emphasizes field-orientation and joint work side-by-side with developing country counterparts so they can learn skills and technology through on-the-job training (OJT). This approach allows for real-sector pragmatism, more flexibility, and easier adaptation to the local context. The hands-on approach supports step-by-step learning among the counterparts, by solving specific problems toward achieving concrete goals, for example building a large industrial zone with deep seaports, raising car production to 1 million units per year, producing a certain number of ICT engineers, etc. It is in sharp contrast to the 'Doing Business' or 'Good Governance' approach that try to improve the business climate or governance scores generally with no specific goals.

The advantage of a normative approach is the provision of context-free 'explicit knowledge' (Nonaka and Takeuchi 1995).<sup>10</sup> Policymakers in developing countries may feel easier and are quicker to learn standardized solutions or best practices 'off-the-shelf.' On the other hand, a hands-on approach stresses the sharing of context-specific 'tacit knowledge' (Nonaka and Takeuchi 1995) with counterparts through joint work and interactive communications on the ground. While the practices and experiences of advanced countries may be explained to the counterparts for reference, they are not presented as packaged solutions. The counterparts are encouraged to develop their own policies or systems, based on a concrete assessment of the local context. In other words, this approach values the policy learning process of counterparts over the delivery of ready-made answers.

#### ***4.3. Dynamic capacity development as a way to facilitate translative adaptation***

Real-sector concern (the 'ingredients' approach), field-orientation, and joint work (the 'hands-on' approach) are inter-related features of Japanese development cooperation. This development cooperation approach supports dynamic capacity development of partner countries by

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<sup>10</sup> Explicit knowledge is oriented toward a context-free theory, while tacit knowledge is created in a specific, practical context. The latter is related to the type of knowledge unique to Japan and the East. Sharing tacit knowledge between individuals is an analog communication process that requires 'simultaneous processing' of the complexities of issues shared by all individuals. See Nonaka and Takeuchi (1995) for the details.

facilitating the process of learning and translative adaptation. By contrast, the normative approach runs the risk of encouraging policy borrowing as it offers off-the-shelf packaged solutions as international standards (Chakroun 2010; Steiner-Khamsi 2006, 2014).

Field-orientation and joint work provide ample opportunities for government leaders and policy makers to interact and formulate policies over an extended period. Backed by the knowledge of country-specific contexts from ground perspectives, these help to establish concrete goals that are both desirable and feasible for each country. Instead of comparing countries across the board to rank them, or finding weaknesses in individual countries relative to global norms, the dynamic capacity development approach tries to identify possible future paths unique to each country. Concrete action plans are prepared to realize such growth potentials that may designate specific industries or areas to be developed, or a time-bound plan to build human capital, power, transport, and telecommunication networks that are needed to develop them (Ohno 2013a, 156).

Nevertheless, we should also recognize constraints of the dynamic capacity development approach. This approach demands much patience and persistence from counterparts because they are encouraged to find their own tailor-made solutions through joint work with foreign experts. Learning tacit knowledge from foreigners usually takes more time compared to learning well-documented explicit knowledge. Moreover, foreign donors must be equally patient. If donor agencies demand only quick results, foreign experts and consultants may not be motivated to adopt this approach. Another prerequisite is strong policy ownership. If counterparts are not willing to go through intensive policy learning processes, this approach will fail.

#### ***4.4. Relevance of East Asian development experience—from a translative adaptation perspective***

Replicability of the East Asian development model is one of the frequently asked questions by policymakers and researchers in developing countries (Newfarmer et al. 2019; Lutkenhorst 2018). It is generally understood that East Asian economic success is attributable to an export-led, manufacturing-centered development model. This is a development model based on regional production networks among economies with

different levels of industrialization ranging from labor-intensive to capital or knowledge-intensive manufacturing (the Flying Geese pattern of development). As discussed earlier, in a contemporary world, developing countries can consider industrial policy options more broadly, with attention to interplays among the ongoing mega trends. If so, are East Asian (including Japanese) development experiences still useful and/or relevant to developing countries today?

Our answer to this question is affirmative, for two reasons. First, what matters most is the methodology for industrial policy formulation and implementation and the capacity for local learning, rather than the replicability of a particular development model. While the Flying Geese pattern of development yielded effective results in East Asia in the late twentieth century, this should not be considered a 'one-size-fits-all' policy for industrial development. Translative adaptation requires that 'any policy must be crafted and executed in the context of a particular age, society, and international environment' (Ohno 2013b, 25). Stiglitz also argues that 'deconstructing' the success of the export-led manufacturing model is essential for developing new strategies of structural transformation.<sup>11</sup>

Second, as the cases of Malaysia, Brazil, and Chile show (Chapters 2 and 3), even in the previous century, industrial policies were applied not only in the manufacturing sector, but also in non-traditional agriculture or fishery sectors. There are diverse paths to industrial development which do not rely narrowly on manufacturing.

On this point, the key message of a Japanese official policy study can also be cited (JBIC and JICA 2008). This was The Report of the Stocktaking Work on the Economic Development in Africa and the Asian Growth Experience, published in 2008 for African countries and the international community at the occasion of the Fourth Tokyo International Conference for African Development (TICAD IV). The report stresses the diversity of industrial development strategies adopted in Asian countries, with reference to cases for natural resource-rich countries (Indonesia, Malaysia), resource-poor countries (Thailand), and ICT development as a new comparative advantage (India).

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<sup>11</sup> Remarks made by Joseph Stiglitz at the side event 'Quality Growth in Africa: Towards Sustainable and Resilient Development' for the Seventh Tokyo International Conference on African Development (TICAD 7) held in Yokohama on August 29, 2019.

While sharing these commonalities [stated above], the Asian experience of industrialization also exhibits substantial diversity depending on time and place. Each country adopted an industrialization strategy tailored to the economic environment at the time and corresponding to its own comparative advantage. (JBIC and JICA 2008, 6)

## **5. Development Policy Support: An Approach to Facilitate Translative Adaptation**

Development policy support is one type of Japanese intellectual cooperation through which they provide hands-on policy advice on the priority development agendas of partner countries. It is often implemented in combination with policy dialogue with national leaders and key policymakers to share relevant knowledge in an interactive way. Development policy support is not one-time advice, but rather usually lasts over a few to several years. Its scope varies depending on the needs and requests from partner countries, but in most cases, industrial development is included as a key priority area (see Table 1.1). The objective and nature of development policy support differ according to the prevailing situation of the country, ranging from the formulation and implementation of development (or industrial) policies to systemic transition to the market economy, emergency crisis response, and others. As shown in Chapters 6-9, such development policy support and policy dialogue, if properly conducted, can facilitate local learning by policymakers in developing countries who are keen to acquire foreign knowledge and technologies with strong policy ownership.

### ***5.1. Development policy support with policy dialogue: a Japanese way***

Starting with Argentina in the mid-1980s, Japan has conducted development policy support and dialogue with many partner countries. It usually starts with a national leader of a developing country requesting Japan to discuss development strategy generally and/or teach and transfer the experiences of East Asian development.

The first large-scale development policy support mission was led by Saburo Okita, an architect of the Japanese postwar economic recovery program, who later served as a diplomat and development policy advisor

in many countries including China's open door reform policy in the late 1970s/early 80s, in cooperation with JICA. JICA mobilized many academics and aid consultants to work with Okita, who gave diagnosis and recommendations to the Argentine government, which faced a serious economic crisis in the late 1970s through 1985. The final 'Okita Report' also included information on the Japanese postwar economic miracle (see Chapter 6). Subsequently, in countries such as Vietnam, Indonesia, Laos, and Myanmar, JICA mobilized a large number of academics, business leaders, and aid consultants to identify and study key issues, and offer policy advice. In Vietnam, Shigeru Ishikawa, a prominent development economist with profound knowledge on the Chinese experience of transition to a market economy, led a series of joint research and policy advisory services at the request by the Vietnamese top leader for six years, in a project commonly known as the 'Ishikawa Project' (see Chapter 7). More recently, industrial policy dialogue between Japan and Ethiopia has been implemented since 2008 at the request of Ethiopian Prime Minister Meles Zenawi, who had a strong interest in East Asian development experiences (see Chapter 8).

In Thailand, in the aftermath of the 1997 Asian financial crisis, JICA dispatched Shiro Mizutani, a senior official of the Ministry of International Trade and Industry (MITI, currently, Ministry of Economy, Trade and Industry (METI)), to conduct a series of dialogues with Thai policymakers including the Minister of Finance and the Minister of Industry (see Chapter 9). Mizutani's advisory work was supported and followed up by many other Japanese experts. Japanese support gave strong attention to real sectors and gave concrete advice on the recovery of the real economy, which included the SME development plan (the 'Mizutani Plan'). While the IMF and the World Bank also extended emergency financial support, they primarily focused on financial and fiscal stabilization. Thailand is Japan's long-standing industrial partner, and two economies are closely linked through trade, investment, and economic cooperation including ODA. This industrial policy support to Thailand was provided in close partnership with Japanese enterprises. Due to its crisis-response nature, the duration of advisory work was relatively short compared to other Japanese policy support programs. Even so, it laid an important foundation for the subsequent industrial development of Thailand.

## **5.2. Comparison of Japanese development policy support with other donor practices**

As Table 1.1 shows, Japanese (JICA-supported) development policy support is diverse in terms of scope and sectors, duration, participants, frequency, and so on. Some of them are led by policymakers, while others are conducted by Japanese academics and/or joint teams consisting of various experts and consultants. Nevertheless, there are several commonalities among them.<sup>12</sup>

First, Japanese development policy support is designed and implemented in a given context of particular partner countries, which differ significantly by the development stage of the market economy, internal and external circumstances, and their governments' policy capacity. Because of this customized approach, there is no standardized method, and even mobilized aid schemes depend on individual cases. JICA, the main implementing agency, has no aid scheme category for policy support or policy dialogue per se, and the modality best fit for each occasion is employed. The coverage and focus may change, subject to shifting priorities and interests of partner countries. While Ethiopia-Japan policy dialogue focuses on industrial development (Chapter 8), the Okita Report in Argentina (Chapter 6) and the Ishikawa Project in Vietnam (Chapter 7) dealt with broader topics including macroeconomics and agriculture. Most of the cases include elements of policy dialogue and joint research, but emphases vary depending on what a partner country wants and what the Japanese team (in particular, its leader) perceives as an effective way to respond. Joint research was central to the Ishikawa Project, while extensive policy dialogue with national leaders has been a key feature of the Ethiopia-Japan intellectual cooperation. In the case of Thailand's Mizutani Plan (Chapter 9), action-oriented policy advice and a quick follow-up by Japanese industrial cooperation were emphasized in the aftermath of the financial crisis, rather than policy dialogue from a long-term perspective.

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<sup>12</sup> In addition to large-scale development policy support listed in Table 1.1, JICA dispatches a number of long-term policy advisors from various sectors to the governments of developing countries. Hashimoto (2007) compiled reports that documented their actual experiences. The perspectives and approaches to economic development in these reports largely match those discussed in Section 3.

**Table 1.1. Japan's Development Policy Support to Developing Countries (Selected List)**

Country	Period	Head/key players	Purpose and content
Argentina	1985-1987 1994-1996 (follow up)	Saburo Okita (former foreign minister, IDCJ), Hirohisa Kohama (IDCJ), Akio Hosono and Kotaro Horisaka (professors), etc., JICA	Comprehensive study on agriculture & livestock farming, industry, transport and export promotion (Okita Report). The subsequent phases focused on proposing measures for strengthening economic relationship between Argentina and Japan.
Vietnam	1995-1996 1996-1998 1998-1999 (follow up) 1999-2001	Shigeru Ishikawa (professor) etc., JICA	Large-scale joint study on macroeconomy, industry, agriculture, enterprise reform, and crisis management (at the time of Asian financial crisis), etc.
Paraguay	1998-2000	Kagehide Kaku (DIR), Hidesuke Kotaajima (DIR), Akio Hosono (professor) etc., JICA	Study on economic development, focusing on competitiveness and export promotion (clusters & agro-industry chain, etc.)
Thailand	1999	Shiro Mizutani (former MITI official), JICA	Study on the master plan for SME promotion policy (Mizutani Plan)
Indonesia	2000	Shujiro Urata (professor), JICA	Policy recommendations for SME promotion
Myanmar	1999-2002	Konosuke Odaka (professor) etc., JICA	Study on agriculture, rural development, industry, trade, finance, ITC, etc.
Mongolia	1998-2001	Hiroshi Ueno and Hideo Hashimoto (ex-World Bank economist and professor)	Study on the support for economic transition and development
Indonesia	2002-2004	Takashi Shiraishi, Shinji Asanuma, and Shujiro Urata (professors) etc., JICA	Economic policy support for macroeconomic management, financial sector reform, SME promotion, private investment promotion, democratization, decentralization and human resource development
Laos	2000-2005	Yonosuke Hara (professor) etc., JICA	Study on macroeconomy, finance, state enterprise, FDI and poverty reduction, etc.
Vietnam	2000-present	Japanese embassy, JICA, JETRO, JBIC	Bilateral joint initiative to improve business environment and strengthen competitiveness through 2-year monitoring cycle of action plans
Ethiopia	2009-2011 2012-2016 2017-present	GRIPS Development Forum (Kenichi Ohno, Izumi Ohno), Japanese embassy, JICA	Bilateral industrial policy dialogue. Method for policy formulation & organizational arrangements, <i>Kaizen</i> , basic metals & engineering, productivity movement, export & investment promotion. The 3rd phase is underway

Country	Period	Head/key players	Purpose and content
Myanmar	2012-2015	Konosuke Odaka, Shigeru Matsushima, Toshihiro Kudo (professors), METI, JICA	Support to economic reform program, covering economy & finance; trade, investment & SME support; and agriculture & rural development.
Laos	2019-2020	Toshiro Nishizawa, Terukazu Suruga, Takuji Kinkyō, Kazue Demachi, Fumiharu Mieno (professors), MOF, JICA	Joint policy research and dialogue program for fiscal stabilization. Fiscal & debt management, resource export management, balance of payments, financial system development.

Source: Aauthor's research based on JICA information.

Abbreviation: DIR (Daiwa Institute of Research, GRIPS (National Graduate Institute for Policy Studies), IDCJ (International Development Center of Japan), JBIC (Japan Bank for International Cooperation), JETRO (Japan External Trade Organization), JICA (Japan International Cooperation Agency), METI (Ministry of Economy, Trade and Industry), SME (small and medium enterprises), MOF (Ministry of Finance).

Note: This table lists policy dialogues that are large-scale or worthy of special attention. Besides there, Japan offers policy advice through dispatching advisors to heads of state or ministers, expert dispatches, drafting reports on development strategy, training courses and site visits, conferences and seminars, etc. in various scale and duration.

Second, the Japanese approach differs from normal technical assistance with narrowly prescribed terms of reference or a standardized policy matrix, which was typically found in the structural adjustment operations supported by the World Bank during the late 1980s to the 1990s.<sup>13</sup> It is also unlike knowledge sharing seminars and study tours organized by an advanced country's donors to publicize its past achievements. Japan's development policy support cites and draws upon concrete cases in countries most appropriate for the problem at hand, including those in middle- and low-income countries around the globe, not just Japanese experiences which are usually too complex or special for most latecomer countries to digest and practice.

Third, Japan's development policy support is unique in that it aims to strengthen the state's role and policy capacity in assisting industrialization rather than reducing the scope of government intervention. Moreover, its content is largely real-sector oriented. While Western donors and

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<sup>13</sup> The Ishikawa Project clearly separated donor policy advice from financial support. Unlike the case of the World Bank's structural adjustment operations, it had no policy conditionalities. Recalling his advice to the Vietnamese authority in market transition, he stressed that such an approach contributed to building mutual trust between Japanese and Vietnamese researchers and policymakers (Ishikawa 2005).

international organizations also conduct ‘policy dialogue,’ their topics tend to be less industrial and more focused on macroeconomic, legal, social, or governance issues. Even when industrial subjects are discussed, they are usually cross-sectoral problems such as ICT, globalization, green growth, and enterprise reform rather than sector-specific targeting or planning. Korea also offers large-scale policy cooperation to developing countries called the Knowledge Sharing Program (KSP), and industrial development is one of the topics supported by KSP. The approach taken by KSP is far broader and more standardized than Japanese policy support.

## **6. Fathers of Development Policy Support and Policy Dialogue: Development Thinking and Practices of Saburo Okita and Shigeru Ishikawa**

There are two distinguished economists—Saburo Okita and Shigeru Ishikawa—who made valuable contributions to articulating the Japanese perspective on economic development and establishing the foundation for Japanese-style policy dialogues with developing countries. During the latter part of their professional lives, Okita and Ishikawa both spent considerable time and energy advising developing countries on strategies for economic development. They also shared similar perspectives on economic development of latecomer countries, such as attention to country-specific initial conditions, emphasis on productive sectors in general and industrial development in particular, the importance of having a long-term perspective, and the critical role of government. They did much to shape the Japanese development thinking and approach to development cooperation. This section introduces their economic thoughts and engagement in policy dialogues with developing countries.

### **6.1. Saburo Okita**

Saburo Okita is a well-known official economist and planner who designed the Japanese postwar economic reconstruction program in the late 1940s and subsequently led the formulation of the medium- and long-term economic plans during the high-growth era from inside the government.<sup>14</sup> Later, he served as the President of the Overseas Economic

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<sup>14</sup> Immediately after World War II, Okita was associated with the Ministry of Foreign Affairs Research Bureau charged with the postwar economic reconstruction program, then worked at the Economic Stabilization Board. From 1954 to 1960, he was at the Economic Planning Agency (EPA), responsible for the first to fifth White Paper on the

Cooperation Fund (OECF, 1973-77) and the Minister of Foreign Affairs (1978-80) when he became closely engaged in North-South relations. After retiring from his official positions, Okita further expanded his scope of advice to and policy dialogues with developing countries through numerous international forums as well as bilateral policy discussions to share Japanese experiences of economic development. Economic policy advice to Argentina, which produced a report widely known as the Okita Report, was a pioneer work in Japan's intellectual cooperation in developing countries (see Chapter 6 for details).

### **6.1.1. Designing the postwar economic reconstruction program and development strategy**

Okita made notable contributions to postwar reconstruction of the Japanese economy through three approaches.<sup>15</sup> First, he organized the Postwar Problem Study Group immediately after the end of World War II by inviting prominent officials and scholars, which led to the establishment of the Special Survey Committee of the Ministry of Foreign Affairs and the compilation of a seminal report *The Basic Problems of Japan's Economic Reconstruction* (hereinafter, the 'Basic Problems' report) in 1946 (MOFA 1946).<sup>16</sup> The report analyzed the conditions of the war-damaged Japanese economy and outlined a reconstruction strategy based on heavy industries, with a view to Japan's participation in the international trade system. It also served as a counterproposal to the General Headquarters Supreme Commander for the Allied Powers (GHQ/SCP), which occupied Japan from 1945 to 1952 and initially opposed to a full recovery of heavy industries in Japan to prevent the country from regaining military power.

Second, he was engaged in developing a policy proposal called 'the Priority Production System' at the Coal Subcommittee, which was a private advisory group of Prime Minister Shigeru Yoshida, chaired by Professor Hiromi Arisawa of the University of Tokyo. At that time, coal

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Japanese Economy.

<sup>15</sup> The three contributions were referred by Mitsuya Araki, Chief Editor of International Development Journal (the author's interview on October 29, 2019).

<sup>16</sup> Toward the end of the war, young engineers including Saburo Okita and Yonosuke Goto knew that Japan would lose, and decided to organize study meetings to discuss post-war recovery strategies. The first meeting took place on August 16, 1945—one day after Japan's defeat. They met every week with the attendance of prominent officials and academics, with Okita and Goto serving as the secretariat. The study group was later officially recognized as MOFA's Special Survey Committee.

was the only domestical energy source produced in adequate amounts in Japan (JICA 1987). The Priority Production System, adopted in December 1946, channeled remaining scarce resources into a few priority industries (i.e., coal, iron, and steel), using them as a catalyst to kick-start the industrial sector and to rebuild the national economy as a whole. This plan was quite successful and the Japanese economy began to recover as early as in 1947.

Third, Okita designed an export promotion strategy in late 1953. Recognizing that Japan stood between advanced and developing countries in terms of development stage, it advocated a two-pronged export promotion strategy of (i) exporting capital-intensive industrial products to developing areas of East Asia; and (ii) exporting labor-intensive industrial products to advanced countries, especially the United States. He was Director General of the Economic Planning Agency (EPA) when this strategy was adopted and implemented successfully, achieving the export target of 2 billion US dollars by 1955.<sup>17</sup> It can be said that he already had a vision to implement the Flying Geese model of development as Japan's export promotion strategy and actually put it into practice.

The 'Basic Problems' report was a monumental work for Japan's postwar reconstruction plan (Shimomura 2020). Discussions at the Postwar Problem Study Group laid out a blueprint for this report and subsequent strategies. These documents advocated for:

- The systematic assessment of the initial conditions of the Japanese economy;
- The establishment of concrete and realistic targets, delaying improvement of people's living standards in order to accelerate investment first, and comprehensive planning;
- An emphasis on industrial development, prioritizing heavy and chemical industries as the key to postwar economic recovery;
- An outward orientation, by promoting export of industrial products through participation in the international division of labor; and
- A positive role of government in presenting long-term visions and strategies for development and coordinating actions of the private sector.

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<sup>17</sup> Based on the author's interview with Mitsuya Araki, Chief Editor of the International Development Journal, on October 29, 2019.

Here, we can find the origin of Okita's development thinking of postwar Japan. Industrialization was considered essential to economic democratization because there was no sector for absorbing excess labor other than the industrial sector (MOFA 1946).<sup>18</sup> With Japan's poor resource endowment, export expansion was vital for importing raw materials for processing trade (MOFA 1946). Excess labor and resource scarcity also required the government's proactive role in economic management.

### ***6.1.2. Sharing the experiences of Japanese economic development and engaging in dialogue with developing countries***

Later in his career, Okita was actively engaged in North-South relations by sharing the Japanese developmental experience, including the Flying Geese model, at international conferences and other occasions. To support actual implementation in developing countries and thereby launch a successful model to the world, he promoted economic cooperation between Japan and countries in the Asia-Pacific region. He advised many developing countries and produced three exemplary cases of China, Thailand, and Argentina, as shown below.

Okita believed that 'Japan's development experience is a typical one of latecomers which is different from that of other developed countries' (JICA 1987, 1).<sup>19</sup> He argued that, as a country possessing the characteristics of both advanced and latecomer countries, Japan could understand the challenges faced by Asian countries and also provide guidance on economic development based on its own experience of industrialization.

The concept of 'Flying Geese pattern of development' was originally invented by Kaname Akamatsu in Japanese articles published in the 1930s, and presented to world academia after World War II, in English articles published in 1961 and 1962. But it was Saburo Okita who introduced the Flying Geese pattern of development to wider audiences including the political and business world.<sup>20</sup> The intra-regional transmission of flying geese industrialization, driven by the catching-up process through diversification and rationalization of industries, became

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<sup>18</sup> See also Okita (1948).

<sup>19</sup> See Introduction of JICA 1987 (Vol. II: Japan's Experience).

<sup>20</sup> Based on the author's interview with Mitsuya Araki, Chief Editor of the International Development Journal, on October 29, 2019.

the leading explanation of the engine of Asian economic growth.<sup>21</sup> Many Asian countries were attracted to this model because it suggested the possibility of shared development in which any country, regardless of its development stage, could take advantage of a mutually supportive division of labor within the region. This model was different from the vertical division of labor between industrialized countries and resource-supplying developing countries, or between the suzerain and the colony, that inevitably generated winners and losers.

Okita was one of the first foreign experts who advised top leaders in the Chinese Communist Party, including Deng Xiaoping, when the 'open door' policy was launched in late 1978. At the request from Deputy Prime Minister Gu Mu, Okita visited Beijing from the end of January to early February 1979, gave lectures on the factors contributing to Japan's rapid growth, and exchanged views on the challenges of China's economic development. Okita presented the Japanese development model as one that is based on the Western model but with an added stronger role of government in economic planning. He also suggested the idea of special economic zones, with reference to Nagasaki's Dejima, the Dutch enclave of foreign trade in otherwise internationally isolated Japan in the Edo period, and Thailand's special economic zones (Zhang 2019).

In the 1980s, Okita supported the construction of Thailand's massive Eastern Seaboard Development Program (ESDP). The ESDP was the first forward-looking regional development plan with comprehensive infrastructure development in Thailand. To reach the next stage of industrialization, it aimed to strengthen export-oriented labor-intensive industries and create a heavy petrochemical industry utilizing natural gas in the Gulf of Thailand. There were more cautious views on the scale and scope of ESDP among donors, but the Japanese recommended building two deep-sea ports, each equipped with industrial parks,<sup>22</sup>

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<sup>21</sup> This section is based on the website of GRIPS Development Form: <https://www.grips.ac.jp/forum/module/prsp/FGeese.htm>

<sup>22</sup> The World Bank was cautious about the construction of new deep-sea ports in view of Thailand's difficult fiscal situation at that time and proposed to utilize the existing naval port. Japan made a counterproposal recommending the construction of new deep-sea ports at Laem Chabang and Map Ta Put, combined with large industrial parks. Subsequently, from 1982, Japan provided wide-ranging cooperation to ESDP including grants, technical cooperation, and ODA loans. Sixteen major infrastructure projects were funded through 27 ODA loans. Even now, Okita's insights are highly appreciated by the Thai officials who were responsible for the ESDP project at that time (JBIC 1999).

based on its own development experience and also taking into account the international economic environment. After careful analysis, the Thai government adopted Japan's bolder recommendation.

Okita's engagement went far beyond the Asian-Pacific region. He led a large-scale intellectual cooperation project for Argentina in 1985-86, when the Japanese government through JICA implemented 'The Study on Economic Development of Argentina' at the request of the Argentine government (JICA 1987). This was the first systematically organized policy support to developing countries supported by JICA, where a large number of academics and consultants were mobilized. The final report, called the 'Okita Report,' covered five sectors (macroeconomy, industry, agriculture, transportation, and export), with a strong focus on industrial activation and export promotion (JICA 1987). Chapter 6 provides a detailed analysis of the characteristics of the Okita Report and underlining economic thoughts. It is worth noting that the report contains a volume on Japanese experience, which presents various types of economic planning including industrial policies, and stresses the importance of coordination between the private sector and government.

## **6.2. Shigeru Ishikawa**

Shigeru Ishikawa, emeritus professor of Hitotsubashi University, made valuable contributions to the theory of economic development and the establishment of a policy system for international development cooperation from the Japanese perspective. His seminal book, *The Basic Issues in Development Economics* (Ishikawa 1990), building on the theory of underdeveloped market economy, represents Japanese development economics. His contributions were not limited to academia.<sup>23</sup> Ishikawa served as the leader on the Japanese side of 'The Joint Vietnamese-Japanese Research Project: Study on the Economic Development Policy in the Transition toward a Market-Oriented Economy in the Socialist Republic of Vietnam' (the Ishikawa Project) supported by JICA during 1995-2001. This project made a tremendous impact on developing and spreading the Japanese model of intellectual cooperation to developing countries, which was based on mutual trust and long-term perspectives

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<sup>23</sup> During the 1980s, Ishikawa participated in the Chinese University Development Project II (1985-90) funded by the World Bank, which strengthened engineering, economics, and finance education at Chinese universities.

(see Chapter 7 for the details). After the Ishikawa Project, JICA started to implement a number of intellectual cooperation projects in Asian countries, as explained in the previous section.

### ***6.2.1. Founding Japanese development economics***

Ishikawa defines economic development as ‘the realization that former colonies or underdeveloped regions maintain economic independence alongside political independence through participation in networks of international exchanges, and prepare for political and economic conditions for sustainable economic growth and development’ (Ishikawa 1990, 3). He argues that development economics must address basic problems of ‘economic development’ unique to developing countries, giving due attention to the stage of development. Key concepts that characterize Ishikawa’s theory are the concept of ‘underdevelopment of the market economy,’ the typology of ‘development models’ based on initial conditions, and the ‘adaptation’ of foreign knowledge and policy prescriptions to country-specific circumstances (Yanagihara 2018).

First, ‘underdevelopment of the market economy’ is a situation where the economy is basically made up of traditional agriculture and/or state production, and institutions that can support a market economy do not yet exist<sup>24</sup> (Ohno 1998). This situation is completely different from ‘market failures’ where the already developed market economy malfunctions due to externalities, public goods, information asymmetry, etc. Ishikawa does not support the view of neoclassical economics that structural adjustment policies (pursuit of macroeconomic stability and economic liberalization) can transform a developing country into a market economy and that the market mechanism will automatically take care of modernization and industrialization of the national economy (Ishikawa 2005).

Second, initial conditions such as the stage of development and the state of relative factor endowment (e.g., labor, land, and natural resources) do matter for the design of development policy. Ishikawa presents the typology of ‘development models’ including Hla Myint’s Vent-for-Surplus model for sparsely populated resource-rich countries, Arthur Lewis’ dual

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<sup>24</sup> Ishikawa (1998) classifies the basic conditions for the market economy into three categories: (i) social division of labor in production; (ii) physical infrastructure for merchandise distribution; and (iii) institutions of market exchange.

sector model of rural-urban migration under industrialization for densely populated agricultural societies, and others. In either case, the dominant economic mechanism undergoes an irreversible transformation at some 'turning point,' and the government's role is to prepare the conditions for such a transformation (Ohno 1998).

Third, developing countries must foster the will and capability to 'adapt' policy prescriptions, which are often advised by such external actors as international organizations and donor countries, to the ones suitable to the initial conditions of each country. If foreign prescriptions do not match the reality of recipient countries, trial and error is necessary for adaptation on either side, or both sides, in the process of development. Developmental success depends on whether a country succeeds in this 'adaptation.' In this regard, it is important to conduct analysis of the political economy to identify the socioeconomic forces that generate the national will and capability of 'adaptation' in latecomer countries (Ishikawa 1996; Yanagihara 2018). Here, we find conceptual resemblance between Ishikawa's adaptation that should take place with the initiative of recipient countries, and Maegawa's translative adaptation.

### **6.2.2. *The Ishikawa Project***

The Ishikawa Project, officially 'The Study on the Economic Development Policy for the Transition toward a Market-Oriented Economy in Vietnam,' is a large-scale bilateral intellectual cooperation between Japan and Vietnam, which in the early 1990s was a low-income Asian country under transition to a market economy. The project was agreed upon by the two governments when former Communist Party General Secretary Do Muoi visited Tokyo in April 1995. JICA and the Vietnamese Ministry of Planning and Investment (MPI) were implementing bodies. Ishikawa was the leader on the Japanese side, and the project was implemented over six years in three phases (1995-2001) through joint research and policy dialogues. Ishikawa's development thinking such as long-term orientation, a proactive role of the government, an emphasis on the productive sector, and joint work guided the methodology and approach of the project.

Initially, the Vietnamese government identified three main tasks for itself: (i) macroeconomic stabilization; (ii) systemic transition to a market economy; and (iii) the design and implementation of long-term

development strategy. The Ishikawa Project gave the highest priority to the third task of long-term development. This was partly because the former two tasks had already been supported by the IMF and the World Bank, and also because the Vietnamese authorities had already begun responding to these challenges. But more importantly, it was because the problems faced by Vietnam were fundamentally different from those of Russia and Eastern Europe, where industrialization had been achieved to a large extent under the previous communist regimes. In Vietnam, by contrast, the economy remained seriously underdeveloped, and its main task was not systemic transition but economic development. Therefore, strong emphasis was placed on the task of long-term development and poverty reduction through industrialization. Attention was also paid to the appropriate role of government in the development process (GRIPS Development Forum 2002).

Comprehensive and thorough analyses were conducted by the joint research team, involving about 20 Japanese academic researchers and the Vietnamese counterparts coming mostly from ministries. The research identified and examined issues related to the formulation and implementation of Vietnam's long-term economic development plans and made policy proposals to address them. Task forces were organized around main research topics. Each task force provided policy options based on the deep understanding of the existing situations and constraints facing Vietnam, which were obtained through intensive field surveys and quantitative analyses. The experience of Japan and other East Asian countries, especially China, was frequently cited. The following reflections show how Ishikawa highly valued the joint work approach:

Through this joint Vietnamese-Japanese Research, mutual trust and friendship with our counterparts were fostered. I believe we also received the trust of the leaders of Vietnam. Our research on East Asian low-income countries has been able to clarify for an underdeveloped socialist economy the process of formation of a market economy in the area of agriculture, the rural economy, and state-enterprise reform. Furthermore, it has made some progress, while incomplete, on the formation of industrial policy, including trade liberalization and attracting foreign direct investment. (Ishikawa 2005, 29)

In this way, the Ishikawa Project exemplifies Japanese development thinking, which gives great attention to the real sector, country-specific context, and long-term perspectives. It also shows the development cooperation approach that emphasizes joint work, mutual learning processes, and respecting country ownership in which foreign experts offer multiple policy options instead of dictating final answers.

## **7. Brief Introduction of the Remaining Chapters**

The rest of this volume is divided into three parts.

Part I (Chapters 2-5) looks into the role of industrial policy in promoting learning and translative adaptation. It consists of four chapters that present diverse country experiences with the formulation and implementation of industrial policies and the process of indigenous learning during the industrial catch-up. Covering Japan, South Korea, Malaysia, Brazil, and Chile, these chapters confirm the importance of industrial policy in facilitating learning of the private sector and thereby contributing to the structural transformation of the economies. They also reveal the breadth of industrial development experiences as well as the diversity of industrial strategies and institutional arrangements covering both horizontal and vertical policies. The Japanese experiences suggest serious efforts made by government as a policy learner, with keen interest in real economy, the actual situation of industries, and partnership with the private sector.

Chapter 2 by Akio Hosono, “Industrial Policies for Learning, Innovation, and Transformation: Insights from Outstanding Experiences,” discusses the typology of industrial policies and policy measures and instruments, and conducts case studies of five countries in three regions—East Asia, Southeast Asia, and Latin America—on the process of policy formulation and implementation. The purpose of this chapter is to obtain insights for an appropriate industrial policy package for today’s developing countries, which face new challenges in industrialization and structural transformation. To show the broad scope of industrial policies, case studies look into steel (Japan, South Korea, and Brazil), automobiles (Japan, South Korea, and Malaysia), and four natural resource-based industries (palm oil in Malaysia, food value chain in Brazil, and forestry products and salmon industries in Chile). The chapter shows what package of instruments was adopted and how they were formulated and implemented, giving attention to country-specific circumstances as well

as sector-specific characteristics and challenges. Hosono finds that, in all cases, vertical policies were adopted in combination with horizontal policies applied across all industries. In all cases studied, the process of learning and adaptation occurred; in most cases, indigenous innovation also took place. Public-private partnership among government, firms and their associations, research institutions, and other stakeholders have been essential.

Chapter 3 by Nobuaki Hamaguchi, “Industrial Policy and Structural Transformation of Brazilian Economy,” reviews the experience of Brazil’s industrial policies from the past to the present and draws lessons from successful cases among them. Brazil implemented comprehensive industrial policies over a long period, including import substitution industrialization (ISI) in the 1930s-50s, the post-ISI period industrial policy that combined market-based competition with government’s pro-business support, and the more recent industrial policy under the administration of President Luis Inácio Lula de Silva (2003-11). Although Brazil’s industrial policies produced mixed results with both successes (e.g., soybeans, aircraft, petroleum) and failures (e.g., computer and informatic device industry), overall, they contributed to the structural transformation of the economy. Sector-specific knowledge creation, human development, and learning mechanisms were essential elements of successful industrial policies. Brazil has developed sophisticated institutions for industrial policies built on the interactions between political and operational domains. Based on high technical capabilities and pragmatism, the Brazilian Development Bank (BNDES) has played a pivotal role in the execution of industrial policies, rectifying the short-termism and risk-aversion of private financial institutions. Hamaguchi concludes that industrial policy is a relevant attempt to break through the ceiling of premature deindustrialization in the contemporary globalized market economy.

Chapter 4 by Masatake Wada, “The Role and Characteristics of Industrial Policy in Postwar Industrial Recovery and Development in Japan: Implications for Developing Countries,” provides an overview of Japanese industrial policy in the postwar high-growth era. The chapter is based on the author’s actual experience of planning and implementation of industrial policy as an official of the Ministry of International Trade and Industry (MITI, renamed METI in 2001) from the mid-60s to the 1980s. The chapter starts with the classification of industrial policies

adopted in postwar Japan by different objectives, such as the promotion of specific industries, industrial adjustment, the improvement of the business environment, and coping with externalities. Then it explains the mechanisms and characteristics of policy planning and implementation, which include MITI's functions, policy methods, and coordination with various stakeholders, especially the private sector and business associations. Finally, it discusses implications of the Japanese experience for today's developing countries. Wada also emphasizes the importance of combining vertical and horizontal industrial policies, and MITI's organizational structure properly addressed both. For effective industrial policy planning and implementation, the government needs to understand the actual situation of industries. MITI gained such knowledge by working closely with the private sector through various channels.

Chapter 5 by Kuniaki Amatsu, "The Learning Process for State Leaders and the Ministry of Industry in the Early Industrialization Stage: The Experience of Meiji Japan," attempts to explore why some countries succeed in industrialization and why others do not, from a perspective of state learning. He argues that if there are developing countries eager for industrial catch-up, state leaders and economic technocrats responsible for industrialization must deeply manage two issues: (i) industrial vision formulation; and (ii) policymaking practices. The vision tends to be formulated unrealistically and policymaking practices tend to be enacted from the state perspective rather than the views of industrial entrepreneurs. As industrialization progresses, those gaps will be reduced in successfully industrialized countries. That is the learning process. He then proposes an analytical framework for understanding the learning mechanism and process, and conducts a case study of Meiji Japan—namely, how state leaders at that time were engaged in proactive learning in the process of vision formulation and industrial policymaking. Among various factors critical to successful learning, he emphasizes the importance of state leaders' strong interest in industries, accumulation efforts of industrial knowledge and skills within the government, and understanding of the reality of industrial entrepreneurs, decision making based on economic rationality, and the presence of the private sector with vitality, and so on. Although the Meiji era was 150 years ago, it should be noted that there are the basics state leaders and the Ministry of Industry need to follow beyond the difference of the time and regions and to learn from the other countries.

Part II (Chapters 6-9) presents four examples of Japanese intellectual cooperation to developing countries—Latin America (Argentina and Paraguay), Vietnam, Ethiopia, and Thailand—through policy support for industrial development. These countries faced different challenges, were in different stages of development, and experienced differing economic crises, but all sought Japanese policy advice based on the Japanese experience of industrial development. The four chapters provide insights into Japanese development thinking and methods for intellectual cooperation, which emphasize the real economic sector, long-term perspectives, and the process of local learning.

Chapter 6 by Akio Hosono, “Japan’s Development Policy Support in Latin America: The ‘Okita Report’ for Argentina and the ‘Study on Economic Development of Paraguay,’” presents the first large-scale development policy support by JICA, led by Saburo Okita with the participation of a large number of experts. The outcome of this cooperation is widely known as the ‘Okita Report’ in Argentina. Subsequently, many similar development policy support programs were carried out, and ‘The Study on Economic Development of Paraguay’ (widely known in Paraguay as EDEP) was one such study in Latin America where Hosono played a key role in its formulation. The Okita Report had special significance in the history of Japanese intellectual cooperation. First, it was a pioneering initiative of policy dialogue and development policy support. Second, it embodied features that were repeated in all Japanese development policy support subsequently implemented in other countries. Third, the report reflected Okita’s economic thoughts, backed by his own experiences of Japanese economic development. The other report, EDEP, paid due attention to the situations specific to Paraguay and proposed a cluster of agro-industrial chain strategy, consisting mainly of agri-food chains in soybeans, cotton, maize, and other commodities as one of the major pillars of enhancing the country’s competitiveness. Both the Okita Report and EDEP reflected Japanese perspectives of economic development such as real-sector concerns, long-term perspectives, and hands-on advice.

Chapter 7 by Kuniaki Amatsu, “The Ishikawa Project in Vietnam: Policy Support to Transition to a Market Economy,” reviews Japan’s development policy support to Vietnam, headed by Shigeru Ishikawa and implemented by JICA for six years from 1995 to 2001. The Ishikawa Project aimed at advising Vietnamese leaders’ paths to systemic transition to a market economy through the formulation and implementation of

Five-Year Development Plans. Following the collapse of the Soviet Union, Russia and many East European countries undertook ‘big bang’ reforms to market-oriented economies with the advice of the IMF and the World Bank. On the other hand, China adopted a gradualist approach to market-oriented reforms in the late 1970s. This was the backdrop against which Vietnamese leaders sought advice from Ishikawa, who had profound knowledge of Chinese development. The Ishikawa Project adopted a joint research style in which the Vietnamese policymakers and the Japanese team worked on an equal footing. The Ishikawa Project left important footprints in the history of Japan’s intellectual policy support—by adopting a scenario-oriented and policy option approach (avoiding single policy recommendations), respecting policy ownership of the Vietnamese side, giving attention to the real sector with long-term perspectives, and placing emphasis on the learning process. This project suggests the importance of addressing a relevant issue embedded in the policy support, i.e. why the recipient country needs to be offered suggestions by external actors on the domestic matter of key policymaking. A key to the success of the policy support is the recipient’s readiness to listen to external voices. It also suggests the importance of building trust between donors and recipient countries in the course of policy support.

Chapter 8 by Kenichi Ohno and Izumi Ohno, “Ethiopia-Japan Industrial Policy Dialogue: Learning Eastern Methods through Intensive Discussion and Concrete Cooperation,” is based on the authors’ experience of ongoing bilateral industrial policy dialogue spanning more than ten years. This is Japan’s first case of intellectual industrial cooperation in Africa. Under Prime Minister Meles and Prime Minister Hailemariam, Ethiopia eagerly learned from the experience and advice from East Asia. The learning proceeded under strong country ownership and policy activism, not by uncritically emulating foreign practices or fulfilling externally imposed conditionalities. Ethiopia’s policy learning accelerated in 2008 when Japanese industrial cooperation began in *Kaizen*, export promotion, and other policy methods through high-level discussions, mutual visits, and third-country research. Topics of the bilateral policy dialogue evolved as learning deepened and circumstances changed, from general to specific and from learning Eastern methods to concrete application in Ethiopia. Many proposals were followed up by Ethiopian policy action and Japanese industrial cooperation. Beginning in 2018, under the Abiy government, macroeconomic crisis management and the reform of monopolistic state enterprises were emphasized, and a new economic framework

that encompassed a broader policy scope was introduced, while specific developmental actions are yet to be clarified or implemented. Ethiopia's industrialization is taking place in Africa where conditions are different from East Asia. The major difference is the absence of a leading nation and structured layers of follower nations, resulting in weak economic linkages among regional economies. The implications of this for Ethiopia's development strategy and policy learning are considered.

Chapter 9 by Minoru Yamada, "Industrial Policy Support to Thailand: Initiatives Responding to the Asian Economic Crisis and Adaptation Thereafter," reviews the Thai endeavor and Japanese support for industrial restructuring from the late 1990s to mid-2000s in response to the Asian economic crisis. JICA dispatched former MITI senior official, Shiro Mizutani, as advisor to the Minister of Finance and the Minister of Industry. He conducted a series of dialogues with Thai policymakers over six months (January-June 1999) and submitted a proposal for an SME master plan, which is widely called the 'Mizutani Plan.' A large number of Japanese experts were mobilized to support the policy advisory work and implementation of the SME master plan. Follow-up actions were taken by the Thai government, which resulted in the Master Plan by the Office of SME Promotion, deep rooted recognition of the importance of factory/enterprise evaluation (*shindan*), and the strengthening of the automotive supporting industry. Because of the crisis-response nature of the Mizutani Plan, this advisory work was short in duration unlike Vietnam's Ishikawa Project and Ethiopia's industrial policy dialogue. Nevertheless, it established an important foundation for Thai industrial deepening, especially for the development of the automotive industry. It should also be noted that nongovernmental organizations in Thailand, which had many years of economic cooperation experiences with Japan, such as TPA and TNI, played the important role in disseminating the *shindan* practice. Yamada concludes that overall, Thai stakeholders had adequate ownership and capacity to utilize the support from Japan in a balanced manner, which could be understood as the process of translative adaptation in the face of changing local and international contexts.

As the final section, Part III (Chapters 10-11) takes stock of the analyses made in the preceding chapters, reviews the changing landscape of industrial development over recent decades, and draws implications for Japanese development policy support.

Chapter 10 by Toru Homma, “Contemporary Agenda for Policy Support to Industrial Development in Developing Countries,” discusses four mega trends surrounding today’s industrial development, namely, globalization, digitalization, unexpected external shocks, and environmental and social responses. The expansion of GVCs, Industry 4.0, and COVID-19 responses are given as typical examples. These mega trends offer opportunities for developing countries to intensify industrialization through GVC participation and create leapfrog technologies and new social businesses. Today, as industrialization possibilities broaden, the establishment of a ‘full-set’ industrial base and/or the participation in East Asian ‘Flying Geese’ pattern are no longer prerequisites for industrialization. At the same time, developing countries must further enhance their industrial policy capacity so as to take advantage of emerging opportunities. Such capacity includes new policy menu and prioritization; greater emphasis on sustainability, inclusiveness, and resilience; speedy policymaking and implementation; and the nationally integrated approach to address complex challenges instead of separate ministerial actions. On the other hand, Homma notes that regardless of new trends, the basic nature and framework for industrial policymaking remain unchanged. These include a proper mix of horizontal and vertical industrial policies, appropriate key measures in supply/demand sides, the supportive and balanced role of government, adequate structure of policy documents and procedures, public-private participation in the process, effective interaction of policymaking and implementation, and policy learning processes. Japan needs to upgrade its industrial policy support by adding new developmental values and instruments through co-creation with developing countries on a more equal basis—learning together, solving problems together, and facilitating mutual knowledge accumulation.

Chapter 11, “The Way Forward: Industrialization Challenges and Implications for Japanese Development Policy Support” by Izumi Ohno, Hosono Akio, and Kuniaki Amatsu, summarizes the main arguments throughout this volume as the concluding chapter. Translative adaptation, local learning, and industrial policymaking are mutually related. The government of a developing country assumes a dual role as a learner of industrial policymaking, as well as a facilitator in creating a learning society through industrial policies. In both processes, translative adaptation is critical. Although many developing countries suffer from capacity constraints, learning is a dynamic and progressive process, and it is important for donors to assist in their capacity development for

learning to industrialize. In this regard, Japanese development policy support, if properly undertaken, is a promising way to enhance the government's capacity for industrial policymaking. Now that the shape of industrialization is changing and new knowledge and technologies are more readily available in a standardized format, it is all the more important for developing countries to actively and effectively learn to industrialize. Furthermore, Japan itself must adapt and innovate its approaches to this changing environment. The chapter concludes with five suggestions for development policy support: (i) the relevance and importance of Japanese perspectives on industrial development, based on the 'ingredients' approach and long-term perspective; (ii) the promotion of knowledge sharing of industrialization experiences among those countries interested, from the perspective of translative adaptation; (iii) Japan's active engagement in facilitating knowledge sharing and learning about industrialization experiences among recent industrializers and developing countries; (iv) the need to publicize and disseminate Japanese experiences of development policy support; and (v) the need to pay greater attention to the process of 'co-creation' when Japan undertakes development policy support for industrialization in the future.

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# Part I

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The Role of Industrial Policy  
in Promoting Learning  
and Translative Adaptation:  
Diverse Country Experiences



## Industrial Policies for Learning, Innovation, and Transformation: Insights from Outstanding Experiences

Akio Hosono

### 1. Introduction

A resurgence of interest in industrial policies has been witnessed at a global level during the last decade. Goal 9 of the Sustainable Development Goals (SDGs), adopted by the UN General Assembly in 2015, is to ‘build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation’ (United Nations 2015). To achieve this goal effectively, industrial policies will be needed because ‘promoting industrialization’ is the fundamental aim of industrial policies. As such, it implies that UN member states adopting the SDGs inherently recognized not only the importance of industrial growth but also the importance of industrial policies with a stronger focus on inclusiveness and environmental sustainability. Primi (2015) stressed that ‘the discussion on the post-2015 development agenda has revealed that neglecting the ‘production and structure side’ in the first generation of MDGs was a weakness that needed to be addressed in the next generation of development goals’ (172). More recently, Aiginger and Rodrik (2020) emphasized that ‘steering technological change in a direction that is friendlier to environment and labor must be a key element of new industrial policies’ (5).

The 2013 OECD report, *Perspectives on Global Development 2013 – Shifting Up a Gear: Industrial Policies in a Changing Economic Landscape*, stated that, ‘in the aftermath of the 2008 financial and economic crisis, OECD countries have re-opened a debate on industrial policies to address job and competitive challenges’ and that, ‘to face the new global economic context, developing countries are implementing industrial policies to upgrade and transform their production structures and keep growing’ (OECD 2013, 10). In the same year, *World Development Report 2013: Jobs* argued that ‘Industrial policy fell out of favor in the 1980s, but today it is getting recognition again. The emerging views, however, draw criticism

and have led to a new round of debate’ (World Bank 2012, 218). However, as Page (2020) confirmed more recently, ‘industrial policy is finally moving away from the longstanding but sterile debate.’ Furthermore, as Aiginger and Rodrik (2020) note, ‘interest in industrial policy is being further stimulated by disruptive technological change—from automatization to digitalization, Industry 4.0, and the Internet of things’ (1-2).

This chapter aims to discuss types of industrial policies and industrial policy measures/instruments, as well as their effectiveness. It draws from the experiences of five countries in three regions—North East Asia, South East Asia, and Latin America—to obtain insights into an appropriate industry policy package for today’s developing countries as they face a variety of new challenges of industrialization, transformation and growth.

I will discuss, first, some of the key issues and provide an analytical perspective of industrial policies and their instruments (Section 2). I will review typologies and essential aspects of these policies and instruments, with special reference to learning (Section 3). While keeping in mind these typologies to provide a comparative perspective, I will examine the industrialization process and industrial policies in five countries (Korea and Japan from Northeast Asia, Malaysia from Southeast Asia, and Brazil and Chile from Latin America).<sup>1</sup> To deepen the comparative analysis, I will elaborate on the cases of three relevant industrial sectors—the steel industry, automobile industry, and resource-based industry (Section 4). Based on the findings from Section 4, I will compare the experiences of the countries in terms of the essential aspects of industrial policies identified in Sections 3 and 4, from ‘translative adaptation and effective local learning’ perspectives, as discussed in the Overview Chapter (Chapter 1) (Section 5). Finally, I will present some concluding remarks.

## **2. Key Issues and Analytical Perspective**

### ***2.1. Broader scope of industrial policy***

In recent discussions of development agendas, industrial policy is conceptualized to have a much broader scope than before. Although the fundamental aim of industrial policy is to promote industrialization, it also

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<sup>1</sup> Japan, Korea, and Malaysia are representative countries that experienced the Flying Geese pattern of development in the Asian region. Brazil and Chile are forerunners of economic development in Latin America with very distinctive industrial policies. Regarding the Flying Geese pattern of development, see Chapter 1.

aims to achieve industrial sector upgrading and transform the structure of the sector. Rodrik (2007) uses the term industrial policy 'to denote policies that stimulate specific economic activities and promote structural change' (4). Greenwald and Stiglitz (2012) affirm that 'Industrial policies are what we call those policies that help shape the sectoral composition of an economy' (2). Lim (2012) also defines industrial policy in a similar way: 'Industrial policy is broadly defined as a nation's effort to influence sectoral development and, hence, the nation's industry portfolio' (71).

Consequently, the industry to be promoted by industrial policies is now a wider concept. Greenwald and Stiglitz (2012) explain that, together with the above definition of industry policies, 'The term is used more broadly than just those policies that encourage the industrial sector. A policy which encourages agro-business, or even agriculture, is referred to as an industrial policy' (3). As Ohno (2013) articulates, 'Our main focus is the productive sector of the economy which includes manufacturing, agriculture, services, and logistics [...]' (ix). Nevertheless, a large proportion of the literature on industrial policy focuses on manufacturing. This is because it is widely recognized that the manufacturing sector is the main source of technology-driven productivity growth in modern economies and that, because of its ability to produce productive inputs (e.g., machines, chemicals), what happens in the manufacturing sector is extremely important to the productivity growth of other sectors (Andreoni and Chang 2016, 5-6). More recently, Aiginger and Rodrick (2020) asserted that, 'As the world economy turns increasingly towards services, it is clear that we will need a conception of industrial policy that addresses the need to nurture and develop modern economic activities more broadly, including but not limited to manufacturing. The appellation 'industrial policy' may be even misleading insofar as it clouds this broader mission. Other alternatives such as 'productive development policies,' 'structural transformation policies,' or 'innovation policies' do exist' (3-4). They also use the term 'future- and welfare-oriented industrial policy.'

## ***2.2. Changing policy rationales, agglomeration economies, global value chains, and purposes of industrial policy***

As mentioned above, in the last decade, 'industrial policy space' has been widened and policy instruments have been diversified. Andreoni (2017) argues that industrial policy space depends, among other things, on the set of policy rationales that are dominant in a certain historical moment

(247). Through an extensive review of the literature, he concluded that the industrial policy space has been defined by two main sets of policy rationales throughout the first two industrial policy waves (namely, the first wave between 1940 and 1970 and the second wave from the 1990s to early 2000). 'These were *structural coordination problems* related to demand and technological complementarities; resource scarcity and production factor specificity; and market *failures* determined by information asymmetries, externalities, and public goods' (253, italics in original). Studies and experiences related to policy rationales for industrial policy space have become deeper and more comprehensive views have emerged in the last decades. Andreoni emphasizes that, 'in developing their vision and policy, governments in both developed and developing countries are increasingly relying on a new *policy rationale synthesis*. This combines classical market failures and structural coordination rationales with the new learning and systemic failures arguments developed in innovation and manufacturing systems studies' (256, italics in original). As discussed in Section 3 below, recent studies emphasize the importance of learning and enhancement of capabilities for industrialization.

Furthermore, studies have deepened on external economies or agglomeration economies (production-related scale economies), which include the benefits of localization (being near other producers of the same commodity or service) and urbanization (being close to producers of a wide range of commodities and services) (World Bank 2009, 129). World Bank (2009) affirmed that governments can do better by promoting the market forces that deliver both a concentration of economic production and a convergence of living standards, and augment them with policies to ensure affordable basic services everywhere. The document further stated that government can do this by helping people and entrepreneurs take advantage of economic opportunities wherever they arise and that the market forces that help most are agglomeration, migration, and specialization.

More recently, the expansion of global value chains (GVCs) has opened new opportunities for countries. World Bank (2020) states that 'national policies can boost GVC participation.' This report, based on an analysis of various types of GVC participation, identified the policies that promote integration into more advanced GVCs (4-5). It further states that 'proactive policies can enhance and upgrade GVC participation.' Among the proactive policies, the report highlights how 'Coordinating,

informing, and training domestic small and medium enterprises helps link them to GVC lead firms. Investment in education and improvements in management encourage upgrading. Special economic zones can be a shortcut on the GVC development path when they successfully address specific markets and policy failures' (160).

It is now widely recognized that there are additional critical policy issues for the industrialization of resource-rich countries. Processing of natural resources instead of exporting them in their raw form, diversification of the export base, and channeling windfall gains to productive investments in line with a consistent long-term development strategy are among the most essential policy issues in resource-rich countries (Ohno 2013, 20). Policies to address these issues could be considered as industrial policies for 'natural resource-based industrialization.'

Moreover, industrial policies need to address other aspects of changing rationales—such as environmental sustainability, resilience to natural disasters, and so on—all factors that are emphasized in the SDGs.

### **3. Industrial Policy Instruments/Measures and Their Formulation and Implementation**

To undertake a comparative analysis of industrial policies and industrialization among countries, it is necessary to classify both industrial policy measures/instruments and processes in which these policies are formulated and implemented. This classification enables an examination of each country's industrial policy in terms of what package of instruments has been adopted and how they were formulated and implemented.

#### **3.1. Critical role of 'learning' for industrial policy: An emerging consensus**

Together with the resurgence of interest in industrial policies, attempts to overview, classify, and analyze these policies and their policy instruments/measures have been made. Many of these policies overlap on the importance of learning and enhancement of capabilities of governments, firms, and industrial human resources (workers, managers, and others) to successfully implement industrial policy, as well as achieving industrialization. Stiglitz and Greenwald (2014), in their volume *Creating a Learning Society: A New Approach to Growth, Development, and Social*

*Progress*, presented a systematic and holistic analysis of what constitutes a learning society, stating that ‘the most important “endowment,” from our perspective, is a society’s learning capacities’ (26). Noman and Stiglitz (2017) further noted that, ‘broadly understood, industrial policy refers to public policy measures aimed at influencing allocation and accumulation of resources, and the choice of technologies,’ and that ‘a particularly important set of industrial policies comprises those targeted activities that promote learning and technological upgrading’ (1). Cimoli and Dosi (2017), in their article “Industrial policies in learning economies,” present a taxonomy of variables and processes that institutions and policies act on in general and with particular reference to technological learning. The above-cited authors emphasize learning and learning capacity for industrialization.

Furthermore, other authors argue that industrial policy itself is about learning. Agosin and Fernández-Arias (2014) highlight that the book *Rethinking Productive Development: Sound Policies and Institutions for Economic Transformation*, to which they contribute, ‘builds on a new policy paradigm that is emerging, namely that productive development policies is a learning process’ (28-29). Aiginger and Rodrik (2020) likewise affirm that ‘The more ambitious the goals of industrial policy are, the less government knows about the techniques available to solve them. Industrial policy is therefore a search process in unknown territory, which should be open to new solutions, experiments, and learning.’ In short, these authors argue that industrial policies are a learning process or a search process. Ohno (2013), in his book *Learning to Industrialize: From Given Growth to Policy-aided Value Creation*, proposes a ‘way to learn pragmatic policymaking for developing countries that must cope with the strong pressure of market-orientation and globalization of our time’ (ix). He notes that, ‘in my book, government is the learner and I explore the way in which its capability can be strengthened’ (xi).

### **3.2. Typology of industrial policy instruments/measures**

From the above-mentioned perspectives, the cited authors identified and classified key areas or domains of industrial policies and their instruments. Ohno (2013), drawing mainly from East Asian experiences, lists a number of standard policy measures. He especially highlights ‘measures that enhance industrial human resource and enterprise capability, an objective that should be at the core of a nation’s industrialization strategy’ (63).

Policy measures are classified into the following seven areas: legal and policy frameworks, industrial human resources, enterprise capability, finance, foreign direct investment (FDI) attraction, marketing and business linkage, and innovation (63-64). In addition, he states that there are also other important industrial measures concerning infrastructure, logistics and distribution, social and environmental issues, and regional development.

Stein (2014) classifies industrial policies into vertical policies (focusing on specific sectors) and horizontal policies (broad-based and not attempting to benefit any industry in particular). Each of these two categories of policies is further divided into public inputs and market interventions. Consequently, there are four groups of policies: horizontal public inputs, horizontal market interventions, vertical public inputs, and vertical market interventions (33-35). This classification takes into account the problems of rent-seeking and capture. For example, 'rent-seeking problems are likely to be more prevalent in the case of vertical interventions' (Stein 2014, 35). Crespi et al. (2014), based mainly on Latin American experiences, as well as the above-mentioned conceptual framework by Stein, discuss seven key areas: policies to foster innovation, policies in support of entrepreneurship, technical education and training for work, finance, cluster-based policies, internationalization (exports, FDI, and GVCs), and priority sectors for productive transformation (Chapters 3-9).

McMillan et al. (2017) discuss a set of conditions that are most crucial for effective industrial policy leading to economic transformation (45). They define economic transformation as a continuous process of (a) moving labor and other resources from lower to higher-productivity sectors (structural change) and (b) raising within-sector productivity growth. They provide a typology of policy approaches for supporting economic transformation: 'those [policies] intended to accelerate the relative growth of higher value-added sectors in the economy – in other words, policies to support structural change – and those intended to accelerate the pace of within-sector productivity growth.' Within each of these policy sets, they further distinguish 'between "horizontal" or enabling interventions and "targeted" interventions.' This produces a two-by-two classification matrix (ix; 26). They list 'targeted policies to support structural changes' comprising export push policies, exchange rate protection, selective industrial policies, spatial industrial policies, and national development banks. As 'horizontal policies to support structural changes,' they

include investment climate reforms, financial sector development, and strengthening state-business relations (26).

Andreoni (2017), through an extensive overview of literature on the typologies of industrial policies, presents a taxonomic approach. He distinguishes, first, between supply-side and demand-side measures. Then he subdivides supply-side measures into six specific factor-inputs policies: (i) innovation and technology infrastructure; (ii) higher education and workers' training; (iii) production capacity and advanced manufacturing operations that include conditional subsidies and incentives, with matching grant schemes; (iv) long-term financial capital; (v) resource access (energy and technology policies); and (vi) infrastructure and networks. Demand-side measures include internal demand and public procurement, and external demand and international market development (258-60).

### ***3.3. Key areas and domains of industrial policy***

Summing up, the typologies referred to above generally coincide in three essential, supply-side measures related to learning, capabilities, and innovation: (i) education, training, and nurturing industrial human resources; (ii) firms' capabilities; and (iii) technology and innovation. They coincide as well in two other supply-side measures: (iv) finance; and (v) infrastructure. Most of these industrial policy measures are intended to provide public goods for industrialization. The typologies also include policy measures related to internal markets, international trade, and foreign investment, which are normally related to both demand and supply sides, such as (vi) domestic market (size, protection, and competition); (vii) international trade, especially export promotion; (viii) FDI; and (ix) participation in GVCs.

In Section 4, I build on these nine types of industrial policy areas or domains to obtain insights for establishing an appropriate industry policy package for today's developing countries as they face a variety of new challenges of industrialization, transformation and growth.

### ***3.4. Process of formulation and implementation of industrial policy and public and private relations***

Most authors emphasize the importance of the relationship between

the government and the private sector, together with their institutions, in the process of formulating and implementing industrial policy. Ohno (2013) argues that, 'if effective channels of public-private partnership are established, government and private firms come to trust each other and can constantly share information on global and domestic situations as well as strengths and weaknesses of local industries' (34). Primi (2015) emphasizes that industrial policy works better when it has clear priorities and is capable of getting a constructive dialogue between the public and the private sectors (180).

Andreoni (2017) introduces a policy-governance model that is 'defined according to the way in which a country frames its industrial policy and the different actors involved in its design, implementation, and enforcement' (259). The key actors, according to Andreoni, are institutions such as government agencies and departments, development banks, intermediate R&D institutions, industry associations, and chambers of commerce. He argues that 'countries may frame their industrial policies either within *central plan-based strategies* or *within multiple decentralized initiative-based measures*' (259, emphasis in original). He further states that, 'to avoid industrial policy coordination problems, government that could rely on well-developed institutional settings adopted a multilayered policy model combining top-down and bottom-up policy measures' (259).

Stein (2014) concludes that 'modern productive development policies have become less of a top-down affair, and increasingly involve public-private collaboration in both policy design and implementation,' and that 'this collaboration is key, as the private sector has information about the sector's challenges and opportunities that is critical for effective policymaking' (58). Aiginger and Rodrik (2020) also highlight the importance of the public-private relationship. They argue that 'the contemporary conception and practice of industrial policy is much less about top-down incentives and much more about establishing a sustained collaboration between the public and private sectors around issues of productivity and social goals' (4). As mentioned above, they consider industrial policy a searching process. Therefore, they state that 'government and business should engage in an intensive dialogue' (14).

The roles of the public sector in the above-mentioned public-private relations appear to differ according to types of industries, purposes of industrial policies, industrialization phases, and so on. The government

undertakes the role of planner, catalyzer, coordinator, and rule maker as well as protagonist (in cases of state-owned enterprises) and partner (in cases of public-private joint ventures, actions, initiatives, and so forth) in the process of industrial policy formulation and implementation.

## 4. Country Experiences

This chapter has so far discussed key issues of industrial policies, including policy measures/instruments, the process of formulation and implementation, and public and private relations. These factors are summarized in Table 2.1. This section draws together these elements in examining the experiences of five countries, with special reference to the steel industry, automobile industry, and natural resources-based industries. These industries have been purposefully selected by taking into account different sector-specificities in terms of forward and backward linkages, participation in GVCs, and economies of scale. I will elaborate on the process of learning, adaptation, and innovation in reviewing each country's experiences while keeping in mind the contents of Table 2.1.

**Table 2.1. Key Policy Areas and the Process of Industrial Policy Formulation and Implementation**

Typology	Key Areas of Industrial Policy	Process of Industrial Policy Formulation and Implementation
Supply-side measures (related to learning, capabilities & innovation)	1. Education, training and industrial HRD	<u>The role of government: public-private partnerships</u> • Planner • Catalyzer • Coordinator • Rule-maker • Protagonist (SOEs) and biz. partner (JV etc.)
	2. Firm capabilities	
	3. Technology and innovation	
Supply-side measures (biz. environment)	4. Finance	
	5. Infrastructure	
Demand & supply-side measures	6. Domestic market (e.g., size, protection, competition)	<u>Factors affecting the process</u> • Types of industries • Purposes of industries • Phases of industrialization
	7. International trade (esp. export promotion)	
	8. FDI attraction	
	9. GVC participation	

Source: Elaborated by the author, based on comments by Professor Izumi Ohno.

### 4.1. Japan

The process of industrial policies and industrialization in Japan after the end of World War II can be divided into four distinctive phases: first, post-war reconstruction through to the mid-1950s; second, high economic growth through to 1970; third, the post-oil crisis phase through to the

mid-1990s; and fourth, the low economic growth phase (Okuno and Suzumura 1984; see Wada, Chapter 4). I will primarily discuss the first two phases because they correspond to the main process of Japan's catching up to advanced industrial countries through industrial transformation. Many of the industrial policies implemented and institutions established in these phases were essential for the prolonged industrialization process in Japan (Okuno and Suzumura 1984, 479).

'The Policy Concerning Industrial Rationalization' (*Sangyō gōrika ni kansuru ken*), adopted in 1949 by the Cabinet, was 'one of the most crucial milestones of postwar Japanese industrial policy,' because it contained the seeds of the Japan Development Bank (JDB), the Foreign Capital Law, the reform of the tax system to favor industrial growth, and the creation of the 'Industrial Rationalization Council' (*Sangyō gōrika singikai*) (Johnson 1982, 215). One of the most concrete results of this Cabinet's decision was the passing of the Enterprises Rationalization Promotion Law of 1952, of which the main policy measures were the tax system with preferential treatment, and the fiscal investment and loan program (FILP). Both of these were designed for strategic industries. Below, I will discuss the effect of this policy, focusing on the case of the iron and steel industry.

In 1954, the 'Comprehensive Policy for Economic Expansion' was agreed on, and based on this policy, the 'Outline of the New International Trade and Industry Policy' was announced. These documents reflected the view within the Ministry of International Trade and Industry (MITI) that the only way to break out of Japan's inevitable balance of payment constraints was through 'heavy and chemical industrialization,' by which was meant the building of an industrial structure whose export products would have a much higher income elasticity of demand than Japan's traditional light industries, even though it flew in the face of so-called comparative advantages (Johnson 1982, 228). The main industries promoted in this period were synthetic fiber, petrochemical, machinery and machine parts, electronics, and so forth. I will discuss the case of the automobile industry later in this chapter.

From the end of the 1940s through the 1950s, several core institutions for industrial development were created. JDB was established in 1951. It had the autonomy to decide its lending based on its own appraisal without political bias. It had 'two important principles: one was self-finance and the other was complementarity with private banks' (Shimada 2017,

166-67). In the export promotion area, the Supreme Export Council—composed of the Prime Minister, ministers of MITI, finance, agriculture, and so forth—was established in 1954. Another new institution, the Japan External Trade Organization (JETRO), was established in 1958.

In June 1960, the Cabinet adopted the 'Plan for the Liberalization of Trade and Exchange.' Six months later, it formally adopted the 'Long-term Economic Plan' (well known as the Income-doubling Plan). In 1961, the Industrial Structure Investigation Council (*Sangyo kōzō chōsakai*) was created. This council and the Industrial Rationalization Council were integrated into Industrial Structure Council (*Sangyō kōzō shingikai*) in 1964. Johnson (1982) considers the concept of 'industrial structure' and creation of the Industrial Structure Investigation Council as 'the most important bureaucratic response to liberalization' (252-53).

The main objectives of industrial policies in the 1960s could be summarized as follows: (i) to establish a new industrial structure to address liberalization of trade and capital flow, (ii) to coordinate 'industrial plant and equipment investments' (*Setubi tōsi*), (iii) to promote coordination and specialization of production, especially of small and medium enterprises through the Law for Promotion of Modernization of SMEs, (iv) to establish an integrated energy supply system, and (v) to promote some strategic industries on the basis of laws enacted in the 1950s, such as the machinery industry, electronic industry, and so forth (Tsuruta 1984, 55-56).

#### **4.1.1. Japan's steel industry**

Japan's production of steel before the end of World War II peaked at 7.65 million tons in 1943. It recovered this level in the first half of the 1950s, before reaching 9.41 million tons in 1955. The expansion of production in the high rate growth period was remarkable: it peaked at 120 million tons in 1973, the year of the oil crisis. Steel was mainly produced for the domestic market in the 1950s. Japan's steel exports were 3 million tons in 1960. Exports increased rapidly, achieving the level of 34 million tons in 1975. The share of steel in the total exports of Japan increased from 9.6 per cent in 1960 to 18.2 per cent in 1975. Japan's share of world steel exports increased to more than 20 per cent at the beginning of the 1970s (Kohama 2001, 58-59, 62).

In this process, finance by JDB, special and accelerated depreciation,

and other industrial policy measures facilitated the steel industry's investment in plant and equipment. At the same time, three 'Steel Industry Rationalization Plans' (1951-55; 1956-60; and 1961-66) and licenses granted for the import of foreign technology facilitated the modernization and technological upgrades. These policies were considered effective for the steel industry's development and technological progress in its initial phase, especially in the 1950s, and for establishing the basis of the steel industry's growth in subsequent phases (Tsuruta 1984, 275). It should be emphasized that strong competition among steel companies was an important factor for the industry to achieve these results.

With these policies, investments were made in integrated steel mills. These financed new blast furnaces, strip mills, continuous casting methods, LD converters (BOF), and so forth, together with expansion of the scale of production. This modernization and technological progress, along with the location of these mills in industrial estates in coastal industrial areas, was advantageous for international trade. Moreover, the introduction of large-scale vessels specialized in transporting iron ore significantly improved the competitiveness of the Japanese steel industry. These factors enabled Japan to reduce the cost of steel production. The total cost were higher than the United States (US) in the mid-1950s (at 1.08 times the US cost in 1956), but were reduced to a level much lower than US costs by the mid-1960s (0.63 in 1966) (Yamawaki 1984, 263).

Essential and cutting-edge technologies for steel production, such as LD converters and continuous casting, were adapted and improved in Japan. The strategy of locating steel mills in coastal areas and the introduction of iron ore carriers was effectively indigenous. As such, the development of the steel industry of Japan was not just a catching-up process. It was rather an indigenous learning, adaptation, and innovative process.

#### ***4.1.2. Japan's automobile industry***

Production of automobiles in Japan increased from 69,000 cars in 1955 to 1,876,000 cars in 1965 and 6,946,000 cars in 1975. It was led first by the domestic market in the 1960s, and export-led development started in earnest in the 1970s. Japan's export of automobiles was 7,000 cars in 1960 but had increased to 1,827,000 cars by 1975 (Kohama 2001, 152).

The main promotion policies for automobile industry development

were finance by JDB and the Japan Finance Corporation for Small and Medium Enterprise (JASME). These included, among other factors, special depreciation, licenses for the import of foreign technology, and exemption on tariffs for machinery and equipment imports. Restrictions of automobile imports and constraints on FDI in the car industry were the main protective measures, but they were gradually liberalized in the 1960s (the import of commercial vehicles in 1961, import of passenger cars in 1964, and foreign direct investment in 1971). Competition among Japanese automobile companies was fierce both before and after liberalization.

Efforts were made to adapt and develop technologies and to work out innovative solutions in order to address a series of challenges that faced the Japanese automobile industry. Some of the most important were development of supporting industries largely made up of small and medium enterprises and the introduction and dissemination of Japanese style management methods to improve quality and productivity—such as Total Quality Management (TQM), the Toyota Production System (TPS), and another systems commonly known as the Kaizen approach (Hosono, Page, and Shimada 2020). The Japanese automobile industry also needed to address low-quality roads and highways, as well as narrow streets in major urban areas, in the initial phase of motorization—and later, air pollution. In the 1950s through to the mid-1960s, buses and trucks led automobile industry development. As regards passenger cars, light vehicles (K cars), convenient and affordable for Japanese consumers, have been developed in earnest since the mid-1950s.

The Act on Temporary Measures for the Promotion of Machinery Industry, passed in 1956 (valid until 1970), was one of the major instruments for the development of a supporting industry for automobile production, consisting mainly of small and medium enterprises. The following three areas were promoted by this law: (i) basic machinery including machine tools, forging machines, cutting tools, molds, and electric welding machines; (ii) common parts including gears, screws, bearings, bulbs, and the parts necessary for material molding, such as die-casts and strong powder metallurgy; and (iii) specific purpose parts including automobile parts, sewing machine parts, watch parts, and railway vehicle parts. Many studies confirm that this law was very effective in the development of the machinery industry in general and the automobile parts industry in particular. Labor productivity of automobile parts production improved 21.4 per cent from 1956-61 (Odaka 2013, 15).

## 4.2. Korea

The industrialization process in Korea can be divided into four distinctive periods: light industry-centered import-substitution industrialization (ISI) in the 1950s, transition to export-oriented industrialization in the 1960s, a heavy and chemical industry (HCI) drive in the 1970s, and further industrial upgrading, including promotion of IT industries in the 1980s and onward. This chapter mainly focuses on the second and third periods.

Lim (2012) states that, 'if Korea's transition to export-oriented industrialization in the early 1960s had mostly to do with discovering its latent comparative advantage in labor-intensive manufacturing, Korea's subsequent development had more to do with upgrading its comparative advantage with a view toward increasing the domestic content of its exports' (76). Finance for strategic sectors, export promotion, and technology development were among the main instruments of industrial policy in this process. Yo (2016) notes that policy-based finance was the most important. The lending capacity of banks was strengthened in 1962. Several public banks for specific sectors were created in the 1960s. Policy-based finance comprised more than fifty per cent of the total lending of banks from the 1960s through to the mid-1980s (3). Export promotion was another important instrument of industrial policy in Korea. From 1964 President Park Chung Hee chaired monthly export promotion meetings. The interest rate of export finance was less than half of the market rate. Export finance constituted 62 per cent of total policy-based finance for the manufacturing industry in the period between 1962 and 1980 (4) (see Section 5 for more details on export promotion in Korea).

The HCI drive was formally launched in 1973 by President Park with the objective of firmly establishing 'a self-reliant economy' and achieving 10 billion US dollars in exports by 1981. Six industries were selected as leading industries: (i) iron and steel, (ii) nonferrous metals, (iii) shipbuilding, (iv) machinery, (v) electronics, and (vi) chemicals. Lim (2012) argues that the 'HCI drive helped to build the formation of many of Korea's leading industries. [...] It greatly strengthened backward and forward linkages among these industries as well as related industries such as automobiles, to increase the local content of exports' (79). The HCI share of total manufacturing production increased to a higher level than light industries in the mid-1970s and 59 per cent in 1985 (Yo 2016, 7). As regards technology development, the public sector played a dominant

role in R&D, mainly through newly established government labs in the 1960s and 1970s. However, as Korean firms came to realize that they should go beyond imitation and assimilation and do their own innovation to succeed in the global market, they began to drastically increase their R&D spending (Lim 2012, 79).

#### ***4.2.1. Korea's steel industry***

Until 1973, Korea had no capacity for producing the iron needed for steel production. Consequently, scrap or crude iron was imported to produce steel using small electric furnaces. It was necessary for the government to depend on external finance and foreign technology when it commenced plans to establish the Pohang Iron and Steel Company (POSCO) and construct the first integrated steel mill at the beginning of the 1970s. The amount of production of POSCO increased from 2.1 million tons in 1976 to 9.5 million tons in 1986, when the company attained its status as one of the top steel mills in the world. The crucial factor which enabled this successful development of POSCO was very active support from the government, especially from the President. Through this support, POSCO was able to obtain external finance, favorable conditions for technological transfer, construction of related infrastructure, and so forth (Toda 1986). Another important factor was the intensive efforts of POSCO to develop its own engineering capacity through the four phases of construction of the plant. The availability of very high-quality labor and the low level of turnover was also important. Korea's high learning capacity was praised by Amsden (1989). Thanks to aggressive technology acquisition, it did not take long for POSCO to become technologically self-dependent. It implemented a lot of improvements and adaptation of absorbed technology at the Quality Control Department and production sites. It began to develop new products and finally decided to centralize R&D activities by establishing an R&D center in 1977. Furthermore, POSCO became an exporter of its own technology towards the end of the 1970s (Hosono and Hamaguchi 2001).

#### ***4.2.2. Korea's automobile industry***

The law for the protection of the automobile industry was promulgated in 1962 by establishing restrictions on imports of automobiles and parts. Car production was started through technological contracts with foreign companies. However, due to the limited size of the domestic market, it was

difficult to achieve economies of scale of production required to achieve competitiveness. In 1973, the government announced an ambitious long-term plan for developing the automobile industry, establishing targets for integrated production of national cars based on original models, parts production and assembly with the competitiveness to export. Hyundai was the only company able to satisfy the requirements of the plan. In 1975, the company made a large-scale investment for constructing a new plant to produce the first national model, Pony, in a joint venture with Mitsubishi together with technology transfer (Mizuno 1996, 188).

The second oil shock of 1979 produced a serious recession in the automobile industry. Measures for the rationalization of this industry were announced in 1981. Production of automobiles (including trucks) increased from 123 thousand cars in 1980 to 2.5 million cars in 1995, Korea becoming the fifth largest country in car production. Export of cars increased from 25 thousand to 1.0 million during the same period. In this process, the main player was Hyundai, which attained economies of scale in increasing exports. It started to develop its own original model in 1990, achieving the production of original engines and transmissions in 1994.

### **4.3. Malaysia**

Four phases can be distinguished in Malaysian industrialization after independence: the ISI-led process through the 1960s; export-oriented (EO) and inter-ethnic redistribution policies in the 1970s; heavy industrialization policies (1981-85) followed by economic liberalization in 1986-97 (First Industrial Master Plan, IMP I); and post-economic crisis management and IMP II and III. This chapter focuses on the second and third phases.

In the second phase, export orientation (EO) based on attraction of FDI was the main approach. Two main types of export-oriented industries developed. First, 'resource-based industries have involved the increased processing of older (e.g., rubber, tin) and newer (e.g., palm oil, timber) primary commodities for export.' Second, 'many non-resource based export industries have mainly involved the relocation of certain labor-intensive manufacturing processes to stable, low-cost environments, such as those offered by Malaysian free trade zones (FTZs) with the Free Trade Zone Act of 1971, and licensed manufacturing warehouses (LMWs). The most dramatic growth has involved electrical and electronic components' (Jomo 2007, 11). Foreign companies that operated their plants in FTZs

and benefited from LMWs were the main driver of EO. As such, EO and FDI attraction by the government institutions, including the Malaysian Investment Development Authority (MIDA), have been closely related.

In the third and fourth phases, heavy industrialization initiatives were implemented under the leadership of Mahathir with his 'Look East' vision. The Heavy Industries Corporation of Malaysia (HICOM) was set up in 1980 to further diversify manufacturing activity, develop more local linkages (which both ISI and EO failed to do), promote small and medium Malay enterprises and lead technological development by collaborating with foreign firms and investing in local R&D. Mainly involving joint-ventures with Japanese firms, ownership of these industries was dominated by the government before the sale of shares to the public from the mid-1990s (Jomo 2007, 13). Establishment of Proton, a national carmaker, in 1983, was driven by 'the economic motive of creating a broad industrial base as well as a social motive of assisting Malay workers and Bumiputra firms' (Ohno 2013, 221). The First Industrial Master Plan (IMPI, 1986-95) aimed at outward-looking industrialization, modernization of supporting industries, and strengthening of industrial linkages. A number of liberalization measures were undertaken in this process.

#### ***4.3.1. Malaysia's palm oil industry***

In line with the transition to EO industrialization from the late 1960s, the government introduced various new sectoral policies, which included encouraging resource-based industrialization, such as palm oil refining. Since 1968, duty exemptions for higher value-added processed palm oil products were introduced. In 1978, a more complex export duty formula was established to better encourage more processing. 'The palm oil refining industry is probably the most successful story of Malaysian resource-based industrialization. With an estimated annual refining capacity of about 8 to 9 million tons, export of processed palm oil grew at a compounded annual rate of about 25 per cent over the past two decades, and accounted for 60 per cent of the world's refined palm oil products' (Hasan and Jomo 2007, 162). In order to support the refining industry, the government created institutions to assist with R&D, training, and market promotion: the Palm Oil Research Institute, Palm Oil Registration and Licensing Authority, Malaysian Palm Oil Promotion Council. The incentives and new institutions, together with enhancement of entrepreneurship and accumulation of skills, facilitated technological and

organizational development (indigenization) that enabled optimization of processing, bulk processing and exports, and economies of scale. All of these contributed toward strengthening the industry's competitiveness (Hasan and Jomo 2007, 175). Today, Malaysia leads worldwide R&D and innovation in the palm oil industry. The country is deepening the value chain and extending it to higher value-added products such as detergents, medicines, and bio-diesel. Local companies are the main players in the value chain (Goto 2019, 136-37).

#### **4.3.2. Malaysia's automobile industry**

The automobile industry's development process in Malaysia between 1970 and 2000 can be divided into two phases. The first phase started with a policy to promote an integrated automobile industry. The government targeted an increase in local content in production from 10 per cent to 35 per cent between 1971 and 1982. However, due to the excessive number of assemblers in the small local market, it was difficult to achieve economies of scale, which resulted in high prices of cars with low levels of local content limited to tires, batteries, paints, filters, seat belts, and glass items. The second phase started in 1982 with a state-led 'national car' project for the country to become a full-fledged car manufacturer. Perusahaan Otomobil Nasional (Proton) was established in 1983 as a joint venture between HICOM (with a 70 per cent share), Mitsubishi Motor Corporation, and Mitsubishi Corporation. This project 'became the most important instrument for heavy industrialization policy' (Ohno 2013, 235). With strong support from the state, Proton managed to capture 77 per cent of the domestic passenger car market and exported cars to 28 countries, accounting for 23 per cent of total sales as of 1995. The government also initiated a second national car project named Perusahaan Otomobil Kedua (Perodua) as a joint venture between state firms and foreign firms including Daihatsu (Hasan and Jomo 2007).

The learning and adaptation process and its role in establishing the Malaysian automobile industry is summarized as follows by Ohno (2013, 236): 'Unlike neighboring countries, Malaysia took a go-it-alone approach to automobile manufacturing. It hoped to build core capacity and compete squarely in the world market instead of attracting foreign giants to form an automotive industrial base as done in most other developing countries [...]. IMP II targeted the automobile industry as a vital sector in which internal development of technology and engineering know-how was

top priority [...].’ Regarding Proton’s achievements, he highlights that ‘The existence of Proton as a hub of domestic car production enabled the development of local part and component makers through the Vendor Development Program. By the end of 2005, there were 4,865 automobile parts and components produced locally, and 286 suppliers in producing parts and components for Proton. [...] Proton’s effort at internalizing core automotive capability was admirable but not good enough to compete with global giants’ (Ohno 2013, 236).

#### **4.4. Brazil**

The process of industrial policy and industrialization in Brazil can be divided into four periods: the ISI-led process from the 1930s through to the mid-1950s, then a proactive industrial policy followed by heavy and chemical industries-led industrialization from the mid-1950s through the 1970s. In the 1980s and 1990s, there was increased liberalization with an emphasis on building technological capacity and competitiveness, and finally, there has been a return of industrial policies since 2004. This chapter focuses mainly on the second period.<sup>2</sup>

President Kubitschek’s Plano de Metas (Plan of Targets) 1956-61 was the first comprehensive ISI plan aimed at national economic integration. It had 30 development goals to realize the ‘50 years of economic progress in 5 years.’ The Plan of Targets focused on energy and transport infrastructure, which were considered to be bottlenecks to development. The plan included sectoral strategies for agriculture and food (wheat production, grain storage, cold meat storage, slaughterhouses, agriculture mechanization, fertilizer), basic materials (steel, aluminum, ferrous metals, cement, chlorine, paper and pulp, rubber, iron ore export), and capital goods (automobile industry, naval construction, heavy electric materials, and machinery). Kubitschek also launched the Executive Group of Automotive Industry (GEIA), which was intended to attract foreign assemblers to install full-fledged production units in Brazil.

Experiences of increasing fiscal deficits and inflation through the mid-1960s were followed by successful macroeconomic stabilization from 1964-67. Antonio Delfim Netto, the Finance Minister (1967-74), issued the Strategic Plan of Development (PED, 1968-70). The PED was the first to

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<sup>2</sup> The following two paragraphs draw heavily on Chapter 3 of this volume.

recognize the role of the National Economic Development Bank (BNDE, later National Economic and Social Development Bank (BNDES)) as the leading institution of development policy. He considered that a government failure is more problematic than a market failure and approved the role of government in developing infrastructure and essential material industry. In the context of high economic growth in 1968-73, the first National Development Plan 1972-74 (I PND) was carried out. It focused on the construction of the infrastructure for transportation, telecommunications, and energy, created state-owned enterprises for naval construction, steel, and petrochemical industries, induced Brazilian enterprises to participate in strategic sectors, and paved the way to the triple alliance scheme of state, private, and foreign capital in industrial development. The second PND of 1974-79 focused on basic industrial materials (steel, nonferrous metal, petrochemical products, fertilizer, pesticide, paper and pulp, materials for the pharmaceutical industry, nonmetal mineral, products such as cement and sulphur), capital goods, food, and energy.

#### ***4.4.1. Brazil's steel industry***

Brazil has a long history of charcoal iron production. The number of charcoal blast furnaces increased from 6 in 1925 to 134 in 1975, when iron production by charcoal amounted to 3.63 million tons. This was still higher than iron production by coke, in spite of the rapid increase of production by integrated iron and steel plants constructed in the 1950s and 1960s (Taniguchi and Serizawa 1982), as explained below. As such, Brazil had accumulated certain capabilities, knowledge, and specialized personnel related to iron production when the country started investment in the steel industry in earnest. Vargas created Companhia Siderúrgica Nacional (CSN), the first steel mill, in 1940, together with the Companhia Vale do Rio Doce (CVRD, later Vale), an iron ore mining firm, and a railway in order to transport iron ore from the center of Brazil to the Southeast, where the mill was going to be located. In the 1960s, BNDE financed about 70 to 80 per cent of all capital investments in the steel industry (Musacchino and Lazzarini 2014).

From the viewpoint of absorbing cutting-edge technology, the development of the steel industry by another state company, USIMINAS, is outstanding. Brazil and Japan agreed on the establishment of USIMINAS in 1957. BNDE provided the major part of the finance. The construction of the steel plant was carried out in cooperation between Brazil and Japan.

As production partly started in 1961, three Japanese steel companies jointly dispatched nearly 500 persons to USIMINAS over the five years until 1965. By 1967, all the responsibilities of plant operation had been transferred to Brazilians. According to Dahlman and Fonseca (1987), 'USIMINAS passed from know-how stage to know-why state' (163). In 1971, the National Plan for the Steel Industry was announced, and by the mid-1970s, USIMINAS had achieved blast furnace productivity comparable to that of Japan, which was the world leader in that period. USIMINAS's share of the total steel production of Brazil increased to 25 per cent in 1976. Most significantly, USIMINAS maintained a high share of flat sheet products, which contributed substantially to the development of shipbuilding and automobile industries in Brazil. Since the mid-1970s, USIMINAS has been in a position to provide technical assistance to other steel mills and downstream activities, such as capital goods industries. Brazil became the biggest exporter of steel products from the developing world, with a share of over 4 per cent of total world exports in 1985 compared with only about 0.2 per cent in the mid-1970s. USIMINAS was the first case of privatization of state enterprises in Brazil in 1991.

#### ***4.4.2. Food value chain in the Cerrado region***

The major regional action of the second PND was the agricultural development of the Cerrado, an area of tropical savanna in Brazil. This was initiated by the Central-West Region Development Program (POLOCENTRO, 1975-79), followed by the Japanese Brazilian Cooperation Program for Cerrados Development (PRODECER, 1979-2001). Through these and other initiatives, Brazil achieved a major transformation to become a world top class exporter of grains and meat, strengthening food value chains in the Cerrado region considered unfit for agriculture before. For this process, it was essential that soil management technologies be improved and new crop varieties suited to tropical zones be developed (Hosono et al. 2016, 14-17). To address these needs, the Brazilian government judged that it was necessary to establish a public organization to foster the necessary technological innovations. The Brazilian Agricultural Research Corporation (EMBRAPA) was established in 1973, and EMBRAPA's Cerrado Agricultural Research Center (CPAC) achieved success very early. Financial resources were provided by the government and international cooperation programs (Hosono et al. 2019, 5). Together with the development of food value chains, the public-private partnership in learning and innovation eco-system in clusters of the value

chain networks has been strengthened, and involves farmers, providers of agricultural and agro-industrial inputs, food processing plants, traders, and other stakeholders.

#### **4.5. Chile**

Chile's industrialization process can be divided into at least three phases: government-led ISI from 1938 to 1973, a liberalization and export- and FDI-led process in the 1970s and 1980s, and a renewed horizontal policy-led process in the 1990s and onward. This chapter focuses mainly on industrial policies of the 1970s through to the 1990s.

According to Agosin et al. (2010), 'the import substitution stage of Chilean development (roughly from 1938 to 1973) saw an increasing emphasis on industrial policy.' Not only did the government protect domestic industry through high tariffs, but in addition, state agencies became the most important entrepreneurs in sectors such as steel, petroleum extraction and processing, sugar, electricity, and telecommunications. They consider that, 'contrary to conventional thinking, many of these proved profitable.' The Corporación de Fomento de la Producción (CORFO), a development agency established in 1939 with broad attributions including those of being a development bank, was in charge of implementing the industrial policy (5).

Since the mid-1970s, the government started liberalization of trade and FDI and privatization. The government removed practically all restrictions on FDI. DL 600 (a foreign investment law) was introduced in 1974. Under this law, foreign investors settled contracts with the Chile Foreign Investment Committee, which guaranteed the application of provisions of DL 600. The government recognized the important externalities of generic export promotion. Thus, early on, ProChile, an agency attached to the Ministry of Foreign Affairs, was set up to be in charge of such activities. However, most of the policies implemented in the second phase were of a horizontal nature. Since 1973 and until very recently, Chile basically eschewed vertical industrial policies with very few but significant exceptions (Agosin et al. 2010, 6).

In the period of the 1990s and 2000s, the government deployed myriad instruments of industrial policy mainly through CORFO, but also through other institutions such as ProChile and even the line ministries.

According to Agosin et al. (2010), most policy instruments, including those of CORFO, were horizontal programs involving market interventions (through taxes or subsidies). They further state that, since the early 2000s, this insistence on horizontality has been giving way to a more realistic appraisal of the need to achieve a critical mass in the provision of government support. Today, Chile's largest exported products, after copper, are salmon, forestry products, fresh fruits, and wine. This chapter discusses the salmon industry and forestry sectors, promoted mainly by vertical industrial policies.

#### ***4.5.1. Forestry products industry in Chile***

One of the areas that the Chilean government has targeted most explicitly is the forestry sector, through a mix of policy interventions including laws, incentives, subsidized credit lines and other tools to attract private investments in the sector (Lebdioui 2019). The military government made a strategic bet on a non-existent but potentially profitable sector. It had long been known that radiata pine grew faster in certain parts of Chile than practically anywhere else in the world. The authorities in effect solved a coordination problem that made this sector take off. In 1965 the Chilean government created the Forestry Institute, a technological research institute attached to the Ministry of Agriculture and the country's first institution responsible for conducting R&D in the forestry sector, specifically in areas of forestry economics and wood-related technologies (Agosin et al. 2010; Lebdioui 2019, 7).

The Chilean authorities have successfully targeted the forestry sector through several tools and legal interventions. One of them was Decreto Ley 701, which granted cash subsidies amounting to 75 per cent of the costs of planting and the initial management of forests. The Central Bank provided incentives and subsidized credit lines for investments in the forestry sector between 1974 and 1979 (Lebdioui 2019, 19). Measures were also taken to ban the exploitation of forest trees younger than 18 years old, as well as the export of raw wood and debarked logs. These measures benefited the domestic cellulose and paper industries, which took advantage of low raw material prices. Another intervention, which is less vertical in its design but benefited the forestry sector in particular, was a program of debt-equity swaps introduced in 1985. Investments as part of the debt-equity swap stimulated the industrial processes needed to transform the developing forestry sector through value-added wood

products.

#### **4.5.2. Chile's salmon industry**

Agosin et al. (2010) affirmed that there was only one institution in Chile devoted to making strategic bets, Fundación Chile (FCh), in the 1970s and 1980s. Its most outstanding project was the salmon industry. Salmon did not exist in Chile until the 1970s. Today, Chile is one of the world's top salmon-exporting countries, on par with Norway. The salmon industry did not develop through voluntary private sector investments from the outset. Market failure was averted by FCh and Japan-Chile salmon project. FCh made an investment large enough to produce salmon through sea farming on a major scale (one-thousand-ton program) and recouped this investment. FCh thus demonstrated the commercial profitability of large-scale sea farming in 1988 (Hosono 2016, 51-52). Furthermore, as a public good, it provided the technology to farm salmon for free or for a fee so as to allow many companies to invest in the salmon industry without having to make a sizable investment in R&D.

FCh, following this successful achievement, decided to sell the venture through international bidding. Nissui, one of the major Japanese fisheries, won the bid and became a pioneer in introducing advanced salmon processing technologies. Chile, in its ascendance as a world producer, has formed a full-fledged, overarching salmon value chain covering each phase from the production of salmon farming and a whole system of upstream goods and services (especially R&D) to processed products, marketing and export. In 2008, processed products accounted for 63 per cent of total salmon exports of Chile. The Japan-Chile salmon project, implemented under an agreement between Chilean and Japanese governments for twenty years since 1969, provided technology and personnel trained by the project, which allowed private salmon firms to save on the cost of investment in R&D and training of industrial personnel.

### **5. Industrial Policies and the Learning, Adaptation, and Innovation Process: Insights from Country Experiences**

Drawing on the case studies of Section 4,<sup>3</sup> as well as the related literature reviewed in Section 3, I will compare the five countries in terms of their

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<sup>3</sup> Some findings not mentioned in Section 4 are also referred to in this section.

industrial policy instruments, policy formulation and implementation, public-private relations, and the process of learning, adaptation, and innovation. First, essential industrial policy instruments in these countries will be compared. As regards policies related to the supply-side, crucial areas covered in the literature are technology, long-term finance (development banks), and firm capabilities, particularly of SMEs for supporting industry. In relation to these, policies toward FDI will be discussed together, because FDI normally provides technology and finance. Second, regarding policies related to the demand side, competition in the domestic market, scheduled trade liberalization, and export promotion will be considered. Third, public-private relationships in the process of policy formulation and implementation will be compared. Fourth, the processes of learning, adaptation, and innovation will be examined from the perspective of 'translative adaptation,' discussed in Chapter 1 of this volume.

### ***5.1. Technology, long-term finance, and FDI***

Policies related to FDI, considered an effective vehicle for acquiring foreign technology and finance, differed widely between the countries. Korea and Japan were reluctant to count on FDI during the HCI drive, when FDI was not very widespread globally. ASEAN countries, which started HCI later, actively attracted FDI. Chile's process was FDI-led from the mid-1970s onwards. Brazil opted for a hybrid approach, both attracting FDI and promoting indigenous technology development together with establishing a powerful development bank. Combinations of these two were different among the diverse industrial sectors in Brazil.

Japan and Korea needed to import foreign technologies through licensing. Efforts to absorb such technologies with adaptation and proper innovation were comprehensive and far-reaching. Governments promoted and supported systematically indigenous technological development. For instance, in Korea, as Lim (2012) states, 'the government established the Korea Institute of Science and Technology (KIST) in 1966 and the Korea Advanced Institute for Science and Technology (KAIST) in 1971.' Following this, 'it passed the Technology Development Promotion Law in 1972, providing tax and other incentives to encourage private-sector R&D. It also established five industry-specific research institutes in shipbuilding, electronics, machinery, metal, and chemical industries according to the Specialized Research Institute Promotion Law of 1973'

(10). In Japan, in addition to a similar systematic approach by the central government, efforts to support the technological development of SMEs are worth mentioning. As Andreoni (2017) states, Kosetsushi (public testing/research laboratories) are run by regional governments (prefectures) and support local SMEs with a variety of quasi-public good technologies for testing, trial production, and scale-up, as well as training services. He further states that ‘a number of sector-focused centers also support SMEs in the adoption of new advanced technologies and conduct joint applied research’ (269).

In Brazil, the provision of technology has differed greatly between sectors—for example, automobiles, airplanes, and electronics. While FDI was the major driver in Brazil’s automobile industry, as was the case for ASEAN countries, indigenous technological development was the main vehicle in the case of airplane production by EMBRAER, which became one of the world’s top airplane manufacturers. On the other hand, the ‘unfortunate case of the electronics and informatics industry illustrates an ineffective industrial policy where the government just provided companies with protected local markets but did not extend support to basic research or human resource development’ (see Chapter 3, Section 4.4.3).

Regarding Malaysia, Jomo (2007) concludes that, ‘through various generous incentives, the government has sought to encourage investments in higher value-added economic activities as well as research, design and developing activities. Government policy has also created a range of institutions and programs to promote research activities, especially in the public sector, besides facilities and incentives for private-sector research and development. Although such government efforts have met with limited success, there is evidence of significant technological progress in Malaysian manufacturing in recent decades’ (xxiii).

The government role in R&D could be essential in the initial phase of development of new industries, particularly when it is risky and/or costly for private companies to invest in the R&D required for such industries. The cases of Cerrado agriculture with the food value chain in Brazil and the salmon industry in Chile are clear examples: R&D by EMBRAPA and a public-private entity, Fundación Chile, undertook the pioneering role to provide technology as a public good.

Regarding long-term finance, JDB played a crucial role in Japan. Commercial banks were important providers of finance as well. As Shimada (2017) highlighted, JDB had, among other aspects, the following critical features: (i) it 'had autonomy to decide its lending based on its own appraisal, and without political bias' (166-67); and (ii) because of the complementarity among industrial sectors financed by JDB, 'the loans were used as a kind of subsidy to the target industries with 'crowding-in effects' in mind... The complementarity or spillover effects among sectors are one of the important characteristics of the JDB loan' (167-68); (iii) a JDB loan sent 'an important signal to private banks (the *signaling effect* of the government's industry policy) to provide loans. JDB loans catalyzed loans from private banks by lowering the risk' (169; emphasis in original).

In Korea, the government established the National Investment Fund (NIF) to finance long-term investment in HCIs in 1973. Government-controlled banks also supported the HCI drive by providing policy-oriented loans on favorable terms (Lim 2012, 9). Gustafsson (2007) affirms that 'the Malaysia government has not used development banking as extensively as South Korea has' (48).

In Brazil, the role of BNDES (former BNDE) was pivotal to remedying private financial institutions' short-term and risk-averse attitudes: 'Private bank loans are not only scarce and volatile in terms of volume, but they are also high-cost, and their loans are strongly skewed to the short maturity segment.' Moreover, 'BNDES has been central to industrial policy formulation with qualified technical staff and technical autonomy' (Chapter 3, Section 5.5 of this volume). In this regard, Ferraz and Coutinho (2019) claim that 'BNDES had technical autonomy, namely a collective capacity to approve or reject projects based exclusively on an explicit project and credit evaluation criteria [...] It is widely accepted that BNDES has high competency to examine the eligibility of borrowers on a purely technical basis' (Chapter 3 Section 5.5 of this volume).

## **5.2. Firm capabilities, especially of SMEs**

Strengthening firm capabilities and nurturing industrial human resources are among the most critical aspects of industrial policies. In addition to presenting a standard policy menu for industrial capability enhancement (referred to in Section 3), Ohno (2013) highlights six industrial policy measures among the most popular policy instruments for enhancing

industrial capability in East Asia: *Kaizen* (quality and productivity improvement at factories), *Shindan* (enterprise management consultant system), engineering universities and technical colleges, TVET-industry linkages, industrial estates, and strategic FDI marketing (63-64, 65-80).

A small and medium enterprises (SME) policy is one of the most widely implemented policy packages for firm capability enhancement. In most East Asian countries, comprehensive SME support systems have been established. Both horizontal policies and vertical policies show effective results. Among the horizontal policies, a very widely applied approach is the introduction of the *Kaizen* method and several management systems based on *Kaizen* (Hosono et al. 2020).

Among vertical policies, initiatives to strengthen automobile parts industries consisting largely of SMEs are worth mentioning. For industries that are dependent on thousands of parts, such as the automobile industry (which can involve 30,000 to 40,000 parts) as well as other machinery industries, the capabilities of parts suppliers are essential. To enhance the competitiveness of the automobile industry, both horizontal policies to support SMEs and vertical policies to promote key sectors of supporting industry are required. In Japan, the Act on Temporary Measures for the Promotion of Machinery Industry was very effective in this regard, as discussed in the next subsection. In Malaysia, the government launched the Vendor Development Program (VDP), under which multinational and local 'anchor companies' would provide guaranteed purchasing contracts and technical assistance to local vendors, who would also receive subsidized finance from local banks and technical support from government institutes (Felker and Jomo 2007, 73-74).

### ***5.3. Competition in domestic markets, scheduled trade liberalization, and export promotion***

In cases of industrial sectors requiring economies of scale, including the steel industry, petrochemical industry, and automobile industry, the size of the market matters. Domestic markets, together with (or without) export markets, need to be large enough to take advantage of the economies of scale. Given sufficient size, even if the domestic market is protected, domestic firms will be encouraged to improve their competitiveness when they face competition in domestic markets and/or trade liberalization is reasonably scheduled.

Export promotion was one of the most widely implemented approaches of industrial policies among all the countries studied. Korea introduced a number of measures to facilitate export-oriented industrialization. The short-term export credit system had been streamlined as early as 1961, with the automatic approval of loans to those with an export letter of credit (L/C). This allowed businesses to have access to trade financing without having to put up collateral. The government established the Korea Trade Promotion Corporation (KOTRA) in 1962. The government also gave exporters various tax deductions, tariff exemptions, and concessional credits: ‘These subsidies took the form of performance-based rewards in a competitive setting rather than handouts with no strings attached’ (Lim 2012, 75). After 1964, then-President Park Chung Hee chaired monthly export promotion meetings.

In Japan, the mainstream vision in the mid-1950s was to promote both exports and domestic sales. Johnson (1982) cites a Japanese analyst, who argued that ‘the only industries in which we have seen export increase induce a production increment—instead of the other way round—are transistor radios and perhaps cameras. [...] Export increases of all our other products have been induced mainly by expansion of the domestic market’ (230). The Supreme Export Council and JETRO were created in 1954 and 1958, respectively. Scheduled trade liberalization and efforts to strengthen competitiveness to face it became one of the main agendas of industrial policies of the 1960s.

In Chile, ProChile has been one of the main instruments of Chile’s horizontal industrial policies from the late 1970s and onward. Today, ProChile is considered one of the most effective institutions for export promotion in Latin America.

#### ***5.4. Formulation and implementation of industrial policies and the public-private relationship***

In Japan, the Industrial Structure Council is the central body of industrial policy formulation. Under the umbrella of this council, many subcommittees for specific industrial sectors have been set up. For different issues of industrial development, specialized committees have also been established. Representatives of the government, normally of the MITI, enterprises, and academics participate in meetings of these organizations. Wada (Chapter 4 of this volume) states that the formulation and

implementation of sectoral industrial policy in the rapid growth period was carried out through collaboration with companies and industrial associations, instead of strong government-led power. Many policies have been formulated as an outcome of the collaborative work of the government, enterprises, and sector associations. They share knowledge of issues and challenges of each sector and collaborate in the process of implementation of policies. Sectoral industrial policies are formulated based on in-depth analysis of very distinct sector-specific challenges. In this regard, the case of the Act on Temporary Measures for the Promotion of Machinery Industry could be among the most representative. For the automobile parts sector, 42 main parts (26 at the inception) were selected and rationalization plans for each of the parts were prepared through the collaboration of public and private sectors. The participation of many stakeholders made the process of formulation and implementation of plans very transparent. The policies implemented by this law (1956-70) were successful due to the cooperation of the public and private sectors, as well as networks among firms working effectively (Odaka 2013, 14-15).

In Korea, where exports were one of the top priorities of industrial policy, export promotion meetings attended by President, high-ranking government officials, and business representatives functioned as an effective platform for public-private collaboration. Lim (2012) states that 'these meetings provided a forum to monitor progress and devise institutional innovations and solutions to emerging problems' (76). Export insurance was one of many institutional innovations that were introduced as a result of recommendations from monthly export promotion meetings. Lim emphasizes that, 'most importantly, Korea adopted an integrated approach to export promotion, with comprehensive and interrelated measures, policies, and institutions' (76). Regarding public-private coordination, Lim concludes that;

the government formulated indicative plans at the national level but delegated much of their implementation to business groups, which in turn tried to coordinate productive activities at the group level in addition to engaging in market transactions. Based on close public-private consultations and performance-based rewards, this two-tier approach to coordination helped to address information and incentive problems. [...] Korea maintained an outward-oriented, bottom-up, and integrated approach, relying

on close public-private consultation and international benchmarking. While continuing to pursue export oriented industrialization for its resource allocation, scale economies, and dynamic learning effects, the government and the *chaebol*<sup>4</sup> systematically studied what had to be done to fill the missing links in the domestic value chain and move up the quality ladder through technology acquisition, human resource development, and construction of optimal-scale plants aimed for the global market. (Lim 2012, 84)

Public and private collaboration through different types of partnerships provided a platform for learning about industrial policies due to the fact that government, public organizations, enterprises, their associations, and other stakeholders exchanged information and co-created innovative solutions. Learning, adaptation, and innovation are inherent in this process, as highlighted by Wada (Chapter 4 of this volume) in the case of Japan. Mainly due to public and private partnerships at different levels from deliberation councils to meetings of specific industry stakeholders, ‘with the presence of vertical bureaus, MITI was able to understand the actual activities of each specific industry, and was capable in formulating and implementing effective industrial policies suited to each case. On the other hand, Japanese companies formed business groups by industry, region, or function, and they tended to work together to solve common problems.’ In-depth information on sector-specific idiosyncrasies was indispensable to formulate industrial policy measures appropriate for specific industrial sectors. Wada also refers to the viewpoint of the horizontal bureaus as follows: ‘it was thought that gathering the real issues of each industry and considering them as an overall industrial policy from the viewpoint of the horizontal bureaus in MITI, effectively grounded Japanese industrial policy.’

Page, one of the authors of the World Bank’s *East Asian Miracle*, emphasizes the importance of formal deliberation councils established in five of the High Performing Asian Economies (HPAEs)—Hong Kong, Japan, Korea, Malaysia, and Singapore. He considers that they probably improved coordination among firms and the flow of information between businesses and government: ‘Politically, they helped establish a shared

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<sup>4</sup> A *chaebol* is a large family-owned industrial conglomerate with diversified affiliates in South Korea.

commitment to growth and reduced rent-seeking. Information sharing made it harder for firms to carry special favors from the government and for government officials to grant special concessions' (Page 1997, 49). He affirms that few Latin American economies have applied these lessons of institutional development. Based on experiences of these economies, Fernández-Arias et al. (2014) state that, 'In some countries, such as Costa Rica, business is expected to be near the policy design process on matters that affect it directly. In others, such as Chile, government (especially high-level officers) keeps a distance. As a result, policies in Chile tend to be top-down, while policies in Costa Rica tend to follow a more participatory, bottom-up approach' (377).

### ***5.5. Learning, adaptation, and innovation from a 'translative adaptation and local learning' perspective***

The literature coincides on the importance of learning and enhancement of capabilities of governments, firms, and industrial human resources (workers, managers, and others) to be successful in industrial policy implementation, as well as in industrialization, as stated in Section 3. In this regard, case studies revealed that the processes of learning, adaptation, and local innovation effectively took place in all ten cases of transformative industrial development.

The processes are characterized by (i) attention to uniqueness of each country and society, (ii) country ownership with the proactive roles of governments and private sector development, and (iii) process orientation through trial and error, and the establishment of systems that correspond to the stages of learning, adaptation, internalization, and scaling up. These are key ingredients of 'translative adaptation and effective local learning' identified in the Overview Chapter. As summarized in Tables 2.2-2.4, the countries were aware of their uniqueness from the perspective of the development of their respective industries. In all cases, ownership of the countries was conspicuous and the proactive roles of the governments were generally strong. A continuous process of learning, adaptation, internalization, normally through repeated trial and error, took place. Therefore, these processes could be considered cases of 'translative adaptation and effective local learning,' as discussed in the Overview Chapter.

It is worth mentioning that, in most of the above-mentioned cases, public

or semi-public institutions for promotion of new industries and/or for their technological development were established and they achieved significant success, as confirmed by the case studies. These cases reveal that reasonably good institutional ‘islands’ can be highly effective when created for specific purposes, as distinct from an overhaul of the entire institutional structure. In particular, R&D and innovation were achieved frequently by specialized institutions, with or without diverse incentives, as demonstrated by Tables 2.2-2.4.

**Table 2.2. Steel Industry: Learning, Adaptation, and Innovation, and Key Ingredients of ‘Translative Adaptation and Effective Local Learning’**

	<b>Attention to the country’s uniqueness</b>	<b>Country ownership (proactive roles of the government and the private sector)</b>	<b>Process orientation with trial and error (stages of learning, adaptation, internalization, and scaling-up)</b>
<b>Japan</b>	Need to introduce cutting-edge technology as well as attain economies of scale, and import iron ore at lower cost	Steel industry rationalization plans addressing the country’s uniqueness; long-term finance; eagerness of the private sector	Substantial improvement of technology; location of steel mills in coastal areas and introduction of iron ore carriers
<b>Korea</b>	Need to catch-up from scratch; needs to play the role of one of the leading industries for HCI drive with linkages to other essential industries	Strong ownership of the country establishing POSCO with the President’s leadership	Intensive learning through POSCO construction phase; improvement of absorbed technology
<b>Brazil</b>	Rich endowment of iron ore and technology of charcoal blast furnaces; need to introduce integrated steel plants and construct infrastructure for iron ore transport	Strong ownership of the country establishing CSN, USIMINAS, and other state steel plants, as well as CVRD; long-term finance by BNDES	Intensive learning of technology through USIMINAS construction phases and its dissemination to other state’s steel plants

Source: Created by the author.

**Table 2.3. Automobile Industry: Learning, Adaptation, and Innovation, and Key Ingredients of ‘Translative Adaptation and Effective Local Learning’**

	<b>Attention to the country’s uniqueness</b>	<b>Country ownership (proactive roles of the government and the private sector)</b>	<b>Process orientation with trial and error (stages of learning, adaptation, internalization, and scaling-up)</b>
<b>Japan</b>	Need to attain higher quality and productivity for liberalization of imports and become competitive in international market; develop supporting industry; address low quality roads and highways	Scheduled liberalization of automobile imports and foreign direct investment in car industries; supporting industry promoted by the Temporary Measures for the Promotion of Machinery Industry; ‘K cars’; long-term finance	Introduction and continuous improvement of TQM and other Kaizen-based management approaches, later achieving higher productivity than other automobile industry countries
<b>Korea</b>	Need to develop the car industry from scratch, attaining scale economy (limited size of domestic market) through exports from early development phase	Ambitious long-term plan with targets of integrated production of national cars based on original models, parts production and assembly with competitiveness in exports.	Intensive learning by Hyundai achieving scale economy and competitiveness for export.
<b>Malaysia</b>	Need to promote car industry to create a broad industrial base and assist Malay workers and Bumiputra firms; need to achieve scale economy and higher level of local contents.	Strong ownership of the country with a state-led ‘national car’ project to become a full-fledged car manufacturer; enhancing supporting industry through the Vendor Development Program.	Great efforts of Proton to ‘internalize core automotive capability’; development of around 300 car suppliers to provide about 5,000 parts and components.

Source: Created by the author.

**Table 2.4. Resource-based Industries: Learning, Adaptation, and Innovation, and Key Ingredients of ‘Translative Adaptation and Effective Local Learning’**

	<b>Attention to the country’s uniqueness</b>	<b>Country ownership (proactive roles of the government and private sector)</b>	<b>Process orientation with trial and errors (stages of learning, adaptation, internalization, and scaling-up)</b>
<b>Malaysia: Palm oil industry</b>	Need to establish competitive palm oil refining industry and produce higher value-added products	Strong ownership creating institutions to promote the industry: Palm Oil Research Institute and others.	Leads worldwide R&D and innovation, and value chain of high value added products: detergents, medicines, and bio-diesel.
<b>Brazil: Grain and food value chain</b>	Need to promote sustainable agriculture in the Cerrado and to develop Central west region.	Strong ownership of the country establishing EMBRAPA, and providing long-term finance.	Development of soil management and new crop varieties suited to tropical zones and their dissemination; continuous R&D and innovation
<b>Chile: Forestry products industry</b>	Possibility of developing competitive forestry production based on radiata pine trees.	Strong ownership of the country establishing Forestry Institute for R&D, providing finance and several incentives, and discouraging export of raw wood.	Development of higher value-added wood products and expansion of their exports, as one of the most important non-copper export segments.
<b>Chile: Salmon farming and processing industry</b>	Possibility of developing competitive salmon farming due to favorable natural conditions.	A public-private joint venture, Chile Foundation’s investment in R&D and in a pioneering company to produce at scale.	Improvement of salmon farming and processing technologies; establishing salmon value chain, and exporting processed products.

Source: Created by the author.

## 6. Concluding Remarks

Industrial policies can be classified according to their purposes, as discussed in Section 3. Bearing these classifications in mind, this chapter conducted case studies of the experiences of five countries from Asia and Latin America (Section 4). In all countries studied, industrial policies, such as those discussed in Section 3, have been extensively implemented. Furthermore, in all cases of the selected industries of these countries

that contributed significantly to their transformation, vertical industrial policies have been widely carried out.

From the experiences of these countries, it is highly evident that what matters for industrial development is which combination of industrial policy instruments is appropriate in different circumstances, given sector-specific characteristics (sector-specific idiosyncrasies) and challenges, and how these policies are formulated and implemented. Regarding the combination of policy instruments, horizontal and vertical instruments have been complementary, according to the experiences of these five countries. Furthermore, horizontal policy instruments have not always been neutral to all industries. They have very often had stronger impacts on some sectors than others. On the other hand, as each industrial sector has its own specialties, a sectoral (vertical) industrial policy can respond to each sector closely and enhance the effectiveness of the industrial policy (Hamaguchi, Chapter 3; Wada, Chapter 4). Regarding the formulation and implementation of industrial policies, public-private partnerships are extremely important, as discussed in Section 3, based on recent literature and confirmed by the case studies (see Section 5).

The steel industry in Japan, Korea, and Brazil, the automobile industry in Japan, Korea, and Malaysia, and four natural-resource-based industries in Malaysia, Brazil, and Chile have been supported by industrial policies, although their characteristics have been different. Development of these industries was not achieved in a *laissez-faire* market. In all cases, vertical (or selective) policies have been applied, in addition to horizontal (or neutral) policies applicable to all industrial sectors. Furthermore, the case studies of this chapter provide some valuable insights into the concept of the 'translative adaptation and effective local learning' discussed in the Overview Chapter (Chapter 1). Generally, in the process of development of the above-mentioned industries, public-private collaboration, through partnerships between the government, firms, their associations, research institutions, and other stakeholders, has been essential in learning, adaptation, and innovation. Many indigenous innovation initiatives have been carried out to address distinct challenges each country faced.

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## Industrial Policy and Structural Transformation of Brazilian Economy

Nobuaki Hamaguchi

### 1. Introduction

Structural transformation is a critical concept in economic development. A society develops as it turns from a simple economy based on agriculture and handcraft to an economy with higher complexity and larger scale industries. The introduction of new technology enables us to achieve higher labor productivity. The creation of a new industry expands the division of labor. Thus, we benefit from less time tied to work for higher incomes, and enjoy a greater variety of consumption.

Governments may want to accelerate the process of such structural transformation by intervening in resource allocation. Industrial policy is the general term for such measures to protect and nurture specific types of industries, mobilize labor and capital from one sector to another, and establish necessary institutions and a legal framework. Similar to 'market vs. state' arguments, industrial policy receives support and criticism on both technical and ideological grounds.

Brazil, which we study in this chapter, is a thought-provoking case for this debate. Brazil implemented comprehensive industrial policies over a long period of time. In the Golden Age, industrial policy was a driving force of Juscelino Kubitschek's national integration (1956-61) and the growth miracle (1969-73) under the military regime. Over the years, industrial policies have changed directives, configuration, focus, and range, reflecting developmental challenges at times. Our objective is to understand the specific contexts in which adjustments to industrial policies were made, reflecting the structural transformation of the Brazilian economy. Industrial policy in the contemporary globalized market economy is a relevant attempt to break through the ceiling of a premature deindustrialization, which is a common symptom among

emerging economies. We may draw some lessons from the recent experiences of Brazil.

The chapter is organized as follows. Section 2 provides a review of economists' arguments on industrial policy. Section 3 summarizes the structural transformation of the Brazilian economy using the data of GDP, international trade, and innovation activities. Section 4 tracks industrial policies from the inauguration to the collapse of import-substitution industrialization, supporting the structural transformation. Section 5 discusses the rejuvenation of industrial policy in the twenty-first century with a well-structured framework. The final section concludes the discussion.

## **2. Review of Literature**

### ***2.1. Pros and cons of industrial policy***

There is a long debate among economists as to whether or not a country should implement industrial policy. The Nobel laureate Gary Becker famously claimed that 'an industrial policy would become a servant of special interests rather than a guardian of the general interest' (Becker 1985, 8).<sup>1</sup> A negative perception toward industrial policy is presented even in the literature of development economics for which structural transformation is fundamental (Harrison and Rodriguez-Clare 2010). However, another Nobel laureate Joseph Stiglitz (2017, 23) defends the role of industrial policy in development strategy, commenting that, 'the market may not lead to either a good allocation of resources among sectors or the appropriate choice of techniques. Industrial policies, aimed at affecting the economy's sectoral allocation and choice of technique, are one of the instruments for addressing these market failures.'

Rodrik (2008) argued that the debate on industrial policy should not be *whether* to implement it. Instead, it should be normalized to discuss *how to* apply it like any other government intervention in health, education, social insurance, or macroeconomic stabilization. The main reason for his argument is that scale economy, information asymmetry, poor coordination, and externalities cause market failures that hinder structural transformation and technological upgrading, making a strong

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<sup>1</sup> The same phrase was used by former Brazilian Minister of Finance Pedro Malan of the Fernando Henrique Cardoso administration.

case for policy intervention. Weak learning by doing, lacking industrial agglomeration, and financial disintermediation are typical shortcomings of the market. They cannot be addressed without departing from the assumption of perfect competition.

A common criticism against industrial policy identifies government failures as more problematic than market failures. Discretionary resource allocation with a political objective invites corruption and rent-seeking.<sup>2</sup> Besides a political bias, the government is less efficient than a market to choose which sector or activity to be fostered because of incomplete information. Rodrik (2008) challenges this view that it is possible to design institutional arrangements that achieve social objectives of economic development while handling well some potential problems arising from an intervention.

Concerned with selective biases, some prefer horizontal measures that are unselective of sectors. These include general support for research and development (R&D), nurturing business environment through capital market development, science education programs, and the development of information technology infrastructure. However, even the measures considered horizontal cannot be viewed as unselective because more capital- and research-intensive sectors will receive more benefits. After all, any support for structural change and productivity growth cannot serve as a policy goal without any consideration of the direction of technological change (Aiginger and Rodrik 2020).

## ***2.2. Industrial policy beyond market failures***

Mazzucato (2011) further argued that just fixing market failures is not enough. She stands for an entrepreneurial government that shows directions, areas, and routes towards new 'techno-economic paradigms.' For Mazzucato (2015), the rationale for industrial policy is to transform, to catalyze, and to shape the market rather than to fix its failures alone. In the same vein, Andreoni et al. (2019) criticized the discussion of an industrial policy that centers the problem of market-failure on the basis of open and competition-based market structure. They argue that the

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<sup>2</sup> See also Ades and Di Tella (1997). They point out that active industrial policy increases both investment and corruption. But because the latter deters investment, the effects of industrial policy on investment suffers a loss, even when the total effect would be positive.

debate loses contact with the historical and context-specific dynamics and the political economy of production transformation. Then, we may miss an integrated policy framework, considering micro-, meso (sector)-, and macro-structures, and interdependence between those levels.

Landesmann and Stöllinger (2019) developed the notion of ‘appropriate innovation policy’ from the viewpoint of context-specific policy design. Industrial policy in developed countries places weight in innovation, while economies that are catching-up focus on faster upgrading (product upgrading, process upgrading, functional upgrading, and value-chain upgrading). If a country is further away from the technological frontier, a state may want to take advantage of backwardness by facilitating technology transfer and building the capacity of learning. In the current period where global value chains play an essential role in defining the international division of labor, a necessary role of the government is to attract foreign firms as the primary agents of the diffusion of internationally generated knowledge. When a country comes closer to the global technology frontier, the government switches its emphasis to R&D capacity building. Failure in designing context-specific policies prevents a country from climbing the development ladder and keep it in the ‘middle-income trap.’ Wade (2016) argues that industrial policy with sectoral targets that takes maximum advantage of occasional opportunity and original potential can help to accelerate a middle-income country into the high-income segment.

### ***2.3. Technological revolutions and coordination for structural transformations***

The technological revolution drives structural transformations of an economy and the society as a whole. As Table 3.1 shows, through the spread of agricultural technology, the productivity of food production jumped significantly, allowing for population growth and the formation of settlements. The invention of a steam engine in the late 18th century initiated the first industrial revolution wherein the production modality shifted from handcraft to mechanization. The second industrial revolution in the late 19th century was based on the change of energy source to petroleum and electricity, allowing for the use of high-powered machinery to realize mass production. The advance of digital technology beginning in the 1990s led to the third industrial revolution, in which exponential development of processing and transmission of data was enabled through

**Table 3.1. Technological Paradigm Change**

Society	Technological revolution
1. Hunter and gatherer society	Agricultural revolution (Farming and cattle raising, High food productivity, population growth, human settlement)
2. Agricultural society	I. Industrial revolution (Steam engine, mechanize production) II. Energy revolution (Electric power and internal combustion engines, Mass production)
3. Industrial society	III. The digital revolution (personal computer, service innovation)
4. Information society	IV. Information and telecommunication technology revolution
5. Smart society	

Source: Author’s elaboration based on Schwab (2015). About Society 5.0 Cabinet Office of Japan. [https://www8.cao.go.jp/cstp/english/society5\\_0/index.html](https://www8.cao.go.jp/cstp/english/society5_0/index.html).

intensive use of personal computers connected through the internet.

Schwab (2015) argues that the most recent development of digitalization and communication speed will lead to the fourth industrial revolution. We can already witness new combinations of hardware and software that are flourishing, such as artificial intelligence, robotics, block-chain, internet-of-things (IoT), fintech, 3D printer, etc. Wade (2016) points out that digital technology is entering highly regulated markets such as healthcare, transport, energy, and education, hence the potential contribution of industrial policy agencies is all the greater today. Slower digitalization progress in these areas contrasts to the current information society era where global champions in the digital revolution emerged from the free competition in unregulated new businesses, notably GAF A (Google, Amazon, Facebook, and Apple). The Japanese government aims for the post-information society (Society 5.0), emphasizing human-centered use of new technologies.

History shows that crucial technologies that have catalyzed structural transformations have been supported by public policy. To begin with, the British government passed an Act of Parliament in 1775 to give Watt a 25 year monopoly on producing steam engines. Oil and gas, electric power generation, railroad, telecommunication, internet, information

technology, biotechnology, and nanotechnology also received protection and promotion from the government in developed countries.<sup>3</sup> Japan has been considered a hallmark of a successful industrial policy in the catch-up phase. It used: (i) horizontal measures (promotion of science and technology and broad education and training opportunities); (ii) targeted sector policies (state-led investment, enhancement of private enterprise R&D and new technology adaptation, economic signals and incentives to profit-motivated agents through pricing, import tariffs, and quotas, and the regulation of competition); and (iii) information sharing and coordination (Cimoli et al. 2015).

These historical accounts suggest that the government is a strong (if not the only) candidate for attending to the problem of failed coordination arising from high uncertainties during the adaptation to revolutionary technological change (Matsuyama 1997).

## ***2.4. Industrial policy for learning***

We can characterize catching-up as a process of learning to narrow the gap from the international technology frontier. There are two ways of learning: learning by doing and learning from others. Some countries learn more rapidly than others. To explain such differences, Oqubay and Ohno (2019) present views on a national systemic aspect of learning with government leadership beyond individual people and firms. The role of the government includes presentation and sharing of a vision, planning with a definite time-, priority-, and budget-setting, nurturing of trust with a clear rule of competition, evaluation of achievements, and allocation of benefits.

Peres and Primi (2019) point out that Latin American countries have historically been prone and open to learning from others, but learning by doing has been weak. They point out the shortcomings including the following aspects: political leaderships to ensure continuity; managerial and technical capacity in the government to implement and evaluation

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<sup>3</sup> The digital economy in the US since late 20th-century benefitted from the initial support of the Regan Administration: human genome project at Federal labs, semiconductors via SEMATECH, and the computer industry via Strategic Computing Initiative, the launch of The Small Business Innovation Research (SBIR) program in 1982, which shielded US high-tech industries from foreign competition; the Hatch-Waxman Act in 1984, which helped create the generic pharmaceutical industry.

policies; a coherent policy mix with clear priorities and recognition of tradeoffs and synergy; and a mechanism to carry out a constructive dialogue among stakeholders in government (central and regional) and private (domestic and foreign) sectors.

In these respects of valuing technological capability, research on the industrial policy may find a new direction. Aiginger and Rodrik (2020) appeal that industrial policy needs a new conception that addresses the need to nurture and develop modern economic activities more broadly, which may be nicknamed 'productive development policies,' 'structural transformation policies,' or 'innovation policies.'

## ***2.5. Implications from the literature review***

Previous studies reviewed in this section reveal that industrial policy have wider functions than the government to change a resource allocation for which the market could do a better job. Industrial policy complements the market mechanism by remedying market failures and enhances the efficiency of the market through horizontal measures.

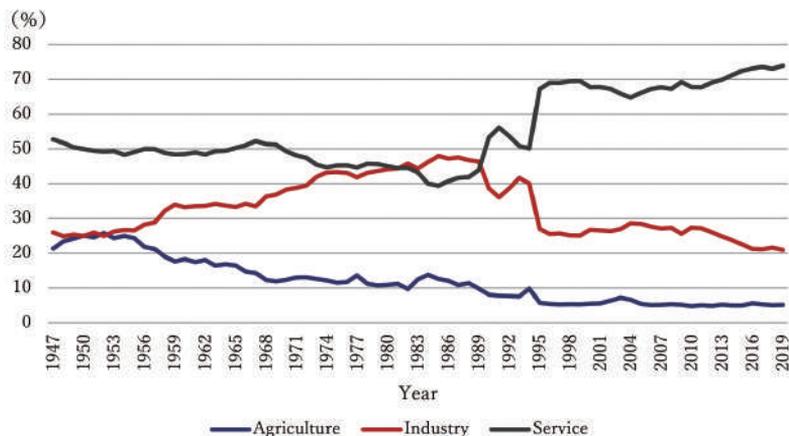
We noticed that industrial policy is also able to adapt the economy to both internal and external change in techno-economic paradigms by giving clear directives when economic agents might be perplexed by high uncertainties needing coordination. The government is also able to show directions and the route toward a structural transformation to encourage continuous learning to build a stronger technological capability and constructive dialogue among stakeholders.

Effective function of such a steering role of the government requires strong institutional capability of the public sector in policy-formulation, project-execution, and performance-evaluation. It also calls for a political integrity and a democratic institution. Finally, industrial policy demands continuity, which duely depends on the maintainance of macroeconomic balance. Hence, the goal must be realistic under the financial capability of the government.

## **3. Structural Transformation of the Brazilian Economy**

### ***3.1. Structural transformation seen in sectoral shares of GDP***

We can see in Figure 3.1 two phases of the structural transformation of



Note: According to IPEADATA, until 1994, the sum of the values added in the three major sectors (agriculture, industry, and services), reported originally by IBGE, exceeds the total GDP at basic prices, which also includes a fictitious sector with negative GDP (since there is no production, only intermediate costs) called dummy financial or allocation of financial intermediation services. We maintain the percentages as published by IPEADATA and, therefore, the three major sectors add up to more than 100 per cent until 1994.

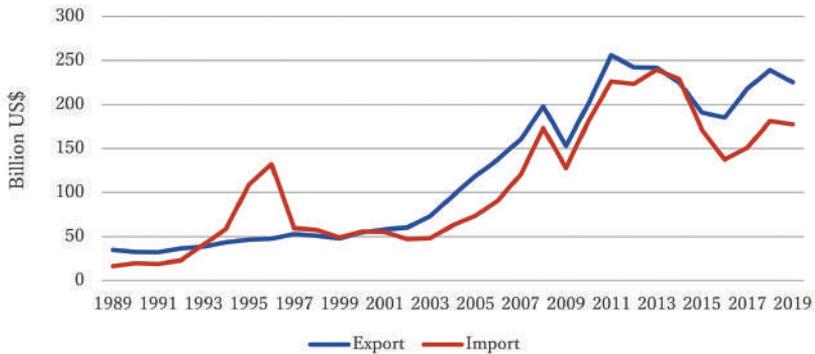
Source: Author's based on IPEADATA.

**Figure 3.1. Sectoral Shares of GDP: Agriculture, Industry, and Service**

the Brazilian economy since the end of World War II. During the first phase until the mid-1980s, the GDP share of agriculture continuously fell, and that of industry rose, while service maintained a constant share. This phase is the period of rapid industrialization supported by active industrial policies and development planning.

The second phase after the mid-1980s saw the rise of the service sector and the decline of industry, while agriculture always remained below a 10 per cent share. This period can be further divided into three sub-periods; the sharp drop of industry's share from the mid-1980s to the mid-1990s; stability from the mid-1990s to the end of the 2000s; and further decline of the industry since 2010. As described below, the first sub-period shows the contraction of industry amidst the economic crisis to relinquish industrial policies which had boosted industries in preceding periods. After the stabilization and restoring economic growth in the second, the third sub-period demonstrates the symptom of 'Dutch disease' type premature deindustrialization (de Paula 2017).

After decreasing as a share of GDP in the early 1990s, imports increased



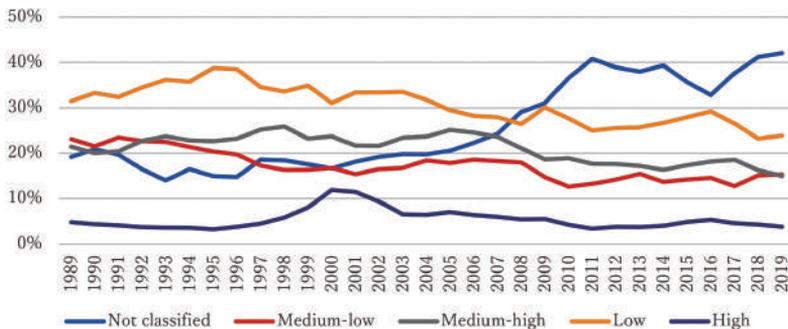
Source: Author's elaboration based on the data from Comex Stat, Ministério da Economia Indústria, Comércio Exterior, e Serviços.

**Figure 3.2. Exports x Imports – 1989-2019**

sharply, as we see in Figure 3.2. Trade liberalization and subsequent overvaluation of the currency caused the deterioration of the trade balance (Amann and Baer 2000). Competition from an oversaturated imports market deterred domestic industries. Then, commodity prices started to rise around 2000, which boosted Brazilian exports. During the period of the commodity boom, while the penetration of imported industrial goods had become more pronounced, certain types of manufacturing production for the growing domestic market expanded. The automobile industry was the most notable example of the latter. Hence, the industry's GDP remained stationary while the commoditization of exports advanced. Deindustrialization became noticeable in the 2010s as the domestic market shrunk because the commodity boom ended in the face of economic growth deceleration in China.

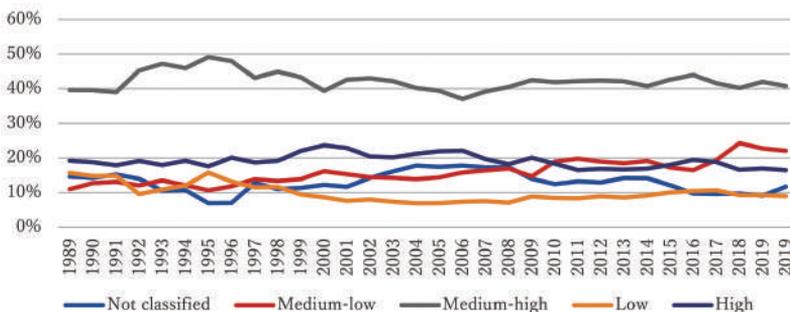
### **3.2. Trade composition transformation**

We can reinforce the argument of the premature deindustrialization in Brazil with data on the composition of international trade. Figures 3.3 and 3.4 respectively show shifting patterns in the structure of exports and imports. Exports and imports are categorized here by the intensity of technological elements in the traded items following the classification made by the Brazilian Ministry of Economy, from which we obtained the Standard International Trade Classification (SITC) two-digit level trade data. Namely, each group is composed by the following sectors: (i) Aircrafts, Informatic equipment & Electronic and optical products, and



Source: Author's elaboration based on the data from Comex Stat, Ministério da Economia Indústria, Comércio Exterior, e Serviços.

**Figure 3.3. Composition of Exports by Technological Contents**



Source: Author's elaboration based on the data from Comex Stat, Ministério da Economia Indústria, Comércio Exterior, e Serviços.

**Figure 3.4. Composition of Imports by Technological Contents**

Pharmaceutical products are *High technology*; (ii) Cork coal, Petroleum derivatives & Biofuel, Ships, Metal, Rubber & Plastic products, Metal products, and Nonmetal mineral products are *Medium-low technology*; (iii) Electric machine, tools & parts, Other machine & equipment, Chemical products, Automotive vehicles, and Railroad vehicles and other transport equipment are *Medium-high technology*; (iv) Clothing & Accessories, Beverage, Paper & Cellulose, Leather products, Printing & Recording, Wood products, Furniture, Food, Tobacco, and Textile are *Low technology*; (v) Agriculture & Livestock, Fishery & Aquaculture, Recycling & Waste, Electricity & Gas, Extract of Coal, Metal Minerals, Non-metal Minerals, & Oil and Gas, Cinematography, Video & Editing are a group that is *Not classified in terms of technology*.

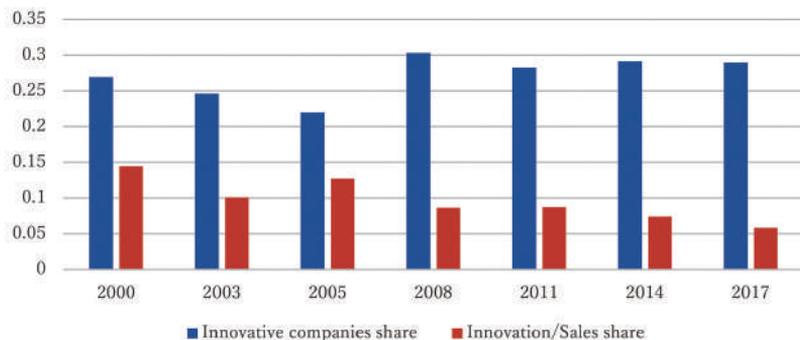
A striking feature of Brazilian exports is a remarkable increase in natural resource-based exports, which is in the *Not classified* group in Figure 3.3. On the other hand, the shares of *Low and Medium-high technology* groups were in a dominant position until the 1990s when they began to decline. It was the *Low and Medium-low technology* group which first lost the share in the late 1990s because of currency overvaluation. *Medium-high technology* products, most notably automotive vehicles, could strive for the first half of the 2000s. They were based on the intra-regional trade of MERCOSUR protected by a relatively high common external tariff. Still, the share has declined in the recent period because of the downturn of the Argentinian economy.

On the import side, Figure 3.4 reveals the predominance of the share of *Medium-high technology* products. Within this group, intermediate goods, most notably electronic parts and components and chemical products, have great importance. It is also worth mentioning that the share of *Medium-low technology* products is increasing. Despite import substitution efforts in previous periods, local intermediate goods were replaced by foreign substitutes, which are cheaper and of higher quality. Global competition made this phenomenon more visible. Castillo et al. (2019) corroborate that import penetration of intermediate goods rose significantly in recent years within the global value chain.

### **3.3. Innovation activities**

Alongside an overvalued currency, underperforming innovation was another factor in the weak competitiveness of the Brazilian manufacturing industry. IBGE (Brazilian Institute of Geography and Statistics) conducts a Survey of Innovation (PITEC) every three years to collect the data on innovation activities of Brazilian firms. PINTEC is a survey of firms with ten and more employees from mining and manufacturing, stratified by location, activity category, and firm size conducted in 2000, 2003, 2005, 2008, 2011, 2014, and 2017. ICT related service has been included in PINTEC since the 2005 survey. PINTEC's definition of innovation activity is not restricted to internal R&D. Still, it includes a broad range of actions such as the acquisition of external R&D, external knowledge, software, and machines and equipment; training of personnel; market research; and production process changes.

Figure 3.5 depicts that the proportion of firms engaging in innovation



Source: Author's elaboration based on PINTEC.

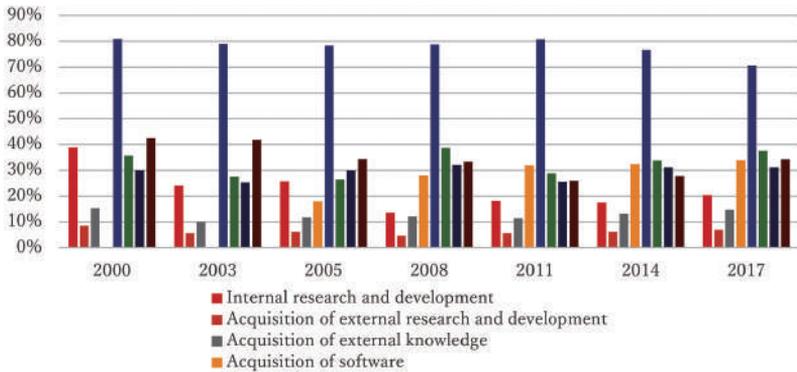
**Figure 3.5. Share of Firms Engaging in Innovation Activities and Average Innovation Expenditure to Sales**

remains below 30 per cent. We should also note that this proportion rose slightly since 2008 compared to the previous years. However, the size of expenditures for innovation activities as a proportion to total sales declined.<sup>4</sup> This suggests that more firms have engaged in innovation activities recently, but the scale of these activities is lower than in the past.

From Figure 3.6, we can infer the following. For Brazilian firms, the acquisition of machines and equipment is the dominant concept of innovation activity. The acquisition of software is also a growing concept. That is, Brazilian firms introduce new technologies mainly by acquiring new equipment and software, in which new technologies are readily embodied. In the meantime, the share of firms engaging in internal R&D declined. However, a glance at Figure 3.7 reveals that the expenditure share for internal R&D has increased over the period, compared to other types of innovation activities. This suggests a concentration of internal R&D to fewer firms.

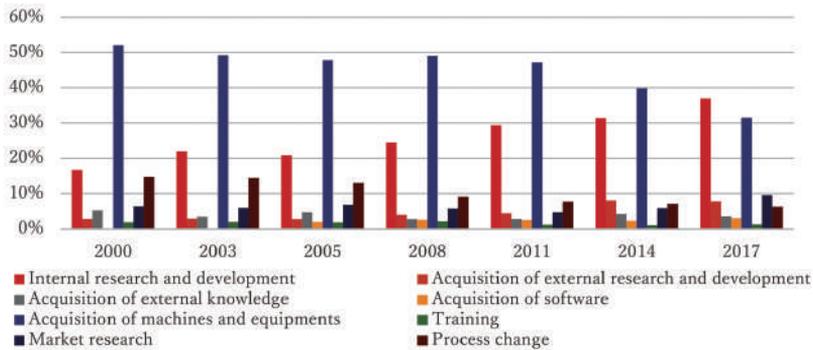
In sum, the Brazilian economy made a structural transformation, first as the industrial sector dominated over the agricultural, and then later as the service sector occupied the dominant share of the economy (Figure 3.1). Although it appears to be a natural development process,

<sup>4</sup> We first calculated average per firm innovation expenditure share as (total innovation expenditure)/(total number of firms engaging in innovation). Average per firm sales is obtained by (sales of all firms)/(total number of firms). We obtain innovation expenditure as a proportion of sales by dividing the former by the latter.



Note: The acquisition of software was included in the research in 2005.  
 Source: Author's elaboration based on PINTEC.

**Figure 3.6. Shares by Type of Activity among Firms Who Declared to Practice Innovative Activities**



Note: The acquisition of software was included in the research in 2005.  
 Source: Author's elaboration based on PINTEC.

**Figure 3.7. Innovation Activity Expenditure Shares by Type of Activity**

industrialization was strongly boosted by industrial policies, and the recent deindustrialization seems premature (de Paula 2017). The shrinking of the industry can be viewed as premature in two senses: it occurs at a considerably lower level of income, and it has detrimental effects on economic growth (Rodrik 2016). Regarding the latter, the Brazilian case shows that the industry failed to develop higher technology content and extensive innovation activities.

Some questions may follow. First, if deindustrialization was premature,

how did industrial policies affect that consequence? Second, if trade liberalization triggered deindustrialization, how were industrial policies adapted to the new situation, and what was their impact? We will consider these questions in the subsequent sections.

## **4. Industrial Policies in Brazil in the Past**

### ***4.1. The Vargas era: start of the import-substitution industrialization, the 1930s-1950s***

Initial attempts at industrial policy in Brazil were seen in the strategy of catch-up industrialization of the Getúlio Vargas administration in the 1930s–50s. Under the strong postulate of the authoritarian populist regime, Vargas aimed at ‘complete economic independence’ ‘through the establishment of the national steel industry.’ He took advantage of America’s concern over Nazi cooperation in Brazil’s steel plans to draw from Washington needed help for equipment and loans (Hilton 1975). Under his government, the Volta Redonda (Rio de Janeiro State) plant of Companhia Siderúrgica Nacional (CSN) and the iron ore exploration in Minas Gerais State of Companhia Vale do Rio Doce (CVRD) were established in the 1940s. Other institutional developments under Vargas was the establishment of the National Petroleum Council (CNP) in 1938, nationalizing petroleum, the National Economic Development Bank (BNDE)<sup>5</sup> in 1952, and the state-owned oil company Petrobras in 1954. These were ad-hoc measures and rather than a set of coherent import substitution industrialization (ISI) policies.

ISI gained shape as a more systematic development strategy in the post-World War II era (Baer and Kerstenetzky 1964). At that time, the lack of foreign currency to import essential intermediate goods was the major constraint for industrial development. To overcome the difficulty, the import licensing system and multiple exchange rate regimes were introduced. Import limitation was amplified from ‘nonessential’ consumer goods to most of the domestically produced industrial products (Law of National Similar, Lei 2973, 1956.11.26).

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<sup>5</sup> BNDE was renamed as National Economic and Social Development Bank (BNDES) in 1982 with the incorporation of the Social Investment Fund.

#### **4.2. First comprehensive ISI plan: Plano de Metas, 1956-61**

President Juscelino Kubitschek took power in 1956 in the intense political instability after the suicide of Vargas in 1954. He pledged national economic integration and 30 development goals to realize '50 years economic progress in 5 years,' known as Plano de Metas (Plan of Targets). Those goals were based on previous studies elaborated by the Brazil-US Mixed Commission (1951-54) and the BNDE- ECLA (Economic Commission for Latin America of the United Nations) Mixed Group (1953-57). Both studies aimed at streamlining some bottlenecks of economic development in Brazil, though from different perspectives.

The Brazil-U.S. study focused on addressing deficiencies in domestic transportation (especially railroads), developing potential in electric power generation and petroleum, and enhancing productivity in agriculture, livestock, forestry, and mining. The Brazil-U.S. study was based on the unbalanced-growth model by Gunnar Myrdal and Albert O. Hirschman, which emphasize the necessity of big-push and the interplay of backward- and forward linkages.

The BNDE-ECLA study, while recognizing the necessity to fulfil the gap in essential services such as transportation and energy, highlighted ISI on capital goods and intermediate goods. The study was based on the balanced-growth model represented by Paul Rosenstein-Rodan and Ragnar Nurkse, who contend that all inter-linked sectors should grow concertedly. The two studies presented different opinions regarding the use of foreign capital. While both studies agreed on the point that insufficient domestic savings and balance of payments constraint are central problems for the economic development of Brazil, the Brazil-U.S. study recommends more inflow of foreign capital. On the other hand, BNDE-ECLA saw foreign capital as a negative because it transfers scarce foreign currency overseas in the form of profit repatriation.

In Brazil, Roberto Campos belonged to the unbalanced-growth camp, and Celso Furtado was a proponent of the balanced-growth model. The Plan of Targets was born as a mixture of the two distinct types of development strategies. It focuses on energy (electric energy, nuclear energy, coal, petroleum production, and refining) and transport infrastructure (railroad repairs and construction, port and dredging, maritime transport, air transport), which were considered essential bottlenecks for development.

The Plan also included other sectoral plans for agriculture and food (wheat production, grain storage, cold meat storage, slaughterhouse, agriculture mechanization, fertilizer), essential materials (steel, aluminium, ferrous metals, cement, chlorine, paper and pulp, rubber, iron ore export), and capital goods (automobile industry, naval construction, heavy electric materials, and machinery).

Foreign capital received favorable treatment in essential materials and capital goods industries as the source of capital and technology. For energy and infrastructure development, the government became primarily responsible for execution. BNDE formulated investment plans, set priorities, and supplied financing to projects, capitalizing resources through the addition of corporate income tax and aid from the United States.

Despite the recommendation of the Brazil-U.S. Mixed Commission to prioritize railways, the government preferred roads as the main means of transportation and promoted the installation of the automobile industry. The Brazilian government banned all car imports in 1956. Foreign automobile companies had to choose either to abandon the Brazilian market or to invest in producing cars within five years.

Implanting the automobile industry in Brazil was one of the promises of Juscelino Kubitschek during his presidential election campaign. Soon after coming into the power, Kubitschek launched the Executive Group of Automotive Industry (GEIA) headed by civil engineer Lucio Meira. Because Kubitschek insisted that national production of an automobile must start as soon as possible, GEIA intended to attract foreign assemblers to install full-fledged production units in Brazil. At the same time, because of the stringent balance of payments constraint, GEIA did not admit most parts imported and decreed that 90 to 95 per cent of vehicles must be produced in Brazil by July 1960 following the progressive nationalization schedule. It implied that the automobile assemblers would need to make parts in-house while outsourcing to local suppliers as much as possible to reduce their investment. If an assembler could produce or purchase locally heavier and more expensive components, it could import lighter and cheaper parts in larger volume with rationed foreign currency; hence, it could make more cars. Thus, Sindipeças, the association of auto-parts makers, had the bargaining power to some degree. Addis (1999) points out that the GEIA's nationalization schedule followed the promise of

Sindipeças in production capacity enlargement. Thus, GEIA's orientation enabled implantation of the automobile industry to advance to the 'point of no return' in just one presidential term.

Investors submitted investment plans, and they obtained subsidized credit and differentiated exchange rates during the construction of the factory. There was bargaining between such national aims and foreign companies' profit maximization. Shapiro (1994) argues that GEIA has sufficient authority and coherence to make the government commitment credible to responsible foreign firms on the one hand, and to make it costly for firms playing rent-seeking. By offering reasonable distribution of rent in the closed market, which stimulated oligopolistic competition, the government was able to kickstart local automobile production with perhaps a more significant number of firms and size of investment considering the size of the Brazilian market than if it were in a plain competition.

By accommodating the proposal of two different perspectives, the Plan of Targets became too ambitious, without an order of preference and structure of inter-relations, and lacked coherence. It was nonetheless viable because of generous support from the U.S. government, whose Pan-American initiative<sup>6</sup> to prevent communism from gaining power after the Cuban Revolution. It left an excessive amount of foreign debt and dependence on external finance later on.

The government expenditure expansion following the implementation of the Plan of Targets resulted in rising fiscal deficit and inflation. The economic crisis that preceded the military coup in 1964 demanded strict macroeconomic adjustment in 1964-67 through contraction of public spending and money supply, slashed salaries, high public-service tariffs, elimination of subsidies, centralization of tax collection, and an incentive to the capital market, exports, and foreign direct investment inflows.

#### **4.3. *The Military in Action: First National Development Plan, 1972-74***

Under the military regime, Antonio Delfim Neto was nominated as a finance minister in 1967. He stayed in that position until 1974. Inheriting

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<sup>6</sup> It later formalized as 'The Alliance for Progress' in the Kennedy Administration.

the stabilized macroeconomy, he issued the Strategic Plan of Development (PED 1968-70) and pro-business policy program including monetary expansion to reduce the interest rate, reduction of public service tariffs, and introduction of the crawling-peg exchange rate, all while maintaining a fixed minimum wage. PED restricted the role of the government to restore the financial capability for the provision of infrastructure and essential materials to the private sector and did not pretend to expand the areas of productive activity.

For Delfim Neto, the industrial policy is applicable only to correct a market failure. He also considered a government failure to be more problematic than a market failure. He approved the role of the government in developing infrastructure and essential material industry. Still, he denied government interventions for the diversification of an industrial base during the period of Geisel administration.<sup>7</sup> He famously claimed the 'theory of a cake,' which argued that he must make a cake bigger before he would divide it. Tavares et al. (2010) point out that the official document of PED was the first to recognize BNDE as the leading institution of development policy. Especially, FINAME (Fund for the Finance for the Acquisition of Machines and Industrial Equipment) became an important financial instrument for the promotion of the capital good industry providing suppliers' credit and buyers' credit in the acquisition of domestically produced capital goods.

During his period, most of the large infrastructure projects financed by BNDE were carried out by state-owned enterprises (SOEs). BNDE also invested in steel mills as their minority shareholder, as if it were a giant holding company in the sector financing 70 to 80 per cent of all capital investment in the steel industry in the 1960s. At the same time, the BNDE expanded the finance to the private sector, occupying about 70 per cent of the total financing of BNDE by 1970 (Musacchio and Lazzarini 2014). PED was followed by the Program of Goals and Basis for the Governmental Action (MBAG 1970-73).

Successful macroeconomic stabilization was followed by high economic growth in 1968-73, nicknamed as an economic miracle. At that stage, the

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<sup>7</sup> These assertions are based on the text of Delfim Neto's interview in a TV Câmara program (December 3, 2003) in the archive *Memória Política*.  
[https://www2.camara.leg.br/a-camara/documentos-e-esquisa/arquivo/depoimentos/Memoria%20Politica/Depoimentos/delfim\\_netto/texto.html](https://www2.camara.leg.br/a-camara/documentos-e-esquisa/arquivo/depoimentos/Memoria%20Politica/Depoimentos/delfim_netto/texto.html).

military government launched its first development plan: I Plano Nacional de Desenvolvimento (I National Development Plan) – I PND (1972-1974). I PND focused on the construction of transportation, telecommunications, and energy infrastructure. Among others, North-South and East-West integration road construction, such as Transamazônica Road and Cuiabá-Santarém Road, are most notable. The land in the newly connected inland and Amazônia was redistributed to small farmers as a part of the land reform program (PROTERRA). It also included a large-scale Itaipú binational hydroelectric power generation project with Paraguay. The government also created state-owned enterprises for naval construction, steel, and petrochemical industries. Introducing the Program for the Promotion of Large National Enterprises (Programa de Promoção de Grandes Empreendimentos Nacionais), I PND induced Brazilian enterprises to participate in strategic sectors and paved the way to the triple alliance scheme of state, private, and foreign capitals in industrial development.

#### **4.4. The Forced March Toward a Crisis, 1974-79**

##### **4.4.1. Second National Development Plan**

The international economic condition deteriorated after the first oil crisis in 1973. While developed countries turned to macroeconomic adjustment to contain inflation, the Brazilian government chose a continuation of growth with indebtedness. Castro (2004) described this decision as a *forced march* (*marcha forçada*). External borrowing was very cheap because of the abundant supply of loans recycling petro-dollars. There was optimism in Brazilian government judgment that the crisis was transitory, and the global economy will recover very soon.

Thus, the Second National Development Plan (II PND) was launched in 1974. It aimed at increasing the domestic supply of essential industrial input and reducing the dependence on imports to reform the balance-of-payment structure. In the socio-political sphere, the government sought further regional integration and poverty reduction. The II PND was formulated by IPEA (Institute of Applied Economic Research) under the authorization of João Paulo dos Reis Velloso, then the Minister of Planning. The II PND was critical to Delfim Neto's 'theory of a cake,' arguing that economic growth itself cannot solve the problem of income distribution. The II PND also claimed that government control would overshadow individual decisions, and foreign capital was not an exception (D'Araujo

et al. 2005).

In terms of sectors, II PND placed focus on essential industrial materials (steel, non-ferrous metal, petrochemical products, fertilizer, pesticide, paper and pulp, materials for the pharmaceutical industry, nonmetal minerals, products such as cement and sulphur), capital goods, food, and energy. Support for the steel industry accounted for 20 per cent and petrochemical for 11 per cent on average of BNDE loan approvals in the 1970s (BNDES 2018). State-owned companies undertook the central part of an investment in essential industrial materials. In other sectors, private companies accounted for a large part of the investment with massive support by BNDE.

To meet the objective of expanding the funding capacity of BNDE, the fund from the Social Integration Program (PIS) in the private sector and Program of Asset Formation for Public Servants (PASEP) was started to be administered by BNDE in 1974. These programs were introduced in 1970 as social contributions payable by employers to finance the funds for insurance for unemployment, child benefits, and allowance for low paid workers. PIS/PASEP became a prominent source of funding for II PND.<sup>8</sup> There were some programs of II PND which were linked to specific purposes. With the general aim of reducing the dependence on imports, the military regime at that time was particularly concerned with fuel and informatic devices as areas of strategic interest for economic and technological national security.

#### ***4.4.2. National Alcohol Fuel Program (Pro-Álcool)***

The most serious problem in the balance of payments amid the oil crisis in 1973 was the hike in the price of imported fuel. The Brazilian government implemented the import substitution of petroleum with ethanol made from abundant locally grown sugar cane. This policy was formally launched in 1975 as the National Alcohol Fuel Program (Pro-Álcool). The technology was already available. The government set the objective of replacing 12 per cent of gasoline consumption for anhydrous ethanol. Sugarcane plantation owners and ethanol distilleries received a subsidy. In the

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<sup>8</sup> The constitution of 1988 provided that a part of Workers Protection Fund (Fundo de Amparo ao Trabalhador, FAT) would be invested in development projects of BNDES, which bears the long-term interest rate (TJLP) earning obligation.

beginning, sugar cane production was concentrated in the Northeastern region. Because there was a severe problem of poverty there, Pro-Álcool at the same time aimed at poverty reduction by increasing employment in the sucro-alcohol sector.

In the first half of the 1980s, the goal of the replacement rate was raised to 23 per cent. The production of ethanol was scaled-up with subsidized loans. Large scale sugar cane plantations and distillers were established in the Southeastern region where agricultural productivity is higher than the Northeastern region. The state organ Aeronautic Technology Center led the development of a fully ethanol-fueled engine (EFE). The government reduced the industrial products tax (IPI) for the sales of EFE cars based on the agreement with the National Auto vehicles Manufactures Association (ANFAVEA).

However, a further upscale of Pro-Álcool was frozen in the late 1980s. With the fall of petroleum prices in the international market, Brazilian ethanol lost competitiveness, and it became impossible to maintain the fuel subsidy. The Fernando Collor de Mello Administration extinguished Pro-Álcool 1990.

There was a resurgence of ethanol in the 2000s. German manufacture Bosch invented injection system technology for a flex-fuel engine, which can operate with the electronic control unit any mixture ratio of gasoline and ethanol. Because of the end of the Informatic Law, which restricted imports of electronic devices in the Brazilian market (explained below), it became possible to introduce flex-fuel engine cars in the Brazilian market. In the 2000s, the increase in the price of petroleum made Brazilian ethanol competitive. Brazil's adherence to the global agreement on the reduction of greenhouse gas emission also pushed automakers to produce flex-fuel cars.

Despite favorable conditions in terms of the availability of land and climatic conditions suitable for sugar cane production, the competitiveness of Brazilian ethanol is not sufficiently strong in the international market. According to analysis by the International Energy Agency (IEA 2019), the ethanol production cost is higher in Brazil than in the United States. The pressure for cost reduction is weak because the price of gasoline and diesel is higher in Brazil, and ethanol is still competitive in the Brazilian domestic market. Ethanol prices are coupled with the international price

of sugar because most of the ethanol distillers also produce sugar, and they determine the proportion of these two products to maximize their profit. Such instability also reduces competitiveness.

#### ***4.4.3. Informatics and microelectronics sector program***

Unlike GEIA's policy for the automobile industry, the policy for the informatics and microelectronics sector prohibited foreign firms' ownership. The government introduced measures to promote domestic companies in the new market, which had not been occupied by multinational firms, and obtain technological autonomy in that area (Tigre 1995). In 1977, an agency in the Ministry of Planning, CAPRE, outlined a policy to select locally-owned manufacturers to produce mini-computers, with initial one-time-only technology licensing from minor foreign firms leading to subsequent development of their own technology. The intention was to obtain 'technological autonomy' in electronics technology, which was predicted to bring revolutionary change. National Informatics Policy (Lei 7.232/1984.10.29) guaranteed the market reserve for Brazilian firms in the computer industry, and Special Secretary of Informatics (SEI) obliged them to pay higher prices for purchasing domestically produced parts and components for eight years to fill the 'technological gap.' Evans and Tigre (1989) wrote that the domestic market of computers was split among a large number of small companies and thus plagued by very high production costs. Companies in Manaus Free Zone in the State of Amazonas received incentives.

It soon became apparent that users were not satisfied by the widening gap between the international and national technological levels, as shown by the large number of smuggled microcomputers.<sup>9</sup> The Brazilian market lacked scale economies for competitive domestic production with high local content. The restriction of imports was supported not only for technological nationalism but also because of the severe balance of payments constraint since the second oil crisis. There was no systematic government support for technological development due to the fiscal crisis.

Market reserves and import restrictions on informatics came to an end during the process of trade liberalization in the 1990s. After the market

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<sup>9</sup> According to Tigre (1995), 70 per cent of microcomputers in the Brazilian market in the period of the market reserve were illegally imported.

liberalization, most manufacturers established in the atmosphere of the market reserve turned out to be importers (Tigre 1995). Still, support was given to technology development. The reformed Lei de Informática (Lei n.º 8.387, 1991/12/30) introduced the basic productive process (PPB) specified by the notice of Ministry of Industry, Trade, and Service (MDIC) with which companies must comply to be considered as domestic production and receive a benefit. The bylaws in 1993 (Decreto n.º 792, 1993/4/2) obligated companies receiving benefits to spend at least 5 per cent of their sales on R&D. Restrictions on eligibility for benefits were relaxed later. It eliminated restrictions on multinational companies and encouraged R&D of private companies in Brazil through tax incentives. Companies outside the Manus Free Zone were also eligible to receive the fiscal stimulus (15 per cent of Industrial Products Tax).

The unfortunate case of the electronics and informatics industry illustrates an ineffective industrial policy where the government just provided companies with protected local markets but did not extend support to basic research or human resource development. It also restricted the introduction of foreign technologies, which might have facilitated capacity building and indigenous technological development. It seems that this failure inflicted a loss on Brazil of missing the third industrial revolution in digital technology (see Section 2). This had a lasting effect on the competitiveness of Brazilian industry.

#### ***4.5. Projects in which knowledge creation support had an essential role***

##### ***4.5.1. The transformation of infertile savanna to rich granary – Cerrado Development Program (POLOCENTRO/PRODECER)***

The vast land in the central plateau is occupied by the Cerrado biome, characterized by acidic soil and a tropical savanna climate. Most of the Cerrado was not utilized for agricultural production because it is considered not suitable for farming. POLOCENTRO (1975-1979) outlined the placement of farming settlement along with a trunk-road network. It became the significant regional action of II PND. The idea was to expand the domestic food supply to attend growing demand in urban areas under the industrialization strategy. However, the POLOCENTRO settlements were too remote from large cities, and agricultural productivity was low without an adequate technical support. They ended as self-subsistent villages.

POLOCENTRO was followed by the Japan-Brazil Agricultural Development Cooperation Program (PRODECER 1979-2001). PRODECER was a combination of the key scientific research by EMBRAPA (Brazilian Agricultural Research Corporation) to adapt the soybean to a tropical climate, financial assistance to farmers, and rural extension services for technical assistance by CAMPO (Companhia de Promoção Agrícola). The Japanese government supported the project through technological cooperation (JICA) and financial cooperation (OECE) for the agricultural credit for a large scale mechanized farming. The initial phases of PRODECER partly depended on the transport infrastructure left by POLOCENTRO.

Institutional organization of the Cerrado agriculture encompasses various key units such as Embrapa, CAMPO, state banks, JICA, agricultural cooperatives, and IBAMA (environmental regulation agency). Federal and state governments played the role of articulating these units with guiding policies and programs as well as coordination. Endowed with vast but infertile land, the agricultural potential of the Cerrado would remain dormant until workers, capital, and technology were deployed through the combined effects (Hosono et al. 2019).

#### ***4.5.2. The birth of aeronautic industry in the tropics – Embraer***

Since the Vargas administration created the Ministry of Aeronautics in 1941, it became a national interest to foster domestic aeronautic technology to strengthen the security system. This was followed by the foundation of the Organization Committee for Technical Center of Aeronautics (COCTA) in 1946 for scientific research and the Technological Institute of Aeronautics (ITA) in 1950 to promote the university-level education of engineers. The supply of human resources from these research and education institutions was essential for the inauguration of Embraer (Brazilian Aeronautics Company) as a state-owned enterprise (SOE) in 1969. They are all located in São José dos Campos (State of São Paulo).

Embraer soon stated its intention to supply aircraft to the civilian commercial passenger and agricultural markets, as well as to military defense. The government supported Embraer with the defense aircraft acquisition program and technological alliance with the Italian aviation industry (Aeritalia and Aermacchi). This process gave Embraer a unique opportunity to absorb technology and to improve its workforce qualification in cutting-edge knowledge (Francelino et al. 2019).

Yet, Suzigan and Furtado (2006, 176) remind us that, 'Until the late 1980s and the early 1990s, Embraer was still considered by many to be a venture between absurd failure and very costly success. For some, it was another one of these "artificial jabuticabas" that Brazil insists on doing, contradicting vocations and wasting opportunities' (original in Portuguese, my translation). The financial crisis in the early 1990s led to privatization in 1994. Goldstein (2002) argues that privatization in 1994 caused a substantial change in the company, allowing new management to introduce new forms of organizing design, production, financing, and marketing and drastically reduce time-to-market. She noted that Embraer's technological capability in product development and the capacity to use alliances to bring new resources into the firm from external sources are constant in the history of the company.

Today Embraer is a leading global company in the regional jet market, competing with a Canadian Bombardier.

#### ***4.5.3. Deepwater petroleum exploration of Petrobras***

The relation between Petrobras and the Federal University of Rio de Janeiro (UFRJ) is another high-impact example of science and industry alliance in Brazil. Petrobras created its R&D center (Cenpes) in 1963. Cenpes promoted international research cooperation. It also sponsored a partnership with domestic universities for research and education, among which the collaboration with the UFRJ's Graduate School and Research Center in Engineering (Coppe) has become the most important. Cenpes and Coppe are located together in the Fundão campus of UFRJ.

Since the 1980s, offshore crude petroleum exploration of Petrobras advanced farther from the coast into deeper water, and Petrobras has become the world leader in technologies for deepwater oil exploitation. Since the first technical cooperation agreement was signed between the two institutions Coppe and Petrobras, the alliance became enduring. They contributed to developing technologies for the construction of floating platforms, new materials used for equipment, monitoring, computational and simulation technology, mobilizing a comprehensive and multidisciplinary knowledge resource of Coppe in mechanical, electronic, chemical, and metallic engineering, civil and naval engineering, and oceanographic science.

The most outstanding achievement was the discovery of the ultra-deep water oil field in the pre-salt layer in 2006. Commercial production started in 2010. According to Petrobras (2020), 1.277 million barrels per day of crude oil were produced from the pre-salt layer in 2019. This represents 59 per cent of the total crude oil production in Brazil that year. The total crude oil production in Brazil increased from 2.054 million barrels per day in 2010 to 2.784 million barrels per day in 2019 (+36 per cent).

#### ***4.6. After the Crisis – Reorientation of industrial policy in the 1980s and 1990s***

##### ***4.6.1. Industrial policy in the 1980s***

Brazil returned to a civilian government regime in March 1985. Since then, Brazil went through a steady transition to democracy, but its economy fell into turmoil resulting from accelerating inflation in the second half of the 1980s. Faced with financial constraints, the past government activism in development was obscured. Industrial policy in the 1980s was redesigned, emphasizing consolidating the basis for building technological capacity and competitiveness. There was some progress by executing the Scientific and Technological Development Support Program (Programa de Apoio ao Desenvolvimento Científico e Tecnológico, PADCT), which was created in 1984, and its Subprogram of Basic Industrial Technology Program (Programa Tecnologia Industrial Básica, TIB). PADCT received the support of the World Bank to compensate for the lack of public funds for science and technology. It enabled a renewal of primary public research laboratories including those which belong to INMETRO (National Institute of Metrology, Quality, and Technology), which concerns basic metrological standards. PADCT-TIB also created the Brazilian Calibration Network (Rede Brasileira de Calibração, RBC), which gathers local secondary laboratories authorized by INMETRO that provide services to private companies.

Another major project under PADCT was the comprehensive review of the competitiveness of the Brazilian industry (ECIB study) led by the University of Campinas and Federal University of Rio de Janeiro (Coutinho and Ferraz 1994). The study analyzed sectoral level competitiveness through the identification of ‘sectoral factors’ (market structure, industrial configuration, and pattern of competition). They receive the influence of ‘firm-intrinsic factors’ characterized by strategy and management, innovative capability, productive capability, and human resource, under

the domain of 'systemic factors' such as macroeconomic, international, social, technological, infrastructure, fiscal and financial, and politico-institutional.

We can also point out that government was looking for the role of a coordinator in the bottom-up approach in modernizing industries by the introduction of the Sectoral Chambers (Camaras Setoriais – C.S.) institutionalized by the Decree 96056 of 1988. C.S. is the assembly of the leaders of business, workers, and government to analyze competitiveness and identify problems and strategies. Despite the original objectives, C.S. was used as a mechanism for price control under high inflation.

#### ***4.6.2. Industrial policy in the 1990s***

Amid the economic crisis, Fernando Collor de Mello administration (1990-92) introduced a new industrial policy, i.e., Industrial and Foreign Trade Policy (Política Industrial e de Comércio Exterior – PICE) in June 1990. It aimed at adequating Brazilian firms to the international standard quality of products and services. It included a bold reform in trade policy. The average import tariff rate was cut down from 32.2 per cent in 1990 to 16.5 per cent in 1993, together with a significant reduction of non-tariff barriers. PICE identified the role of government in industrial development as guaranteeing macroeconomic stability and restoring a favorable investment environment, preventing the government from absorbing domestic saving and reducing the participation of the public sector.

Under the PICE, the government launched the Brazilian Program of Quality and Productivity (Programa Brasileiro da Qualidade e Produtividade, PBQP). Bonelli et al. (1997) evaluate that PBQP was reasonably successful in enhancing firms' awareness and motivation for quality and productivity. They also contributed to the development and diffusion of a modern method of business administration and capacity building of human resources because PBQP anticipated the necessities of firms to prepare for more open international competition.

PBQP helped foster the human resources of technical and quality management personnel. Inspired by Japan's development success in the post-WWII period, the method of total quality control (TQC) was introduced by Christiano Ottoni Foundation linked to the School

of Engineering of the Federal University of Minas Gerais, under the collaboration with the Union of Japanese Scientists and Engineers (JUSE). It is also worth mentioning that under PBQP, Brazil adopted the international standard of quality assurance management (ISO9000s) and established the National Prize of Quality (Prêmio Nacional da Qualidade).

As a part of the PBQP, the Brazilian government requested technical cooperation from Japan on the project to establish the Brazilian Institute of Quality and Productivity (Istituto Brasileiro de Qualidade e Produtividade, IBQP). The Japan International Cooperation Agency supported the project from 1995 to 2000. This project was designed as trilateral cooperation involving third countries other than Japan and Brazil, such as other Latin American and Portuguese-speaking African countries, whose technicians can also receive training on quality control with the Brazilian peers. The location was in Curitiba of Paraná State. Japan Productivity Center supported this project. While IBQP is a private non-profit organization, in 2002, the government granted IBQP civil organization's status for a public interest, which enable it to sign a partnership agreement with public institutions and jointly develop specific projects.

Another component of PICE was Program of Industrial Competitiveness (Programa de Competitividade Industrial – PCI). It contained programs for sectors involved in the generation of technology, including informatics, fine chemical, biotechnology, precision machine, and new materials.

The PICE also supported the improvement of productivity and quality using a sector-wide approach. C.S. became a forum for the discussion on structural issues. In March 1992, the first tripartite agreement was signed in the automobile sector by associations of assemblers, parts suppliers, and car dealers, workers unions, and government. The deal included: reducing the retail price of cars; reducing value-added taxes; limiting the profit margin of assemblers, suppliers, and sales; expanding car loans for consumers at a lower cost by reducing financial operation taxes; offering tax incentives for exports; maintaining employment, increasing base salaries, and introducing inflation-adjustment mechanisms in salaries. The agreement among the automobile sector also discussed the projection of the yearly production and the of investment. By the end of 1992, there were 20 C.S. and 135 specific working groups (Anderson 1999). This success was short-lived. Instead of reciprocal concessions and engagement, C.S. became the place to manifest the self-interest of each

party and culminated in a dead-end. To avoid the aggravation of conflicts, C.S. was deactivated in 1995.

However, the effective functioning of C.S. in the automobile sector was an exception. As a result of the discussion of C.S. of the automobile industry, the Automotive Regime was established as a sector-specific industrial policy in the MERCOSUR's intra-regional trade scheme. In June 1995, the government conceded benefits to automotive companies that already existed in Brazil and those that had concrete investment plans. They could import from MERCOSUR (mostly Argentina) with tariff exemptions on assembled automobiles to commercialize in the Brazilian market, and parts and components to be used in the domestic production, provided under the condition that they export the required value to compensate for the import.

PICE was also linked to the de-statization<sup>10</sup> program of the Collor administration. It sold the ownership of state-owned companies in industrial sectors as mining (CVRD), aircraft (Embraer), steel (CSN, Usiminas, Cosipa, CST, and others), and petrochemical (Oxiteno, Copesul, and others).

The Fernando Henrique Cardoso administration (1995-2002) issued the New Industrial Policy (Nova Política Industrial) in 1998. The general tone of this policy was that macroeconomic stability, open international trade, and the maintenance of competitive market were fundamental to promote investment, increase productivity, and improve quality. It showed a minimalist posture about government interventions. There were some measures to remedy the high-cost structure in Brazil, such as the interest rate subsidies for export finance (Proex-Equalization) to align the gap of domestic and international interest rates, and the simplified corporate tax scheme for small and medium-size firms (SIMPLES) to reduce the tax burden.

The Cardoso administration furthered de-statization of SOEs in regulated markets such as public utility (electric power generation, transmission, and distribution), transportation (seaport, airport, highway), and banks.

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<sup>10</sup> The 'de-statization' was not privatization in a strict sense. Voting shares of some state-owned companies were sold to BNDES and pension funds of state-owned firms. Government was able to influence de-statized companies through these channels.

While transferring these resources from the public to the private sector, the government was concerned about introducing competition to encourage cost reduction and innovation, while regulating prices to defend the public interest. In this regard, the government established Competition Law (1994) and antitrust agency CADE (transformed into an autarchy body in 1994). It also found market regulatory authorities in each sector: ANEEL (electric power), ANATEL (telecommunication), ANA (water), ANTT (road and rail transportation), and ANTAQ (water transportation).

In sum, the bold continuation of import-substitution industrialization to sustain growth after the first oil crisis in 1973, described as ‘forced march (*marcha forçada*)’ (Castro 2004), was overthrown as a result of the balance of payment crisis and severe government budget constraint in the early 1980s. Therefore, industrial policy in the traditional sense was not in the policy agenda in the 1980s and 1990s. Still, the government enacted a new policy framework to influence industry aligning with the radical policy adjustment through market liberalization and privatization. To improve the competitiveness of firms, support was given to investment in modernizing equipment and R&D. Without having an explicit sectoral target in resource allocation, the government mobilized sectoral chambers to tailor the design of support programs.

## **5. Contemporary Industrial Policy**

### **5.1. The renaissance of industrial policy**

In the 2000s, industrial policy returned to the public debate under the administration of President Luis Inácio Lula da Silva, evolving from the Technological and Foreign Trade Policy (PITCE) from 2004 to 2007, the Productive Development Policy (PDP) from 2008 to 2010, and the Greater Brazil Plan (Plano Brasil Maior – PBM) from 2011 to 2014.

As we reviewed so far, Brazilian industrial policy had tried to meet the developmental challenges. This began with the inauguration of the import substitution industrialization of the steel industry during the Vargas era as the symbol of national sovereignty. The Plan of Targets emphasized the automobile industry to advance the aim of national integration with transportation. During the military regime, the emphasis returned to supplying essential materials such as steel and chemical, while the government also engaged in undertaking ventures in areas of advanced technology such as aircrafts, electronics, and informatics,

obtaining mixed results. Chronic constraints in the balance of payments and the fear of external dependence were a critical concern motivating industrial policies. These policies worked for increasing investment and diversifying the industrial structure. However, they were prone to macroeconomic imbalances. They were also not satisfactory for gaining a genuine competitiveness in terms of product quality and productivity.

After Brazil moved to trade liberalization, competitiveness has become the essential target. Compared to the ISI period of top-down style state developmentalism, industrial policy in the post-ISI period can be characterized by wider acceptance of market-based competition with government's pro-business support based on bottom-up policy formulation. However, these policies could not increase investment rates. Thus, failing to achieve structural transformation in favor of sectors with dynamic growth, the Brazilian economy inclined to deindustrialization.

The Lula administration designed a contemporary industrial policy that embraced these developmental challenges in the past. Industrial policy aims to elevate the level of investment, which must be guided to sectors that would be in sync with the prospect in the global market and justified by Brazil's developmental potential. Such an industrial policy departs from a political agenda of the ruling power. Hence, the formulation of policy is a top-down process, but such a decision is necessarily based on democratic accountability. These elements may characterize the Lula administration as the renewed developmental state. However, as Hochstetler and Montero (2013) claimed, the contemporary industrial policy differs from the previous statism by recognizing the overriding concern of maintaining a macroeconomic balance and robust emphasis on innovation to meet the market-based global competition.

In the following subsections, we will discuss in detail the formulation process of the industrial policy of the Lula administration. We first show the framework of policymaking consisting of political and operational dimensions. Next, we discuss horizontal provisions adapted under the political directives. Then, some sectoral policies are examined.

## **5.2. Framework of industrial policymaking**

In an interview with the author,<sup>11</sup> a former executive of the National Economic and Social Development Bank (BNDES), João Carlos Ferraz listed the following essential elements for industrial policy:

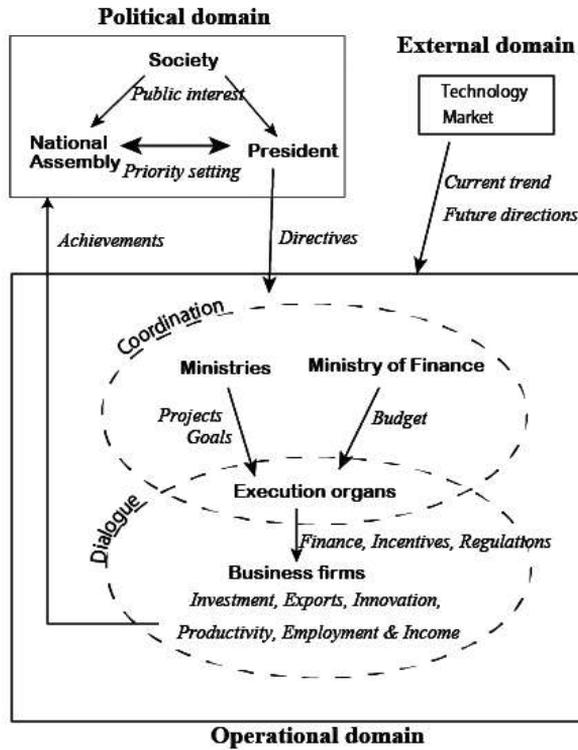
- The political leadership of the president to give general directives to realize his/her political agenda;
- Sensitivity to the external and political environments;
- Concrete projects and goals that substantiate the directives from the political top;
- Sufficient financial and technical resources in the execution organs;
- Capacity within execution organs to coordinate with governmental institutions;
- Capacity within execution organs to dialogue with the private sector, without being beholden to their interests;
- Realism and pragmatism.

Ferraz and Coutinho (2019) also document similar assertions. Figure 3.8 depicts the logical structure. We can divide the process of the formulation of industrial policy into the political and operational domains. In the political domain, society expresses public interests by votes and through the media to the president and the national assembly. To realize his/her political agenda to meet the expectation, the president sends his directives, in due consideration of policy priorities set in the legislative process, to ministries and execution organs.

Next, the industrial policy formulation comes down to the operational domain. Ministries of specific areas formulate projects and set goals in close alignment with the president's directives. They also consider the external domain consisting of the current trends in technology and markets in the international sphere, as well as their future projections. The executing organ such as BNDES translates these requirements and conditions into concrete policy instruments such as loans, incentives, and regulations. Industrial policies are thus implemented to achieve outcomes in investment, exports, innovation, productivity, employment, and income. Actors in the political domain will assess the relevance of these variables.

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<sup>11</sup> João Carlos Ferraz, Interview by the author, Online, July 7th, 2020.



Source: Author's elaboration.

Figure 3.8. Framework of Industrial Policymaking

In these regards, there are several critical capabilities required for the execution organ of industrial policy. The mission of an execution organ is to convert the president's discourse of developmental challenges into concrete policy goals. To achieve this mission, the execution organ must have a high level of analytical capability to disentangle political and international factors.

The execution organ also needs to have the capability to coordinate policies with related ministries, especially with the Ministry of Finance, to obtain the necessary budget. This type of coordination requires a realistic sense of maximizing outcomes within the limitations of the budget, as well as a result-oriented pragmatism cutting through crossing interests.

The dialogue with the private sector requires another type of capability of the execution organ to secure the implementation of investment projects.

It demands a strong internal capacity of execution organs to preserve technical autonomy to serve the public interest, without submitting to private interests. In this regard, Ferraz and Coutinho (2019) comment that BNDES evaluates investment projects on the same legal, technical, and financial criteria as commercial banks such as profitability of the project, the adequacy to environmental impact regulation, and the demonstration of payback capability.

### ***5.3. Directives and measures of industrial policy***

Kupfer et al. (2013) explain that the PITCE aimed at strengthening the institutional framework by creating agencies and modernizing legislation to make innovation-inducing instruments more effective. The policy derived from the first industrial policy directives of the Lula administration (Diretrizes de Política Industrial, Tecnológica e de Comércio Exterior). The directives aimed to strengthen institutional articulations for innovation capacity and export capacity within a scale economy. Sectoral focus returned to policy design, above all, technology-intensive sectors, such as capital goods, electronics, pharmaceutical, and software. Firms in new technology sectors such as biotechnology, nanotechnology, and biomass and renewable energy, including start-ups, were also supported. The PITCE intended to promote technological development and international competition, and endeavored to reduce large and growing trade deficits in these sectors.

To compose PITCE institutions, the government established the Brazilian Agency of Industrial Development (ABDI) in 2004 as an implementing organization and National Council of Industrial Development (CNDI) composed by representatives of the private sector and the government in 2005 as a deliberation body. Then, the Law of Goods (Lei do Bem) was put in effect in 2005. It concedes tax exemption or reduction for companies that: (i) engage in software development; (ii) engage in export; (iii) conduct R&D; and (iv) purchase digital data processing equipment. The Law of Technological Innovation in 2005 intended to promote the collaboration between scientific research institutions and businesses through tax reduction. The reformed Informatics Law (2006) provided for companies conducting R&D in ICT to receive the benefit of exemption or reduction of the Industrial Product Tax on purchasing informatics and automation equipment. PITCE also included measures to support small and medium enterprises through the simplification of taxation, tax exemption for the

acquisition of new equipment and the introduction of ICT, provision of subsidized finance for working capital and investment, and technical assistance to industrial clusters. BNDES and FINEP (Funding Authority for Studies and Projects) established credit lines to support investment.

The government revised its industrial policy and announced PDP. The PDP was designed to sustain the expansionary cycle of the economy with the aims of increasing supply capacity; maintaining the robustness of the balance of payments, to strengthen the innovative capacity; and fostering small and medium enterprises (SMEs). The corresponding specific targets by 2010 were to increase investment/GDP share from 17.6 per cent in 2007 to 21 per cent; increase Brazil's share in the world export from 1.18 per cent in 2007 to 1.25 per cent (in other words, from 169.6 billion US dollars to 208.8 billion US dollars); elevate the research and development expenditure share in GDP from 0.51 per cent in 2006 to 0.65 per cent (in other words, from 11.9 billion BZ reais to 18.2 billion BZ reais); and increase by 10 per cent exporting SMEs from 11,792 in 2006 to 12,972.

In PDP, the sectoral target of PITCE was greatly broadened to include agroindustry, textile and clothing, leather and shoes, toiletry and perfume, wooden products and furniture, and automobiles. In the face of the international financial crisis in 2008, a new law was enacted, establishing additionally Program to Sustain Investment (PSI), by which BNDES financed acquisitions of capital goods at a subsidized financial cost below the treasury bill rate (SELIC). Kupfer et al. (2013) explain that PDP had an anti-cyclical role that proved crucial in the federal government's efforts to combat the effect of the crisis and sustain economic growth.

In 2011, President Dilma Rousseff succeeded President Lula, who ended his two terms with high popularity and an economic euphoria with high GDP growth and substantial poverty reduction. Her administration saw, however, the end of the commodity boom, which boosted the Brazilian economy during the predecessor's period, and the government account problem, which required a significant adjustment. The industrial policy of the first-term Dilma administration, PBM, redefined its directives in five elements: (i) to provide support for domestic production of sectors facing fierce competitions with imports; (ii) to expand and create new technological competence; (iii) to develop energy supply chains; (iv) to diversify exports and to internationalize firms; (v) to promote manufacturing products of intermediate technological level with the

consolidation of a natural knowledge economy. Concrete measures corresponding to each directive were: (i) the government procurement preference for domestic products (construction machines, vehicles, agricultural equipment, school uniforms, etc.) and some measures for specific sectors; (ii) the continued provision of investment finance with PSI/BNDES and FINEP; (iii) the continued support to the petroleum and gas sector; (iv) the continued support to exporting firms with the reduction of taxes on the purchase of capital goods and corporate income tax; (v) the reduction of social security contributions levied on wage payments in labor-intensive sectors (garment, shoes and leather products, furniture, and software), thus reducing labor cost while increasing taxes charged on sales. Among the sector-specific measures, the policy for the automobile sector (Inovar-Auto) became highly controversial. Automobile companies received special benefits of reduced industrial product tax if they were to make a new investment, increase employment, engage in local procurement, and increase R&D. Japan and the European Union alleged to WTO that the policy was discriminatory. The Appellate Body upheld this appeal and recommended Brazil bring this policy into conformity with the WTO rules. The context of the PBM was marked by the international crisis and fierce competition with imports. Kupfer et al. (2013) explain that PBM tended more and more toward defending the internal market and recovering the systemic conditions for competitiveness.

#### ***5.4. Sectoral approaches subject to the directives***

We find a basic concept of sectors in industrial policies in the Lula administration period in Ferraz et al. (1995), which is based on ECIB Study (Coutinho and Ferraz 1994). Ferraz et al. (1995) described competitiveness as dependent on a firm's capability, which, in turn, evolves concurrently with the firm's strategy. The firm's capability consists of four elements: innovation (technology), management, human resources, and productive structure. The nature and patterns of evolution of competitiveness thus defined exhibit significant sector-specific idiosyncrasies. Such peculiarity arises from the characteristics of the market (size, level of sophistication, and access to international markets); sector configuration (natural advantage of a country, ownership and competitive structure, inter-firm network); and regulatory/institutional regime (legal framework, macroeconomic policy, trade policy, the role of the State). Understanding of the sector-specific idiosyncrasies is essential to formulate the sectoral measures in industrial policies.

In this perspective, Ferraz et al. (1995) show four broad patterns of industrial groups:

- Commodity group: Firms produce homogeneous products in huge quantities, the prices of which are determined in the international market. They compete in the oligopolistic international market. Scale economy is necessary for cost reduction and to consolidate the competitiveness position in the global market.
- Durable goods group: This group is comprised of assembling-type manufacturers that make use of advanced technology and place great importance on scale economies, including final producers and parts and components suppliers. The market structure is oligopolistic and competition includes product differentiation in various attributes (price, brand, technology, user assistance, and after-sales services). Besides requiring a scale of production, firms compete in assembler-supplier integration, new product development, worker training for a flexible production system, etc.
- Traditional goods group: This group consists of firms that produce low-technology consumer products, supplying them to a market segmented by income level of consumers. Some companies compete in the higher-end market, which shows lower elasticity of price and higher sensitivity to design and other non-monetary attributes of a product. Others operate in the lower-end market, which requires less technological content. In both cases, firms must deal with high fluctuation in terms of seasonality and market demand conditions. Hence, maintaining flexibility in production scale is essential. Activities to support original product differentiation is less important in this group. Instead, the capacity to learn from others (new technology from the diffuser group and other firms within the sector) matters a lot. For this reason, industrial clusters are often organized at a regional scale.
- The diffuser of technological progress group: This group contains capital goods and essential materials (electronic and chemical). Firms compete in the oligopolistic market with high product differentiation. To gain a competitive edge, this group invests more in its R&D. Firms also maintain closer relationships with academic institutions. The capacity for innovation is the main entry barrier for newcomers.

We can interpret the design of industrial policies in the PT (i.e. Lula-Rousseff) administration era in these concepts. It should not be confused

that the government and execution organs freely picked up winners and provided policy instruments in favor of beneficiaries. As depicted in Figure 3.8, the directives from the political domain set the tone, and the choice of measures in the operational domain is subject to the directives. For example, if the policy directive was to expand exports to stabilize the balance of payments, it was natural to promote the above-mentioned commodity group given the favorable international market conditions and the natural competitive advantage that Brazil possesses. As previously discussed, companies in this sector boost competitiveness by increasing the global share through mergers and acquisitions at the worldwide scale, vertically integrating commodity production and logistic business, and diversifying their commodity portfolios. The scale-up of commodity firms called the 'national champion policy' has an economic rationale based on the competitive strategy of this group, which requires a scale economy.

In the same vein, if the policy directives point to enhancing innovation, the operational domain turns to the above-mentioned diffuser group. Support for R&D was directed to capital goods, electronics, pharmaceutical, and software in the PITCE because they were the diffuser group, whose competitiveness depends on the capacity of innovation. If the directive emphasizes employment, more attention will be given to the traditional good sectors whose products are less differentiated. PBM focused on reducing Brazil's costs is essential to competing imports. It was also necessary to note PITCE included support for industrial clusters.

However, there were discrepancies between the original concept and actual industrial policies during the PT administration. Because of political pressure from other sectors and the need for dealing with the effect of the 2008 international financial crisis, PDP and PBM broadened beneficiaries to the durable goods group and traditional good group. By supporting technological development for almost all sectors, the policy's attention to the peculiarity by sectors based on different nature of competitiveness became ambiguous. As a result, despite the promotion of R&D by industrial policies, resource allocation to technology-intensive diffuser groups decreased, and innovative activities within the Brazilian industry as a whole stagnated. Policies to promote knowledge creation, human development, and learning were not relevant in industrial policies under the PT administration.

Related to the shortfall in innovation, we can point out a lack of

comprehensive sector-wide programs for knowledge creation, human development, and learning. Related to this, we can point out that export expansion in the PT era partly resulted from previous sector-specific programs explained in Sec. 4.5. The case of soybeans is a notable example. The agricultural development of the Cerrado crucially depended on the initial intervention to emphasize sector-specific knowledge and to build institutions for scientific research and technical transfer. Embraer's success in aircraft exports and the discovery of Pre-Sal (deep underwater) crude oil field by Petrobras can be explained in the same way.

### ***5.5. The role of BNDES as a critical execution organ***

The private bank sector in Brazil shows a high degree of concentration: five-bank asset concentration ratio rose to 85.0 per cent in 2016 from 48.7 per cent in 2001 (data from World Bank DataBank, Global Financial Development). Private bank loans are not only scarce and volatile in terms of volume, but they are also high-cost,<sup>12</sup> and their loans are strongly skewed to the short maturity segment (Torres and Zeidan 2014).

Hence, BNDES, as a public development bank, is expected to mitigate malfunctions of the private market and to play a significant role in the provision of long-term credit. These resources were used to expand production capacities, acquisitions of smaller businesses in the same segments, and mergers of rival companies both within Brazil and overseas. According to Ferraz and Coutinho (2019), the BNDES has the following functions: on-lending operation (i.e., commercial banks access BNDES funds and extend credit to their client); SME loans guarantee fund; equity investment through BNDESPar (BNDES Participações S/A); and export loans to capital goods exports and overseas engineering services. BNDES's role is to formulate, operationalize, and implement development policies. BNDES has been central to industrial policy formulation with qualified technical staff and technical autonomy.

Ferraz and Coutinho (2019) classify three different roles of development banks: pro-cyclical, counter-cyclical, and pre-cyclical. Although lending by private banks could expand pro-cyclically, the short-termism of Brazilian banks requires BNDES to provide necessary funds for firm growth even

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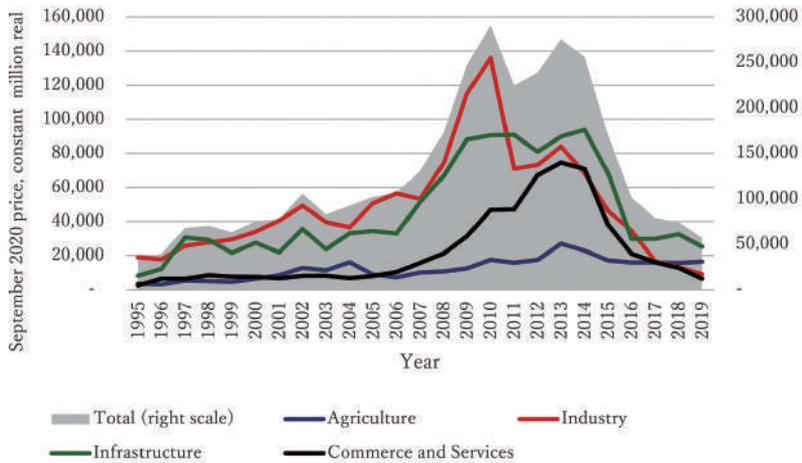
<sup>12</sup> Brazilian private banks' lending-deposit spread has been maintained around 40 per cent in the last two decades.

during the upswing in an economic cycle. The counter-cyclical role of a development bank may not be to overstrain itself to offer loans under repressed demand for investment coupled with credit restrictions. BNDES provided working capital and renegotiated terms of credit to keep businesses afloat. The pre-cyclical role is related to technical support for investment ahead of the upswing cycle through feasibility analysis and financial evaluation of investment projects.

Figure 3.9 depicts the amount of the loan disbursement by BNDES in last 25 years. The remarkable expansion of BNDES finance during the PT administration period is noticeable. During the Lula administration period (2003-10), loans to the industrial sector increased most significantly; in particular the food and drink, chemical products, and transportation equipment sectors received two-third of the loans directed to the industrial sector. The former two sectors undertook several mergers of big companies to challenge global competition. The transportation equipment sector is important for exports (aircraft and automobile), and also for employment generation through domestic production linkage (automobile). Later, loans to the commerce and service sector grew the most. Of notable importance was the civil construction sector under the My House My Life Program (Programa Minha Casa Minha Vida), the flagship low-income class housing project of the Dilma Rousseff administration (2011-August 2016). Financing to the infrastructure sector also maintained a high level during the PT administration period.

BNDES finance dropped sharply after the impeachment of President Rousseff. The conservative force that took power reconsidered the enlarged position of BNDES problematic because it fomented inflationary pressure on the demand side and also for other reasons explained below.

The prominent presence of BNDES received criticism in three respects. First, the expanded BNDES loans have an impact on public finance because of the negative interest rate margin between SELIC (monetary policy instrument rate) and TJLIP (long-term interest rate). Treasury pays the former to issue bonds, and BNDES pays the latter for the loans from the Treasury. Admitting the immediate impact, as Ferraz and Coutinho (2019) argue, we should evaluate the impact on fiscal accounts by the total balance of costs and benefits, considering the investment, production, tax payment, and BNDES' dividend payments to the Treasury, which would not be realized if loans had not been made.



Source: Author's elaboration based on Séries setoriais, Estatísticas Operacionais Consolidadas do Sistema BNDES. <https://www.bndes.gov.br/wps/portal/site/home/transparencia/centraldedownloads>.

**Figure 3.9. Disbursement of BNDES Loans by Sectors (1995-2019)**

The second criticism argues that BNDES loans do not induce investment. Lazzarini et al. (2014) did not find support for the political view that claims that BNDES bailed out firms with a bad performance for political purposes.<sup>13</sup> However, they found at the same time that BNDES loans did not induce investment, nor did their loan projects achieve higher productivity. They concluded that low-risk good borrowers are attracted to BNDES loans because of their subsidized-nature, leaving higher-risk borrowers to private banks, causing financial disintermediation. De Souza and Ottaviano (2018) found that BNDES loans helped relax credit constraints that allowed granted firms to match the productivity growth of similar firms that were not credit constrained, although they weren't able to outperform the productivity of the latter. De Oliveira (2019) also found a positive impact on the investments of loaned firms by using the dataset, including more samples from private firms. Maffioli et al. (2017) presented a significant positive effect on granted firms' employment growth and export volume, while no effect was found on wage differential, implying an insignificant impact on productivity.

<sup>13</sup> The Jair Bolsonaro administration tried at any rate to bring a charge of corruption against BNDES's top executives during the PT administration, but the investigation found no indication of irregularity (Valor Economico January 21, 2020).

The third criticism points out that BNDES was used as a political instrument. Generally speaking, a national development bank cannot be independent of the direction shown by the government; it is expected to carry it out faithfully. For BNDES during the Lula administration era, priority areas were innovation, climate change, regional development, competitiveness, infrastructure, and micro-, small-, and medium-sized enterprises. Ferraz and Coutinho (2019) claim that executor agencies like BNDES had technical autonomy, namely a collective capacity to approve or reject projects based exclusively on an explicit project and credit evaluation criteria (technical, legal, economic and financial, permanently scrutinized by the banking supervisory agency). It is widely accepted that BNDES has high competency to examine the eligibility of borrowers on a purely technical basis (Mssacchio and Lazzarini 2014).

According to Torres and Zeidan (2014), BNDES was the most important tool used by the Brazilian government as a counter-cyclical response to the financial crisis. Ferraz and Coutinho (2019) comment that since the mid-2014 onward, BNDES acted counter-cyclically by providing working capital and renegotiating the terms of credit to keep business afloat. By expanding loans, BNDES sometimes contradicted the Central Bank's monetary tightening to control inflation.

Another political view of critics to BNDES is the concentration of loan portfolios to large firms. Previous studies found that firms who donated to the electoral campaign of winning politicians are more likely to receive BNDES loans (Lazzarini et al. 2014). Some relate the political view with a 'national champions policy' by which BNDES took policies to boost-up several firms, like JBS, BRF, Marfrig, and Aurora in meatpacking, Fibria in the paper, Vale in mining, Petrobras in petroleum exploration, Gerdau in steel, Embraer and Marcopolo in transport equipment, and Odebrecht, Camargo Corrêa, and Andrade Gutierrez in construction. BNDES loans were essential for their firms' growth through mergers and acquisitions and establishing overseas operations to become representative firms of Brazil. Criticism of national champions has become acute because the involvement of these companies in major corruption incidences under the PT administration has become public.

### ***5.6. The effects of industrial policy on investment***

Because the objective of industrial policy is to induce structural

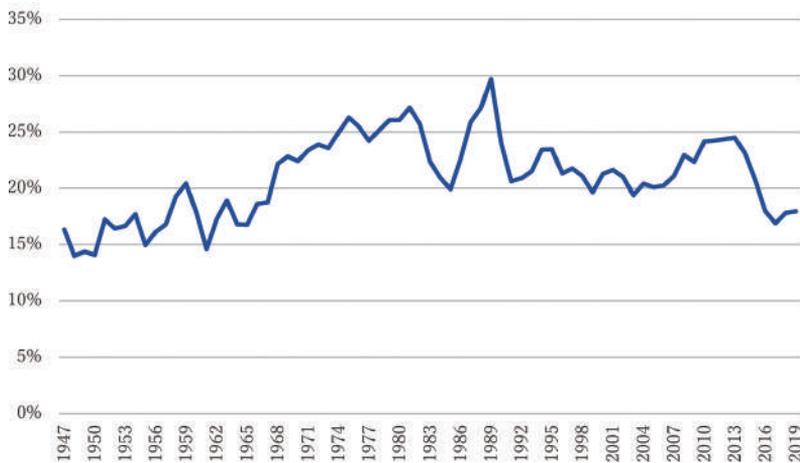
transformation of the economy, we expect its impact in the increase in investment. Figure 3.10 depicts the long-term trend of the share of gross capital formation in GDP. We can see that investment grew significantly from the beginning of the 1960s to the end of the 1970s. We might infer a positive association with active industrial policy which we described in Sec. 4. Note that we should be cautious about claiming a causal relation between them because such causality can be established only by comparison to the counter-factual assuming no industrial policy in the same period. However, the association between investment and industrial policy seems likely because we can also observe such a relationship in the 2000s when industrial policy returned to the economic policy under the PT administration.

On the other hand, Figure 3.10 also shows that investment remained lower during the 1990s when conservative market fundamentalism dominated the policymakers' thinking. It suggests that macroeconomic stability and free competition were not sufficient to induce investment. Putting ideological debate aside, Brazil needs to face development challenges from the standpoint of both realism and pragmatism.

## 6. Closing Remarks

Brazil has used industrial policies to propel industrialization. They were powerful tools to achieve national goals of economic development. Goals have changed over the years: i.e., import-substitution industrialization to generate employment and reduce the necessity of imports to overcome the balance-of-payments constraint of economic growth; provision of essential goods for national integration by transportation, energy, and telecommunication; and improved technological capability of national industry to win an international competition.

Corresponding to these challenges, industrial policies boosted industrialization. The Brazilian economy made a structural transformation, shifting resources from agriculture to industry. Industrial policies in the past have shown mixed results. The installation of the automobile industry in 1950s was remarkably rapid. We noted successful cases of knowledge-based development projects such as the Cerrado agriculture development in soybeans and university-enterprise collaboration, which had a significant impact on the emergence of the aircraft industry and deepwater exploration of petroleum. On the other hand, the case of the



Source: Author's elaboration based on IPEADATA.

**Figure 3.10. Gross Capital Formation as A Percent of GDP (1947-2019)**

computer and informatic device industry was a devastating failure.

This study was not able to identify rigorously what went well and what went wrong. This article preliminary concludes that sector-specific knowledge creation, human development, and learning mechanisms are essential elements of successful industrial policies. We could learn that their success did not depend only on the demand boost of emerging economies and subsidy. There were continuing processes of knowledge creation, human capital development, and learning involving firms and product-specific research and education/training institutions long before their results came out. It is doubtful that only general support for science and technology could lead to successful outcomes. A sectoral approach with strategic forecasting will be necessary.

Soybeans, aircraft, and petroleum have become dazzling star items of Brazilian exports since the 2000s. They would never have become so without public interventions in knowledge creation. Soybeans almost did not exist in Brazilian food habits. In the early 1970s, Brazil imported 80 per cent of its fuel consumption from abroad. That is why the 1973 oil crisis made Brazil explore alternative energy such as sugarcane-based ethanol. Embraer was a state-owned enterprise whose main objective was military defense. It almost went bankrupt in the early 1990s. We found

that Embrapa's R&D and the cooperation of university scientists with Embraer and Petrobras were fundamental.

As we learned from the previous studies, industrial policy serves a larger purpose than shifting the allocation of resources to complement the market mechanism. The government is able to lead structural transformation based on its political integrity, strong institutional capability, and the realistic conformity with the macroeconomic balance and opportunities provided by the external environment. The Brazilian model of contemporary industrial policy has these elements. We also noted that Brazil developed sophisticated institutions for industrial policies built on the interactions between political and operational domains.

In this structure, BNDES has been in the central position in the execution of industrial policies. As a representative development bank of Brazil, BNDES has been a protagonist in the provision of long-term loans and risk capitals because Brazilian private financial institutions are locked in short-termism and are risk-averse. Existing studies acknowledge the importance of BNDES to remedy market failure in the financial market and formulate projects to promote a higher level of investment in key sectors that substantiate the directives of the government to expand exports and to internationalize Brazilian firms. Amidst the profound change from the commodity boom to the global financial crisis, BNDES' support for investment had an anti-cyclical role. However, these studies also point out that BNDES has not been successful in promoting productivity growth and innovation. It is not to deny the importance of BNDES. Still, this aspect requires more study on a desirable institutional setting of entrepreneurial public policies, particularly considering the sector-specific idiosyncrasy in determinant variables in competition, strategy, and capacity building.

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## The Role and Characteristics of Industrial Policy in Postwar Industrial Recovery and Development in Japan: Implications for Developing Countries

Masatake Wada

### 1. Introduction

Industrial policy is used to promote industrial activities for national economic development. It is also seen as an intervention or an exertion by the government to the market economy.

While there are several negative opinions against industrial policy, especially from the perspective of the free market economy, there are also opinions that value its role positively in postwar Japan's economic recovery, which led to high economic growth and industrial structure upgrading.

This chapter will first classify Japanese industrial policy based on the actual conditions of various industrial policies implemented in postwar Japan. After giving an overview of the diversity of the policies, it will discuss the characteristics of implementation of postwar industrial policy in Japan and summarize its key aspects that developing countries could learn for the formulation and implementation of their own industrial policy. I worked at the Ministry of International Trade and Industry (MITI, currently the Ministry of Economy, Trade and Industry: METI) for about 30 years from 1966. Whilst there, I was involved in the formulation and implementation of industrial policy including the promotion of chemical industry, pollution prevention and safety measures, as well as regional development such as assessing factory locations and technology developments for new energy. Based on my experiences, I would like to discuss various roles of organizations and institutions, including MITI, in relation to industrial policy.

## 2. Japanese Industrial Policy in the Postwar Period

The goals and instruments of industrial policy change depending on the socio-economic status of the country and the development stage each industries are in. It is also influenced by the international environment.

In the case of Japan after the World War II, industrial policies were used for the recovery of industrial activities that had been destroyed during the war. The government implemented policies of rapid rationalization of its domestic industry in order to enhance export competitiveness, to promote export for earning foreign currency, and to increase the country's self-sufficiency rate. During the Cold War period, the United States (US) led the world economy, and Japan made efforts to catch up with the industrial level of the western states. It worked on reconstruction, rationalization and modernization of the key industries, and adopted and developed new industries from abroad. Advanced technologies, machinery and equipment were actively imported, while the government gave permission for the spending of large amounts of foreign currency, and offered financial support for the development and expansion of industrial activities. By the late 1960s, the catch-up was mostly successful and Japan was able to establish itself as an industrialized country. However, due to the US-Japan trade friction around this time, Japan was put under pressure to liberalize trade and capital, which demanded further measures to be taken to strengthen industrial competitiveness. Furthermore, sound industrial policy had to be planned well in relation to the Antimonopoly Law, negative externalities such as environmental pollution and industrial safety issues.

Subsequently, the rapid appreciation of the Japanese yen forced the government to review Japan's industrial structure and industrial activities aiming for international market. Followed by that was the oil crisis in the 1970s. This led to dramatic changes in Japan's development base for the heavy and chemical industry, which were the main industries at that time. These incidents accelerated strict cost reduction and a strategical shift to high value-added manufacturing. Value-addition was realized by developing high-performance materials and using sufficient energy saving measures. This gradually led to an upgrading of Japan's industrial structure where advanced processing and assembly industries, such as the automobile and electric industries became the leading industries. In turn, the Japanese manufacturing industry became one of the most competitive

industries in the world.

Today, as the global socio-economic environment continues to evolve, there is a need for industrial policy to respond to major changes such as globalization of economic activities, internet of things (IoT) development, and digitization. In each of these areas, industrial policy goals and instruments are changing rapidly, which requires multifaceted development. Likewise, Japanese industrial policy has worked to respond properly to these changes in the economic environment. I would like to emphasize the need for appropriate quick responses to changes, including developing countries, during this period of transformation as there is a need for constant change and diversity in industrial policy. The Japanese experience in the post-war period would be useful for industrializing developing countries.

### **3. Industrial Policy System Classified by Various Objectives and Implementation Measures**

Japan implemented various industrial policies in the postwar reconstruction period, the rapid economic growth period, the industrial upgrading period, and the long stagnation period. While it is difficult to describe these various industrial policies in a systematic way, this section will outline the Japanese industrial policy and its related framework, focusing on the objectives and implementation aspects.

#### ***3.1. Classification based on the objectives of postwar industrial policy***

The objective of postwar industrial policy in Japan was to realize sound development of industrial activities. The policy objectives can be classified into the following four categories: (i) industrial promotion and industrial alignment for specific industries; (ii) industrial adjustment; (iii) establishing a common foundation to support industries generally, such as infrastructure development; and (iv) responding to the negative externalities of industrial activities for harmonization with society. These policy objectives have changed over time, and various policy instruments have been devised and implemented to achieve them.

### ***3.1.1. Industrial promotion and industrial alignment for specific industries***

- (1) End of the World War II to the mid-1950s
  - Supporting the reconstruction of basic industries: Selecting important industries for the recovery of Japanese economy, such as the steel and coal mining industry, to provide intensive support for their reconstruction (Priority Production System).
- (2) Mid-1950s to the early 1970s
  - Rationalizing, modernizing, and strengthening the international competitiveness of various industries such as the textile industry and light machinery industry. Developing export-oriented industries.
  - Enacting main regulations for these objectives such as the Act on Temporary Measures for the Promotion of the Machinery Industry, and the Small and Medium-sized Enterprise Modernization Promotion Act.
  - Transplanting foreign new technologies, fostering them, and development of new industries such as the petrochemical industry.
- (3) 1970s
  - Upgrading existing industries to knowledge-intensive industries: Developing high-performance products, introducing new production processes in the basic material industry and shifting to the higher value-added products.
  - Promoting the upgrading of industrial structures. Developing advanced processing and assembly industries such as the automotive and electrical industries.
- (4) 1980s
  - Creating new industries, such as the electronics industry, and developing new fields which have become new world-leading products.
  - Creating new field of industrial development and enhancing support for entrepreneurship.

### ***3.1.2. Industrial adjustment***

- (1) Adjusting supply and demand: Adjusting production, sales, and capital investment plans to eliminate excessive competition and

- prevent prices from soaring.
- (2) Measures for structural recession industries such as the coal mining and textile industries: Supporting the recovery of competitiveness, or the reduction and transformation of businesses. In the process, job-creation and local economy support measures are also necessary.
  - (3) Industry reorganization and the transformation and upgrading of industrial structures (including supporting the merger and acquisition of companies and new entry).

### ***3.1.3. Establishing a common foundation to support industries in general***

- (1) Industrial locations and regional development: Strengthening support for industrial infrastructure development, balanced regional development, recession area promotion, and local self-sustaining development capabilities.
- (2) Trade policy: Promotion of export for foreign currency earning, new market development and handling complaints from overseas markets. Responding to trade friction. Taking measures to prevent the rapid appreciation of the Japanese yen. Domestic industry protection through tariffs and regulation of foreign capital activities in the domestic market. Responding to trade and capital liberalization. Economic and technical cooperation with developing countries.
- (3) Securing natural resources and energy: Overseas resource development and stable import measures for resources and energy. Resource and energy reserves. Resource and energy saving measures.
- (4) Protecting, developing, and activating small and medium-sized enterprises (SMEs): Protecting and nurturing SMEs, improving vitality through modernization (management and technical consulting, human resource development, and financial support for equipment modernization), technological improvement and reform of subcontracting structures, venture support, upgrading of local industries, supporting business development for local SMEs, organizing SMEs, and supporting collaborative activities of SMEs.
- (5) Technology policy: Supporting the introduction of foreign technologies. Supporting the development of new technologies (research and development (R&D) subsidies, joint research support, and launch of national R&D projects), industrial standardization, quality control, and patent policy.
- (6) Responding to the information society: Development of information

infrastructure and its related human resource development.

### ***3.1.4. Responding to the negative externalities of industrial activities***

In many cases, mandatory regulatory measures were taken through the introduction of laws and regulations.

- (1) Eliminating unfair business practices including unfair competition restrictions.
- (2) Measures to prevent pollution (air pollution, water pollution, and soil pollution) and to maintain comfortable environments (noise prevention and green space maintenance). In recent years, global environmental problems are also included.
- (3) Fire and safety measures, occupational health management and dangerous goods management.
- (4) Guaranteeing a safe society through consumer protection.
- (5) Correcting the excessive concentration of economic functions in one area and regional economic disparities.

### ***3.2. Classification of industrial policies based on implementation measures***

Implementation measures of industrial policy can be divided into: (i) establishing legal support systems and regulatory policy with enforcement mechanisms; (ii) administrative guidance policy, which was not enforceable as it was not based on law but was effective for bringing about compliance of the business community; and (iii) vision presentation policy which provided information of policy direction and advice to induce desired actions.

#### ***3.2.1. Building legal support systems and regulatory policy with enforcement mechanisms***

There were two types of industrial policy laws. One aimed to build support systems and provide support, and the other aimed to regulate corporate behavior.

##### **(1) Supporting laws**

Supporting laws stated the objectives of the support, the target groups,

the supporting contents and its process, and how follow-up measures shall be considered. Specific supporting instruments varied from financial and tax support, the establishment of various supporting organizations, various subsidies for business activities, the provision of information, and technical consulting. Target groups were often narrowed down to specific industries and business domains that required support, such as SMEs.

In terms of the supporting process, applications including documents such as business plans were submitted by companies and industrial associations to MITI. After the applications were reviewed and approved by MITI, the instruction was delivered to the executing agencies, who implemented financial and other supports.

## (2) Regulatory laws

Regulatory laws defined various rules and regulations on individual corporate behavior to ensure that industrial activities do not impose adverse effects to the society. While supporting policies tended to be the emphasis during the industrial development stage, these regulatory actions were also essential for the sound development of industrial activities.

When companies carried out business, they needed to obtain various permits from the government. These regulations attached obligations on production and investment, such as authorization and fraud monitoring, as well as pollution, safety, and disaster prevention measures. In this case, governmental intervention in business activities was necessary.

### **3.2.2. Administrative guidance**

Governments often requested industrial associations and individual companies to attempt to induce their corporate activities in a particular direction. These requests were not legally binding, hence there was no obligation for the companies to follow them. However, MITI exchanged opinions with the business community about the economic environment and future issues surrounding industries and individual companies on a daily basis. Through these exchanges, the business community was often able to understand the government requests and choose to comply with them.

In addition, public-private dialogues were held to discuss important issues such as large-scale new investment, trade frictions, and so forth. These discussions were attended by MITI, the business community, and academic experts. It served as a forum for determining investment plans and responses to external issues.

### ***3.2.3. Vision presentation policy***

The detailed and extensive information, and the results of analysis made by the government were indicated to the business community so that the business community could make management decisions smoothly. This played a crucial role in Japan's industrial policy. In this sense, the type of its industrial policy can be categorized into the policy for indicating the future status of its industrial development. This vision presented by the government showed the basic philosophy and direction of governmental policy, which was important for corporate management and had the effect of inducing action amongst the business community.

In addition to presenting the official vision, MITI exchanged opinions on the actual implementation of policy with the business community, in an effort to increase policy effectiveness.

### ***3.2.4. Other policy measures***

In addition to the above-mentioned industrial policies, MITI was directly involved in the implementation of certain industrial policy areas.

- (1) R&D programs: Research and development activities based in national research institutes and national universities (Local governments also had their own public research institutions which provided technical guidance and advice for local SMEs, as well as developing new businesses for local economic revitalization). The management of patent law was also carried out by the Patent Office, which was an external agency of MITI.
- (2) Trade negotiations and economic cooperation programs: Dispatching MITI officials to the Japanese embassies as commercial attachés, the Japan External Trade Organization (JETRO), and other public organizations to directly obtain overseas information and negotiate various trade issues.
- (3) Management of policy enforcement agencies: MITI managed the

operation and activities of various public policy enforcement agencies with jurisdiction over the fields of financial insurance, overseas trade, SMEs, regional development, natural resource development, technology development, and so on.

#### **4. Mechanisms and Characteristics of Postwar Industrial Policy in Japan: From Formulation to Implementation**

This section summarizes the mechanisms and characteristics of the formulation and implementation process of Japanese postwar industrial policy.

##### ***4.1. Flexible response to changes in political and economic environments: Long-term and daily response***

The greatest feature of industrial policy in postwar Japan was its ability to respond flexibly to changes in the country's economic circumstances and in the global political and economic environments. In response to these changes, objectives and instruments were adapted and diversified.

When considering the effective implementation of industrial policy in developing countries, it is necessary to understand the mechanisms behind the planning of such policy and whether they are effective or not. In particular, it is important that policy makers and implementers are able to gather and analyze information and to understand the actual state of industrial development with a sense of responsibility and fairness. Similarly, the business community, which is the target of industrial policies, needs to understand the purpose of the policy and be willing to follow it in order to maintain a relationship of trust with policy makers and implementers.

In 1949, the Ministry of Commerce and Industry and the Trade Agency were combined, and MITI was established as the key agency for industrial policy. Since then, many organizations and institutions have been involved in the process of policy formulation and implementation, working closely with MITI at the center to implement effective policies. The mechanisms and roles of these related organizations will be described below.

### ***4.1.1. How policy planning works***

Every ten years, in response to major medium and long-term changes, MITI held open discussions and presented the major policy developments in its industrial policy vision at the Industrial Structure Council. Through the mechanism of the 'New Policy Discussion Meeting,' the policies of that time and the implementation status of each year were reviewed on an annual basis. In this meeting, MITI determined new policies and effective ways to implement current policies, and where necessary, made changes to laws and regulations on policy implementation for the following year. As a result, Japanese industrial policy can be said to have responded constantly and flexibly to the changing environments of the times and to increase its effectiveness. What made this possible was the institutional framework that was developed, with the MITI as its center to: (i) collect and analyze information in collaboration with various organizations related to industrial activity; and (ii) devise and implement effective instruments. MITI staff recognized industrial policy as a temporal policy that requires constant review, and this view was shared with related organizations.

### ***4.1.2. Preparation of bills and submission to the National Diet***

In general, to pass a bill, the proposed bill needs to be discussed between relevant ministries. It is then submitted to the Diet.<sup>1</sup> There, the final decision to pass the bill will be made after some deliberation. For the deliberation of bills, it is also important to explain the content to members of the Diet, including opposition members, in advance. In many cases, industrial policy bills are devised by MITI's staff members and then established with the consent of lawmakers (some laws such as a Cabinet Orders or Ministerial Orders do not require a resolution from the Diet). In order to obtain budget approval, the detailed budget statement containing the reasons for budget requests is submitted to the Ministry of Finance; this is then examined, and discussed, before the budget bill is submitted to the Diet for final approval.

### ***4.1.3. Policy implementation and operation***

After a policy is formulated, it needs to be effectively put into operation. This was the day-to-day task of MITI (and the current METI), and

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<sup>1</sup> The 'Diet' is the name given to the Japanese parliament.

required constant effort to increase its effectiveness. As described above, this happens through the New Policy Discussion Meeting every year.

The roles that MITI played in implementing policy varied and included the operationalization of laws and regulations, licensing activities, implementation of administrative guidance, and provision of various types of support instruments and advice. Implementation mechanisms and executing agencies were diversified, depending on the target industrial sectors, companies, and regions because it was necessary to create a mechanism that was suitable for each target. MITI also needed to establish follow-up systems to ensure that these mechanisms worked properly and displayed sufficient results.

## ***4.2. Mechanisms to enhance policy effectiveness***

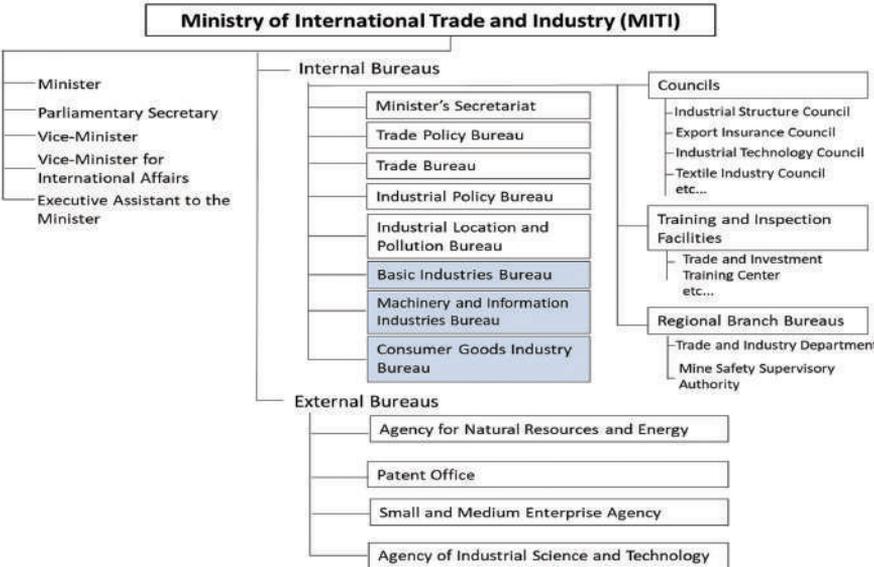
### ***4.2.1. Reorganization of ministries in charge of industrial policy: Horizontal and vertical bureaus of MITI***

It is important to consider the institutional structure of the responsible governmental organizations when we consider industrial policy.

Over the years, the ministry responsible for postwar industrial policy has changed its name and organizational structure from the Ministry of Commerce and Industry, to MITI, and then to METI. MITI was established shortly after World War II, by adding the responsibility for international trade issues to the then Ministry of Commerce and Industry. This was probably due to the recognition that international trade issues could not be separated from industrial activities. This system, where one ministry deals with both international trade and industrial issues, has been maintained until today, and is a feature of Japanese industrial policy. Under the reorganization of central government ministries and agencies in 2001, it was determined that MITI's responsibilities should be broader than just international trade and industrial issues, but should also include broad economic issues. Accordingly, the name was changed as stated above.

Another feature of MITI was that its internal organization was composed of both horizontal and vertical bureaus (Figure 4.1). Its vertical bureaus were responsible for implementing sectoral industrial policies such as heavy industry, chemical industry, and light industry, and they maintained a close relationship with each industrial sector in charge. Their views were

exchanged on a daily basis, while MITI strived to understand specific issues in each industrial sector with an attempt to find solutions. On the other hand, its horizontal bureaus were responsible for understanding the latest status of the common framework of all industrial activities, such as economic legal systems, tax systems, international trade issues, local economy, SME issues, and technology development. The bureaus sought to develop and improve the basic supporting system from a holistic perspective. These two types of bureaus, the vertical bureaus and the horizontal bureaus, shared collected information, exchanged views, and discussed what industrial policies should look like. Finally, concepts of new industrial policies were put together by the Ministerial Secretariat Bureau in MITI.



Source: Ministry of International Trade and Industry, 1979.  
 Note: Internal bureaus: horizontal bureaus are shown in white boxes, vertical bureaus are in grey boxes.

**Figure 4.1. Organizational Structure of the Ministry of International Trade and Industry (MITI), as of 1973**

The implementation of industrial policy requires an understanding of the actual circumstances of each specific industry, on top of policy planning and establishment of implementation systems. In this sense, the role of the vertical bureaus in MITI was extremely significant. During the

period of rapid economic growth, each industrial policy was formed and implemented with a specific target industry. As such, the coordinating mechanism between vertical and horizontal bureaus functioned highly efficiently. In 2001 MITI was reorganized to METI, and as the organization's strategy for industrial development shifted from the conventional target industry approach, the size of vertical bureaus were significantly reduced. However, it must be worthwhile to reflect on the balanced coexisting structure that was realized by the then vertical and horizontal bureaus, when thinking about future policy planning and implementation process.

#### ***4.2.2. Strong desire of government officials to revitalize Japanese industry***

It should be noted that each MITI staff member was strongly motivated and proud to be involved in the formulation and implementation process of industrial policy from the period of postwar Japanese industrial recovery to the time of the upgrading of industry. While such feelings were of course related to the historical and social background, it was also a great joy for all of the Japanese people and the business community to be able to contribute to the economic development of Japan. Everyone desired a fast recovery and reconstruction of Japanese industry. There were shared goals between MITI and the business community, and they were working together to achieve these goals.

Furthermore, as a MITI official at that time, it was common to hold informal study group meetings together with business people and academics outside of work hours. These group meetings were the places where they could have various discussions and frank debates. At that time, almost no one considered that such a close relationship with the private sector should be avoided because it may lead to corruption. This was because not only MITI officials but also the industry side felt that such day-to-day exchange of opinions was a very valuable opportunity to study together and to get better solutions for Japanese economic development. I hope that central government officials in developing countries today can think of themselves in the same position as the former MITI, working with pride to implement policies for the development of their own industries.

#### ***4.2.3. Three policy measures (implementation of policy based on laws and regulations, advice through administrative guidance, and presenting a vision) and the business community's trust towards government decisions***

As mentioned in 3.2, three policy measures were used in the implementation of Japan's industrial policy. It should be highlighted here that the business community complied well with the laws and regulations posed by the government, and administrative guidance from MITI was actually made useful when deciding on their management policy. It is said that such positive response by the business community was possible due to their trust towards MITI, not only because MITI is the legal authority, but also because they trusted MITI's decisions. The trust MITI gained from the business community was also based on its high capability on information gathering and analysis, its broad perspectives, and fair judgement.

It is my view that efforts are needed to increase trust in the judgements and decisions of government in developing countries today.

#### ***4.2.4. Multiple organizations in policy implementation: Close coordination between MITI and the host organizations***

Many institutions and organizations are involved in industrial policy making and implementation. In Japan, these institutions and organizations have a close working relationship with the central government and have opportunities to exchange information and to share opinions on a daily basis; this has had a significant effect on improving the effectiveness of Japanese industrial policy.

While licensing and budget allocation pursuant to industrial policy laws and regulations was the responsibility of MITI, much of the practical work was entrusted to MITI's regional bureaus and to local governments. Many public institutions were established for the provision of financial support, overseas market development support, regional economic support, natural resource development, various economic surveys and analysis, and R&D support. In relation to policy targets, there were many industrial associations made up of companies at the national and local levels, which acted as support channels. Here, communication was promoted through the close relationship among the policy-making agency MITI, various policy enforcement agencies, and the industrial associations

and individual companies that were the targets and beneficiaries of these policies. These practices continue up to the present day.

It was also necessary for MITI to discuss industrial activities and to collaborate with other ministries with related influence, such as the Ministry of Finance, the Ministry of Construction, and the Ministry of Transport (currently, the Ministry of Land, Infrastructure, Transport and Tourism), the Ministry of Health and Welfare, the Ministry of Labor (currently, the Ministry of Health, Labor and Welfare), and the National Environmental Agency (currently, Ministry of Environment).

Related agencies, other than the MITI headquarters, that were involved in the implementation of policy include: (i) MITI regional bureaus and local governments; (ii) public agencies responsible for financial support, regional development, and SME promotion; and (iii) industrial associations that served as points of contact for companies that are the targets of policy. Their roles are provided below.

**4.2.4.1. MITI regional bureaus and local governments (prefectures and municipalities).** The recipients of industrial policies were located all over the country. In order for the central government to grasp the real situation of policy implementation status, it was necessary to establish a local coordination network. The role played by local governments in the operation of regional industrial policy was significant. For example, some tasks, such as licensing and support for individual companies, were delegated to local governments. Local governments also had their own industrial policies, and it was important that information was shared and opinions were coordinated with MITI and its regional bureaus. Moreover, MITI regional bureaus and local governments were the implementing entities of SME support and regional development policy. Regional industrial development was supported by prefectural and municipal testing and research laboratories, chambers of commerce, and industry associations in each region.

**4.2.4.2. Public agencies related to industrial policy.** Various public agencies were established to support the implementation of industrial policies in the fields of financial support, overseas market development support, natural resource development support, regional development support, SME support, and in practical terms many policies were implemented by these agencies. The following is a list of main

representative agencies in each policy field.<sup>2</sup>

- Financial support: Japan Development Bank, Japan Finance Corporation for Small and Medium Enterprise, and the Export-Import Bank of Japan.
- Trade and economic cooperation promotion: JETRO and the Institute of Developing Economies.
- SME support organizations: The Japan Small Business Corporation and local consulting centers (management advice, consultations, and human resource education).
- Regional development support organizations: Japan Regional Development Corporation (infrastructure development and industrial park construction).
- Natural resources and energy development: The Metal Mining Agency of Japan and the Japan National Oil Corporation.
- Research and development: National research institutions (AIST and Riken), the New Energy and Industrial Technology Development Organization (NEDO), universities, local government testing and research laboratories.

**4.2.4.3. Industrial associations in the private sector.** Private industrial associations represented both the targets and receivers of industrial policy. They were a focal point on policy implementation and played an indispensable role in effective industrial policy implementation. These industrial associations were composed of both national and regional level associations. The national-level associations included the Keidanren (Japan Business Federation), the Japan Chamber of Commerce and Industry, the National Federation of Small Business Associations, sectoral industrial associations (such as the Iron and Steel Institute of Japan and the Japan Machinery Federation), and research associations in specific fields (such as the Japan Productivity Center). At the local level, we can see prefecture and municipal chambers of commerce and local sectoral industrial and business associations. The total number of these associations are in the thousands. While MITI formulated and implemented industrial policy, it usually did so in coordination with these associations; it developed plans with their input and had the associations share policy details with their member companies and then implemented the policies effectively.

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<sup>2</sup> Many organizations were reorganized and integrated in recent years and their names were changed. The old names are used here.

When thinking about industrial policy in Japan, I would like to highlight the importance of these business associations, which contributed to the smooth policy implementation.

Business newspapers also played a unique role in the whole process of industrial policy making in Japan as they were a very important source of information about real industrial activities. In Japan, there are variety of business newspapers that specialize in each specific industry, and they report about detailed interviews they conducted with MITI and the companies on a daily basis. The reports were very detailed and provided valuable information for both policy makers and the businesses community. By reading the newspapers, people in the industries better understood the purposes and background of each policies, while MITI was able to understand the actual responses from the business side.

#### ***4.3. Other noteworthy points in relation to the implementation of industrial policy***

##### ***4.3.1. Emphasis on sectoral industrial policy***

One of the major features of industrial policy during Japan's rapid growth period was the rationalization and modernization of the specific industries. In particular, in the move towards the rapid growth period, laws such as the Act on Temporary Measures for the Promotion of the Machinery Industry, the Act on Temporary Measures for the Promotion of the Electronics Industry, and the Small and Medium-sized Enterprise Modernization Promotion Act were established. Under these laws, the detailed rationalization plans were implemented for more than 100 specific industries, which contributed to the modernization of Japan's industries. What made this possible was highly attributable to the role that was played by the vertical bureaus of MITI. With the presence of vertical bureaus, MITI was able to understand the actual activities of each specific industry, and was capable in formulating and implementing effective industrial policies suited to each case. On the other hand, Japanese companies formed business groups by industry, region, or function, and they tended to work together to solve common problems. Therefore, vertical bureaus in MITI was able to respond to the requests from such business groups. At that time, it was thought that gathering the real issues of each industry and considering them as an overall industrial policy from the viewpoint of the horizontal bureaus in MITI, effectively grounded Japanese industrial policy. However, based on the principles of the market economy, the view

since the 1990s has been that sectoral industrial policy may hinder free choice in the market. The sectoral approach, therefore has been weakened since 2001, and the activities of the vertical bureaus of MITI were reduced.

The formulation and implementation of sectoral industrial policies during the rapid growth period was made possible not because of the government's strong leadership, but it owes more to the collaboration between MITI and the individual companies and industrial associations. In other words, the then industrial development was based on the coordination between policy makers, and the receivers of industrial policies. Again, a government's strong will is not enough for industrial policies to succeed. Their success requires to obtain interests from the recipient side.

#### ***4.3.2. Responding to negative externalities: Coordination with other ministries and agencies***

The goals of industrial policies are not simply to expand production and improve product quality; but rather, they must be based around the idea that industrial development shall contribute to the safety and well-being of the lives of the citizens, and establish friendly international relations. In the case of Japan, its sound and assured industrial activities today were established by the government's efforts in responding to and tackling the various negative externalities induced by industrial development. These negative externalities included issues such as the unfair execution of industrial activities, problems of health and safety for employees, various environmental pollution issues, the global environmental issues, and more around international trade. The various laws and regulations that were laid to tackle those negative externalities were put into effect by ministries other than MITI, and were effectively implemented through coordination among the relevant ministries and agencies.

As an example, let us look at how industrial pollution issues were handled. During the rapid growth period, air and water pollution led to serious health problems such as Yokkaichi Asthma and Minamata disease due to mercury poisoning. While many laws and regulations were enacted around production activities to resolve such problems, at the initial stage, there were oppositions to the introduction of such measures as it would inhibit the development of industrial activities. Nonetheless, pollution control measures were taken in response to the

strong demand from the general public. The business community also came to understand that the acceptance of their doing industrial activities by the local society was more important than anything else. Since then, the business community accepted even stricter regulations and worked on solving those issues by their own initiative. Today, Japan enforces strict environmental regulations to industrial activities, which are well adhered to. This is an outcome of MITI's recognition that industrial activities must be coordinated well within a society. Similarly, the business community enhanced their awareness towards 'corporate social responsibility.'

In any case, solving the social problems caused by economic activities require top-down regulations to be imposed by the government, however, that is not enough. It also requires willingness by each company to comply them. It can be said that Japan was successful in gradually raising this awareness of corporate social responsibility.

Problems of negative externalities occur after industrial development reaches a certain level, and affects the lives of the citizens. Meanwhile, the purpose of industrial policy was not only to expand industrial activities in scale but also to assure safety and sound development of industrial activities with wide acceptance by the society. In this sense, it should be strongly recognized that issues of negative externalities shall be considered as an important issue already from the initial stage of industrial development. This is also a lesson from the Japanese industrial development process.

#### ***4.4. Foreign capital investment and domestic industry: seeking a balance***

Attracting foreign capital investment as an economic development model is considered the most effective strategy for developing countries today. This not only makes it possible to obtain advanced production and management technologies without paying for them, but also secures sales channels (mainly for export). However, this strategy was not adopted in Japan in the 1950s and 60s. On the contrary, Japanese companies obtained advanced technologies from overseas by paying significant amount of money. These technologies were adapted and internalized, and then improved by the Japanese companies, which later on enhanced their competitiveness in the international market.

In response to calls from overseas for capital liberalization, the Government of Japan prepared a liberalization schedule tailored for each industrial sector. Efforts were made to strengthen the competitiveness of domestic companies in line with the schedule. Protection policies were adopted so as to limit the entry of foreign companies until domestic companies gained competitiveness. However, these protection policies were only temporary. Hence it made it possible to avoid the domestic industry becoming too reliant on the protection policy and the neglect making self-efforts.

As business activities today are becoming globalized, this policy against attracting foreign companies to domestic markets may no longer be suitable. Now, the strategy of promoting economic development through the attraction of foreign companies has strong advantages, and we have to consider the most effective measures for introducing foreign companies into domestic markets in a way that leads to the sound development of the national economy. To select the right strategies wisely, we should make efforts to understand the business strategies of foreign companies in the developing countries.

## **5. Issues for Consideration in Implementing Industrial Policy in Developing Countries Today: Based on the Japanese Experience**

From postwar reconstruction to rapid growth period, Japanese industry was upgraded continuously. The economic and social environment surrounding Japan at the time was significantly different from the situation in developing countries today. This section sheds light on the Japanese experience, which may be useful for developing countries today when designing and implementing industrial policy.

### ***5.1. The meaning of industrial policy in the market economy: The relationship between protection and competition policy, and development support and regulation of the negative externalities***

Today, industrial policy should be designed in line with the market economy and the economic globalization regime. That being said, in the case of developing countries, protection measures for domestic industries including direct support from the government, are sometimes allowed. In

contrast, when Japan succeeded in developing and strengthening domestic industries, it implemented trade and capital liberalization progressively, and raised the competitiveness of domestic industries. Then, gradually, the government reduced its direct involvement in industrial activity. As part of this process, protection policy and industrial adjustment policy, which would limit competition among companies in the domestic market, were also adopted; however, these were temporary and limited in time. The final target was to encourage domestic companies to make efforts to expand their business and to eventually make them competitive in domestic and international markets. To this end, the government presented to the industry clear targets and deadlines for their efforts and provided support for achieving these goals, through coordination between the public and private sectors.

One of the goals of industrial policy today is to maintain a competitive environment in the market, and ultimately, to let private companies operate without the support of the government. Industrial protection and support measures could raise the dependency of private companies on government. Therefore, when protection and support measures for private companies are to be implemented, those measures should be temporal and encourage companies to make efforts to become independent from government support.

On the other hand, it is necessary to strictly handle the negative externalities of industrial activities. One of the most important issues in industrial policy is the nurturing of industrial activities supported by citizens. To this end, the proper organization of government agencies and awareness raising among their staff members against those issues is critical. Regulations need to be applied strictly and fairly, and a monitoring system should be installed. Significant efforts must be made for the coexistence and healthy relationship between the industry and the local communities. In addition, the companies could engage in organizing business communities locally, and raise their awareness of social responsibility towards each other.

## ***5.2. Industrial policy after Japan's catch-up: What is the true meaning of 'catch-up'?***

During the 'catching-up period,' the goals of industrial policies were clear, and it was easy to build close coordination between policy makers and the business community to achieve these goals. However, when the catch-up

period was over and the Japanese economy had developed sufficiently around the early 1990s, the two parties began to act independently. At that point, policy goals were diversified, and it was difficult to set common goals that all relevant parties could agree on. Moreover, as the power of private companies increased, they no longer favored government intervention and placed greater emphasis on their independent activities. The role of the government then changed to being a complementary one.

Looking at the current stage of developing countries, their production capacities in some industrial sectors already seem to have reached the level of the global players. However, further examination is needed to judge whether the catch-up stage really ended. Today, the transfer of production functions is easier than in the past. This is an era in which production technologies have been digitalized and the essence of technologies is embodied in mechanical equipment so that top-class products can be produced easily anywhere by importing advanced automatic machinery and key parts. Yet we need to understand that the essence of technology has now become a form of 'black box' and that the actual transfer of the essence of technology is becoming difficult.

Technology is constantly evolving and being upgraded. For businesses to maintain their competitiveness, they must understand the real essence of the introduced technology by doing their own research and development, and continue to improve their own technologies. Although it is sufficient to start with the transfer of production functions, afterwards, there is a need for policy support aimed at understanding the essence of the production technology and promoting self-sufficient development.

### ***5.3. Direction of industrial policy amidst great changes to the economic environment: The need for new industrial policy vision***

Today, the global economic environment is in a period of great change. The progress of globalization of supply chains is leading to an international horizontal division of labor that does not solely rely on domestic supply chains, such as mechanical parts and basic material producers. Developed countries are outsourcing manufacturing functions to developing countries and focusing on R&D and market development without factories in their home country. The fables manufacturing system is becoming popular in developed countries. Furthermore, the advent of the Fourth Industrial

Revolution is proclaimed, and a completely different form of industry could appear in the near future. Under such circumstances, it is necessary to create an approach for fostering industry that is suitable for the new era. This approach will be different from that of which Japan applied in its developing stage.

Thus, new concepts, styles, and instruments are needed with an understanding of the changes of industrial activities, positions of domestic industries in the global economy, and how this will evolve. Above all, it is necessary for governments to examine and present medium- and long-term industrial visions. Next, more specific instruments must be devised under an implementation setting in the direction indicated by the vision. Agencies responsible for industrial policy need to build a broader information network that includes private business circles. The network should be used as a means to analyze various information and opinions, and to then propose specific policies and instruments. In doing so, government officials need to improve their capabilities for information gathering and analysis, as well as exercising fair judgement, and to take responsibility for the industrial development of the nation. Talented staff are needed to create such organizations, and above all, the work of the governmental agencies needs to be respected by the citizens.

#### ***5.4. Who takes role of industrial activities? Diverse approaches to industrial policymaking depending on industrial actors***

This section reviews the various actors engaged in industrial activities. Broadly speaking, there are two types of actors: domestic companies and foreign companies. Domestic companies can be divided into state-owned enterprises (SOEs) and private-owned enterprises. Furthermore, private-owned enterprises could be categorized by scale, ranging from large companies, small- and medium-enterprises (SMEs), to micro-enterprises. It must be taken into consideration that industrial policy objectives and approaches differ depending on their scale. For example, the degree of dependency to the national government differs between large companies and SMEs. The role that local governments play also differs. Depending on the scale of the subject company, its impact towards the industry differs as well. Policy makers shall change the contents and approaches of industrial policies depending on who they aim to reach out, as there are diverse types of industrial actors.

### **5.4.1. State-owned enterprises and large companies**

In developing countries, it is often the case that SOEs are established for the purpose of nurturing key industries, since private enterprises are not fully established yet. Post-war Japan was in the same situation. Railroad companies, communications, airlines, and petrochemical companies all experienced some degree of nationalization in those days, but today, they are all privatized.

SOEs generally operate under the generous protection of the government; this often makes their management less disciplined and prevents them from growing into internationally competitive enterprises. Therefore, SOEs should operate their business with future privatization in mind.

Private companies include large companies, and some of them have developed into conglomerate groups. Particularly in developing countries, large companies have strong influence towards the government, and there are cases where this influence is improperly used. As such, a framework to monitor impropriety is therefore necessary. In the case of large companies, they may easily obtain a monopoly position, protected from competitors in the domestic market. However, we should not expect them to remain in the domestic market, but to compete in the international market.

### **5.4.2. Importance of SME policy**

SMEs are engaged in a wide range of economic activities in every country. Accordingly, SME policies are one of the most important elements of industrial policy in developing countries. The modernization and healthy development of SMEs are essential for the activation and smooth development of the economy. This means the promotion of SMEs are essential. The business activities of SMEs are often limited to a narrow geographical area. Thus, possible policy measures need to be taken at the local level, not at the national level. Also, to implement effective SME policy in developing countries, close coordination with local governments and communities is considered necessary.

In the case of developing countries, many SMEs emerge along with economic development; but their business operation is often unstable due to lack of sufficient financial, managerial, and technological ability. Therefore, there is a need for the public sector to establish business

development support function, in order to organize these SMEs and provide management consulting and various advices to SMEs.

### ***5.4.3. Role of foreign companies***

In the current era of economic globalization, one of the goals of industrial policy in developing countries is to attract foreign investment and entice them to engage in business in the domestic market in order to boost the economy.

Here, a question is often raised to what degree the activity by foreign companies contributes to the development of the nation's economy. Many countries hope foreign investment will advance their industries and research functions. Although many of them prepare various incentives to attract foreign investment, even if investment is obtained, there is a possibility that distorted industrial structure can emerge, where for example all raw materials are imported and parts suppliers are left undeveloped. Today, there is severe competition among developing countries around how to attract foreign investment. Foreign investors, therefore, have the advantage to choose the location where they plan to construct their manufacturing sites. In these circumstances, it is necessary to strategically consider how to attract, retain, and further develop the activities of foreign companies by enhancing the attractiveness of the country. For this purpose, it is necessary to have a full understanding of the business strategies of the targeted foreign companies and to develop a plan to attract them and meet their expectations.

In addition, it is necessary to consider the fact that the impact of foreign investment on the industrial development in developing countries is not limited to the transfer of production activities but to their role as a buyer of domestic goods. As buyers, foreign companies seek various conditions, not only cheap prices, good quality, and safety, but also sound production and transportation methods, and suitable delivery times. Domestic suppliers need to be able to respond to these conditions appropriately. Various efforts should be made to meet the strict requirements of foreign buyers and to increase the competitiveness of domestic companies in the international market. Encouraging and supporting such efforts by the domestic companies should be considered an important element of industrial policy.

### **5.5. *Need for sectoral industrial policies and organization of sectoral industries***

In postwar Japan, the government adopted supporting instruments tailored to each specific industry based on the sectoral industrial policies, which resulted in a number of achievements. The applicability of such sectoral industrial policy to developing countries should be worth considering. Considering diversity of industries in a country and their specific characteristics, the importance of taking a sectoral industrial policy approach is evident. It is critical for policy makers to be able to identify the target industry and understand well its characteristics in order to provide effective sectoral industrial policies.

In a market-based economy, some argue that it is not appropriate for governments to engage in resource allocation in favor of specific industries. However, it should be emphasized that sectoral approach is an important policy method for the effective promotion of industrial development in developing countries. In the case of Japan, there was a system in which various industrial associations were organized. Under this system, the critical issues of each sectoral industry were recognized fully and suitable policy for solving each of them was considered. However, presently, many developing countries do not always have such active industrial associations, where the member companies and outside advisors can freely discuss common issues. When industrial policies are enacted, it is often the case that there are no organizations tasked with inviting the member companies and cooperating with the governments on the matters of implementation. It is important for governments in developing countries to take full responsibility for planning and implementing policies for the development of specific industries while seeking collaboration from universities, research institutions, international organizations, and foreign consulting companies in order to collect and analyze information about specific industries. Accordingly, the organization of industrial associations is key, and it is the task for governments to establish a space for information sharing and for exchange of opinions among policy makers and the industrial associations with their member companies.

### ***5.6. Effective implementation of industrial policy: Increasing sympathy for policy objectives and trust to government by building collaborative relationships with the beneficiaries of policies***

Most Japanese industrial policies have been implemented through rules and regulations or strong administrative guidance backed by government authority and trust. I have already mentioned that at each stage of policy formulation and implementation, MITI organized specific forums to facilitate the exchange of views and discussions between the government, academics, and the business community. This coordination mechanism made the effective implementation of policies possible.

In developing countries today, it will be necessary to build a coordination mechanism between the public and business community as seen in Japan, to ensure effective formulation and implementation of industrial policy. Above all, I would like to emphasize the importance of maintaining a relationship of trust and coordination between the government that creates and implements industrial policy and the business community whose members are the targets and beneficiaries of the policy. I would also like to mention the importance of constructing a mechanism for shared awareness of critical issues to solve problems faced by industries.

#### ***5.6.1. Ideal administrative organizations: Responsibility as a professional organization with thorough understanding of the industries***

Japanese administrative agencies were originally professional organizations consisting of experts engaged in policy making and implementation. They maintained a neutral and fair position in relation to politics, while proposing new policies to the government and gaining consent to implement the policies.

Building on this neutrality and fairness, government officials in charge of the industrial policy need to be highly motivated to be engaged in the policy formulation and implementation. Accordingly, they should make efforts to increase their capabilities to do so effectively and in order to gain the trust from the business sector. More specifically, it is required for them to work to understand the actual circumstances of the business sector so as to make accurate decisions in policy planning and implementation

as professional organizations. Staff members are required to take responsibility and pride in their work. Because of their professional status, they would be reminded of the importance of the organization's high expertise by maintaining neutrality from political pressures and fairness as much as possible. Finally, administrative agencies, including local governmental organizations and public institutions, need to change its organizational structure where necessary.

### ***5.6.2. Generating trust towards the government: Opportunities for information and opinion exchange on a daily basis***

During the rapid growth period in Japan, trust and dependence towards the government from the business community was high. This was because the government (particularly MITI) received an outstanding amount of information from their rich information networks. Moreover, because of the relevance and fairness of the government's judgement and decisions, the business community had high trust towards the government's decisions and also high expectation to its leadership. Additionally, the management capabilities of companies were still weak, hence they were more dependent on the government. There were many opportunities for the day-to-day exchange of information with an atmosphere where dissent could be expressed. In this way, the business community felt more security and respect towards the policies determined by the government.

Based on the discussion above, it can be said that governments in developing countries today need to have an advantage over private companies in collecting domestic and overseas information. Given the superior position of governments, if they make efforts to develop industrial policy with serious and fair attitude, it is possible to gain deep trust and positive expectations towards its leadership from the business community in their countries. It is anticipated that such expectations from both the private and business community will increase the motivation of staff in the central government agencies to get involved in the planning and implementation of industrial policy. As experts on industrial policy, central government officials should work hard and be proud of their efforts to propose and implement the best policies for the people and the nation.

## 6. Sectoral Industrial Policy Case Studies: Public-Private Coordination as Industrial Policy<sup>3</sup>

This section provides an overview of specific examples of sectoral industrial policy from the 1960s to the 1980s, which was the highlight period of industrial policy in Japan. The following two cases are discussed: (i) the legal system and actual implementation under the Act on Temporary Measures for the Promotion of the Machinery Industry; and (ii) the development process and industrial policies of the petrochemical industry. The petrochemical industry was expected to become one of the most rapid-growing industries in the postwar period by importing foreign technologies. These case studies provide concrete examples of how industrial policy has affected specific industries, and show the importance of coordination between the government and the business community. When looking at Japan's industrial policy up to the 1980s, it is important to highlight the coordination efforts of both the public sector and the business community, in which they shared their awareness of key issues for industrial development through active discussion.

### 6.1. Case study 1: Process from enforcement to implementation of the sectoral industry promotion law '*Kishinhō*'<sup>4</sup>

To understand the actual state of industrial policy formulation and implementation in Japan, it is helpful to look at specific examples of industrial policy implementation. By trying to understand the relationship between the government and companies that were subject to this policy, it is possible to better understand the characteristics of industrial policy implementation in Japan. The Act on Temporary Measures for the Promotion of the Machinery Industry (*Kishinhō*) played a significant role in the modernization, rationalization and steady development of many key industries in Japan in the 1960s. Therefore, using the *Kishinhō* as an example, the following section examines the drafting of the law, the content of its support instruments, the approach used to implement it, and the collaborative relationship between the enforcement entity of the *Kishinhō*, the government, the private companies that were subject to this policy, and the various organizations involved in the process.

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<sup>3</sup> This section is based on the information contained in MITI (1979).

<sup>4</sup> This section is based on Tsuruoka (2004).

After the World War II, rebuilding the key industries was the most important issue for the reconstruction of the Japanese economy. Much of the machinery and equipment were destroyed, and what remained were deteriorating. Therefore, the aim of *the Kishinhō* was to modernize and rationalize the industry through the renewal of machinery and equipment, and introduce new production technologies and management methods from the advanced Western countries. Policies were introduced for this purpose, including the enforcement of many laws and regulations (Matsushima 2004).

The rationalization policies introduced during this period of reconstruction are shown in the chronological table below.

#### **Key Rationalization Policies and Commencement of Implementation**

Jun 1949	Industrial Standardization Act revised (establishment of the JIS system).
Sep 1949	Industrial Rationalization Council established.
Apr 1950	Establishment of R&D subsidy system for development of mining and manufacturing industrial technology (supporting R&D by private companies).
May 1950	Foreign Capital Act enacted (activating the introduction of foreign technology).
Aug 1950	Rationalization plan of the coal and steel industries (supporting investment for modernization. Approved for implementation from the following year).
Feb 1951	Export-Import Bank of Japan established.
Apr 1951	Japan Development Bank established (providing loans for investment for modernization and rationalization).
Apr 1951	Customs Tariff Act revised (reducing and exempting import duties for key machinery).
Aug 1951	Act on Special Measures Concerning Taxation revised (reducing and exempting taxes for investments for rationalization).
Mar 1952	Enterprise Rationalization Promotion Act enacted (specifying industries and formulating rationalization plans and implementation support).
Mar 1955	Japan Productivity Center established (dispatching many study visits to the West, promoting the concepts of productivity improvements and quality control).
Jun 1956	Act on Temporary Measures for the Promotion of the

Machine Industry (*Kishinhō*).

Jun 1957 Act on Temporary Measures for the Promotion of the Electrical Industry (promoting the modernization of various industries and parts producers).

Amidst this process, *the Kishinhō* was formulated in 1956 for the purpose of modernizing the machinery industry (a key industry) in Japan. This Act was enacted with a 5-year time limit, which was extended twice before it was combined with the Electrical Industry Promotion Act in 1971 and became the Act on Temporary Measures for the Promotion of Specified Electrical and Machinery Industries. Promotion of the industry continued in 1978 with the Act on Temporary Measures for the Promotion of Specified Machinery and Information Industries, which continued until 1985. This is a typical example of sectoral industrial policy.

**6.1.1. Preparation of the *Kishinhō*, deliberation of the bill, passage through the Diet**

According to the Heavy Industries Bureau within MITI, at the start of the 1950s, the domestic machinery industry was technologically behind compared to Western countries; equipment and machinery were aging, and the industry was seen as significantly inferior to Western countries in terms of competitiveness. MITI strongly believed that there was a need for the urgent modernization of the machinery industry, which was such a key industry.

The 'Industrial Rationalization Council' (later renamed the 'Industrial Structure Council') was established by MITI in 1949. In 1951, the Council issued a report on 'Rationalization Measures of the Japanese Industry,' which was viewed as the first measure to be implemented in the promotion of the modernization of industrial machinery and equipment. Based on the response to this report, MITI began a full-scale consideration of measures to rationalize the machinery industry and commissioned the Japan Machinery Federation to conduct a fact-finding survey of the machinery industries in Europe and the US from 1954 to 1955. The survey items included (i) labor productivity; (ii) unit required amount and material yield; (iii) production structures; (iv) market research; (v) high quality materials such as special steel, for advanced machineries; and (vi) the relationship between assembly and parts manufacturers in the global machinery industry. Surveys were conducted in relation to these

items in various sectors in the machinery industry. Based on the results of these basic surveys, the concepts for the establishment of the 'Machinery Industry Promotion Agency' were finalized. The concept behind this Agency was that it would purchase the latest foreign machinery and equipment and lend them out to companies with preferential loan conditions. It was hoped that this would bolster the modernization of companies and preparations were made to submit this concept to the Diet. However, opposition to the establishment of an Agency led to the idea being abandoned without its deliberation in the Diet. MITI was then forced to hastily consider another measure for the rationalization of the machinery industry, eventually drafting the Act on Temporary Measures for the Promotion of the Machinery Industry. This concept was also discussed within the Machinery Subcommittee of the Industrial Rationalization Council, and their opinions were also incorporated into the design. A bill was submitted to the Diet in early 1956 and was successfully passed in May of the same year.

The formulation of this bill and the deliberations within the Diet were conducted in close coordination with industrial associations who provided their feedback. Within MITI, the matter was overseen by the Heavy Industries Bureau. The machinery industry policy work was shared and implemented by a system of ten different Divisions and one Office within the same Bureau, namely, the Heavy Industries Division, the Heavy Industries Export Division, the Steel Business Division, the Steelmaking Division, the Industrial Machinery Division, the Casting and Forging Division, the Telecommunications Division, the Automobile Division, the Measurement Division, the Weapons and Aircraft Division, and the Office of Vehicle Management.

There was also a system to ensure these divisions had meaningful contact with the industries that they were responsible for, exchanging opinions and sharing awareness of issues facing the industry on a daily basis. This was the reality of the vertical bureau of the MITI organization, within which legislation was prepared.

The preparatory process for new industrial policy began with gathering and analyzing plentiful information, from a wide range of sources. These sources often included public institutions (for example, the Japan Development Bank, JETRO, the Plant Association, SMEs, universities, national laboratories, and public testing laboratories), industrial

associations, private companies, industry newspapers, and research institutions. Overseas information came from an extensive range of sources including the overseas offices of the Export-Import Bank, JETRO and the Plant Association, as well as from the commercial attaché seconded from MITI to Japanese Embassies and direct information from foreign governments.

### **6.1.2. Content of the *Kishinhō***

The content of the Act is as follows.

- (1) Purpose: The modernization of equipment in the machinery industry, the improvement of efficiency, the promotion of improved production technologies, and the comprehensive promotion of the machinery industry contributing to the sound development of the national economy.
- (2) Target Industries for Rationalization: The *Kishinhō* was a system that provided support for targeted individual machinery industry sectors, making rationalization plans for each industry sector and providing individualized rationalization support.

The target industries were specific industry sectors that met the following conditions: they had machinery that required particular performance or quality improvements and they had a need to reduce production costs. These could be roughly divided into three categories:

- Key Machinery: Machine tools, electric welders, power tools, general tools, moulds, measuring machinery, testing machinery, forging machinery, gas cutting machinery, hydraulic machinery, and pneumatic machinery.
- Common Parts: High strength cast iron, die casting, powder metallurgy, screws, bearing, gears, and valves.
- Specified Parts: Sewing machine parts, watch parts, automobile parts, railroad vehicle parts, telecommunications equipment parts, and binocular parts.

At the time the Act came into force, 18 specific industrial sectors had been targeted. This number later increased to 48 specific industrial sectors.

- (3) Rationalization Implementation Process: MITI first formulated 'Basic Rationalization Plans' for all targeted industries. The industries specified by government ordinance then formulated rationalization implementation plans based on these basic plans and submitted them to the division in charge at MITI. The responsible division then reviewed the submitted rationalization plans, and with the approval of MITI, moved to implement them as implementation plans.

### ***6.1.3. Formulation of Basic Rationalization Plan and Implementation Plan***

As stated above, after the passage of the Act, the targets for support were designated as target industries by government ordinance. MITI then formulated a 'Basic Rationalization Plan' for the general promotion of the machinery industry based on discussions within the Industrial Rationalization Council. Then, Rationalization Implementation Plans were formulated based on the Basic Rationalization Plan and implemented for each target industry. These Implementation Plans were formulated based on discussions between industrial associations for each industry and the division in charge at MITI, and were then submitted to MITI for examination.

The Basic Rationalization Plan described the contents that needed to be included in the Implementation Plans. The contents were as follows: (i) model performance; quality, and production through rationalization in the targeted industry; (ii) new types of machinery and equipment to be newly installed with associated costs; (iii) disposal of aged machinery and facilities; and (iv) other matters such as technical improvements, establishment of production systems, and the unification of standards and specifications.

Implementation Plans set out the concrete instruments to be used by an industry in line with the Basic Rationalization Plan. These plans were developed by industrial associations and then submitted to MITI where they were examined by the Division in charge of the Heavy Industries Bureau. They were then implemented with the approval of the Minister and specific support measures were provided.

Under the *Kishinhō*, the template for support was basically the same across the target industries. However, the types of key machinery and equipment

and the quantities that needed to be purchased varied depending on each industry. In some cases, the rationalization was attempted through joint ventures between multiple SMEs. Also, each industry-specific condition was reflected.

Implementation Plans were formulated and examined on an annual basis. The plans were then updated based on the progress made each year. In formulating the Implementation Plans, it was necessary to understand the actual condition of the industry (also requiring detailed domestic statistical data). Where the aim was to catch up with the levels in more advanced countries, the target SMEs were also requested to conduct a detailed comparative analysis to identify any gap between domestic products and overseas competitors in terms of quality, price, and ease of use. In those cases, efforts were also made to jointly import sought-after technologically advanced machinery from overseas, to disassemble it, analyze the materials used for individual parts, the performance, and the quality, and then reproduce it (reverse engineering) to establish accurate targets. Naturally, this analytical information was shared with companies within the industry. Under the *Kishinhō*, it can be said that the goals of the Implementation Plan were given to all the companies in the industry, and the work of rationalization was a collaborative effort. Loans and subsidies were provided for such collaborative survey and research work.

The work of formulating Implementation Plans was undertaken by industrial associations, but in the process, discussions were also held with the MITI Bureau and the divisions in charge; the work could therefore be considered as a collaborative undertaking. In the process of formulating Implementation Plans, detailed information about the industry that could not be learned from official statistics was collected and analyzed to confirm the existence of specific issues in the industry. These analyses resulted in a more accurate understanding of the issues facing the industry and had the side effect of improving the management capabilities of individual companies. By participating in the creation of Rationalization Implementation Plans in accordance with this law, the exchange of information and cooperation within industries was enhanced, a willingness to rationalize and a sense of crisis was shared, and individual member companies showed increased enthusiasm for the implementation of the Rationalization Plan.

#### **6.1.4. Implementation of Rationalization Implementation Plans**

Rationalization Implementation Plans were formulated and implemented every year. The content of the plans included quality improvements, the introduction of fine processing machinery, productivity improvements, work environment improvements, and sales and overseas market strategies. Although the key issues in each industry differed, if the Implementation Plan was approved, policy support was provided for its implementation.

Implementation Plans were submitted to MITI and examined by the bureaus (or divisions) in charge, before being approved. Applications could also be made to MITI after pre-screening within the relevant industrial association, which highlighted the importance of the role of industrial associations. The status of MITI examinations was often featured in trade papers, and information was shared with many stakeholders.

Implementation content varied, and the support was provided not only to individual companies but also joint ventures as already stated. In addition to the import, disassembly, and analysis of advanced machinery and equipment from other countries mentioned above, processing machinery and inspection equipment were introduced and also joint production and inspection centers were established for the manufacturing of shared high-performance products and performance inspections. The criteria were standardized. Additionally, the use of machinery was shared, joint pollution control facilities were created, and quality standards were standardized.

The role of industrial associations was important in the implementation of plans, and key guidance was also provided by support organizations such as the Japan Development Bank, the Finance Corporation for Small and Medium Enterprise, and public inspection laboratories. In addition, as SMEs were often the main target, local governments frequently became the main entities for policy implementation.

#### **6.1.5. Specific support content**

The primary focus of support efforts set out in the *Kishinhō* was preferential loans from the Japan Development Bank to be used for investment in the latest machinery and equipment. This support aimed to promote

the modernization of the industry. In addition to the financial support, various non-financial support was available during the formulation and implementation stages of the Implementation Plans. The following summarizes the supporting measures provided under the Act:

- Investment promotion and tax incentives: Special depreciation, income tax reduction, and low interest loans for fixed asset tax reduction (Japan Development Bank, and the Finance Corporation for Small and Medium Enterprise) and deferred payment. Joint investment (stock acquisition).
- Import/export related: Protective tariffs (increasing tariffs on competing imports), foreign currency allocation, import restrictions, or import licenses.
- Grants for various surveys and overseas visits: Subsidies and survey support.
- Technology development support: Subsidies, technical guidance, and support for launching joint research.
- Provision of information, various advice and guidance: Opportunities for daily contacts among industrial associations, businesses, and government agencies, engaging in appropriate discussions and the exchange of opinions.

#### **6.1.6. Follow-up on implementation status**

When policies are implemented, follow-ups are required. This involved responsible MITI bureaus making efforts to understand the status and impact of implemented policies, including on-site surveys. In particular, policies that were stipulated by law needed to be monitored for their effectiveness. Moreover, in examining the Implementation Plans for the next year, an evaluation was made of the implementation status of the previous year's plans. Here again, industrial associations played a significant role as implementing entities. Information was constantly collected through collaboration among MITI, local governments, and many other organizations related to policy implementation, and measures were taken for further improvements.

The above is an overview of the process of Japanese industrial policymaking and implementation, as well as the process of evaluating the results of implementation, based on the example of the *Kishinhō*. There were strong public-private partnership in the process of the drafting of

the law, implementation, and follow-up. In this sense, the process of industrial policymaking was not a government-led initiative, but a joint work between the government and the companies that were the subjects of the policy. This has been a major feature of industrial policy in Japan.

## **6.2. Case study 2: Petrochemical industry - Example of fostering and developing new industries through the introduction of technologies and the technology transfer process in Japan<sup>5</sup>**

The petrochemical industry is a key material industry that supplies polymer products such as synthetic resin, synthetic fiber, and many basic chemical products by using petroleum as the new raw material. The development of high molecular technologies progressed in the US before and during the World War II, and synthetic resins, synthetic fibers and synthetic rubber were mass-produced as a substitute for natural products.

Japan was at the forefront of polymer research before and during the war. Acetylene chemistry was already well established before the war, and acetic acid, vinyl acetate and vinyl chloride were produced. However, coal was used as the raw material. The postwar reconstruction of Japan's organic chemical industry began with so-called coal chemicals such as carbide acetylene, while the US was converting to mass-produced petrochemical processing using petroleum and natural gas as raw materials for high-performance polymer products such as polyethylene and nylon. At that time, Japan relied on coal for its organic chemical products; but the trend around the world was shifting to oil. The Japanese government and chemical industry were aware of the structure of the Japanese chemical industry and the risks of technological delays. They felt that it was necessary to immediately establish a petrochemical technology system for the transition from coal chemistry to petro chemistry.

### **6.2.1. Start of Phase 1 Plan: Decision on petrochemical promotion measures and establishment of a business plan examination and approval system**

In February 1955, MITI established the Petrochemical Technology Council to discuss 'the industrialization of petrochemical technologies' with the participation of representatives from the public sector and

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<sup>5</sup> This section is based on Japan Petrochemical Industry Association (2008).

business community. During this discussion, it became clear that if Japan wanted to commercialize petrochemicals at that time, they had no choice but to rely on the introduction of technology from overseas for almost all areas. Foreign currency was precious at this time and was strictly managed under the Foreign Capital Act to ensure its effective use. A foreign currency usage permit system, which required an examination of the purpose of use and its expected positive impact on the Japanese economy, was put in place to regulate consent. MITI used this mechanism to examine the petrochemical commercialization plans of each company, and considered adjustments to the content of each plan with reference to the overall demand and supply balance. This was a framework that enabled the government to exercise influence on petrochemical plans as private companies attempted to move forward, without the need for any special laws targeting petrochemicals.

In July 1955, MITI determined the 'measures for nurturing the petrochemical industry' at the ministerial level. These measures set out the goals of petrochemical development as being: (i) securing the domestic production of synthetic resins such as polyphenol resin and synthetic fibers such as nylon, and securing petroleum as raw input; (ii) the domestic production of import-dependent ethylene-based products; and (iii) realizing the reduction of product prices and supporting the sophistication of industrial structures, and gaining international competitiveness of the chemical industry and related industries. From the beginning, the aim was not to protect domestic industries with measures such as import restrictions, but for companies to manufacture petrochemical products that could compete with those of overseas. Support policies included investment coordination, preferential treatment for companies that were able to commercialize, and the development of the business environment.

Investment coordination involved the setting of investment standards with the expectation of demand. With this purpose in mind, it was decided that a technology introduction permit system should be introduced under the Foreign Capital Act as a way of examining the investment plans of each company. Preferential treatment given to companies included loan facilitation from the Japan Development Bank. It was thought that the improvement of business environments needed to involve the low-price sale of state-owned land (former arsenals). In this case, while the petrochemical industry was not a target industry of the *Kishinhō*, it was targeted based on administrative guidance. Appropriate measures

were mobilized from the menu of existing general policies for industrial promotion.

In response to the determination of the 'nurturing measures' mentioned above, many companies decided to enter the petrochemical industry. By September 1956, investment plans by fourteen companies including the four ethylene centers, had been permitted under the Foreign Capital Act. Accordingly, these companies were permitted to use foreign currency to introduce technology and import machinery and equipment.

Prior to the introduction of various forms of technology to be used in the chemical plants owned by those companies, an examination was made by the division in charge at the Chemical Industry Bureau, and the results of this were submitted to the Foreign Investment Council for final permission. I personally worked within the Chemical Industry Bureau at MITI and was responsible for the examination of proposals for technology introduction. This was a rewarding work for me that involved obtaining details from the companies about their reasons for submitting the proposal. The hearings included asking the background to the technology introduction, the reasons for choosing that form of technology, the content and superior aspects of the technology to be introduced, the anticipated economic impact of its introduction, and any conditions that needed to be addressed at the time of introduction. Additionally, all production plans, the amount of investment and source of funds, and the demand forecasts and sales plans for products to be produced needed to be examined. Other reference information was also obtained to make a final decision, and we were working together with the companies to help make these major projects successful. I think that at the time, many of the MITI officials worked with this kind of spirit. By examining the technology introduction plans of many different companies, I was able to compare each one and learned a great deal about the latest developments in the global petrochemical industry. It can be said that MITI at that time provided many educational opportunities for its personnel.

The first ethylene center started its operation in March 1958, and this was the birth of the petrochemical industry in Japan. By today's standards, this center was very small with a production capacity of only 20,000 tons per year. The first phase up to 1960, proceeded smoothly and gave rise to the Japan Petrochemical Industry Association. Petrochemical operators formed a Petrochemical Industry Roundtable Conference in 1957, which

became the Japan Petrochemical Industry Association in June 1958. This association played an important role in the subsequent formulation and implementation of policy for the petrochemical industry.

### **6.2.2. Phase 2 Plan**

Phase 2 began in 1960. By then the Japanese economy had entered a period of rapid economic growth. With the announcement of many new expansion plans, investment coordination was necessary.

In 1960, MITI announced the 'Current Processing of Petrochemical Commercialization Plans.' This set out policy for the expansion and strengthening of Phase 1 plans as well as the promotion of raw material supply for the transition of the raw materials for existing chemicals (from coal to oil). It also signaled the start of the Phase 2 Plan for the petrochemical industry. With the Japanese economy booming, many companies were trying to enter the market in the new growth field of petrochemicals, and additional five ethylene centers were approved. In total, nine centers were established, and it commenced its operation between 1962 and 1964. The scale of these businesses was larger than that of the Phase 1 Plan.

**6.2.2.1. New approach to investment coordination.** Establishment of the Petrochemical Coordination Roundtable Meeting. As the petrochemical industry continued to grow, there were constant movements for further expansion of businesses in this sector. Under these circumstances, MITI and the petrochemical industry saw the need to coordinate investment plans, as they did in the past. However, with the move towards the liberalization of capital, there were questions over how long the Foreign Capital Act could be used for permitting the introduction of technology.

Incidentally, in 1961 MITI announced the 'Bill on Temporary Measures for the Promotion of Designated Industries.' This was an instrument in preparation for trade liberalization, specifying designated industries in which operators would receive special benefits in order to enhance their international competitiveness. This also included a policy for the coordination of investment and production plans through public-private partnership. Under this Act, the petrochemical industry was specified as the designated industry, and investment coordination was viewed in the same way as in the past. However, there were debates about whether this coordination should be through public-private partnership or through

coordination within private businesses. The Act was submitted to the Diet three times between 1963 and 1964, but was eventually abandoned without discussion. The MITI Chemical Industry Bureau that had performed investment coordination for new petrochemical expansion using the Foreign Capital Act believed that it was necessary to maintain a mechanism for investment coordination, even if not based on the Act. At the end of 1964, the Petrochemical Coordination Roundtable Meeting was launched as a body for public-private partnership. This roundtable meeting consisted of MITI (Chemical Industry Bureau), the business sector, and academics and functioned as a *de facto* authorized body to examine the investment plans of each company.

**6.2.2.2. Issues emerged from the rapid development of the petrochemical industry and the government's response.** The petrochemical industry made great progress during the 1960s, but there were issues that arose in the process such as the increasing seriousness of environmental pollution, security, and shortage of location area for new ethylene centers. In the late 1960s, environmental pollution issues were becoming more serious at ethylene centers around Japan. The government established various laws and regulations to prevent pollution and protect the environment. Companies were forced to invest a significant amount in pollution control and were somehow able to comply with the law. These regulatory standards have been revised and strengthened many times, gradually improving the environment. In the process, there were severe conflicts between companies and local residents. Thanks to strong guidance from local governments, companies gradually considered how they could coexist with local communities. Dialogues between companies, local residents and local governments progressed, and mutual trust was built. Today, many companies emphasize 'corporate social responsibility' and continue to contribute to the local community.

In terms of the land issue, the increase in new expansions due to high growth necessitated new factory locations, the creation of new factory sites, and the development of infrastructure. Demand for new locations was huge, and this was woven into the government formulation of the 'National Comprehensive Development Plan.' Information on land area requirements for the growth rate of petrochemicals and favorable land conditions, and requests from industry were provided from MITI to the Ministry of Construction that was responsible for the formation of this National Comprehensive Development Plan. Such information

was used as a reference in the formulation of this plan. Activities to promote development plans for new factory sites were also conducted in coordination with local governments. Regarding regional development, MITI had regional bureaus under its umbrella, and it carried out activities in coordination with such organizations. Petrochemical factories were required to locate in the coastal areas. Many large-scale seaside ethylene centers were formed through construction projects including large-scale landfill projects. However, following the oil crisis, circumstances changed completely and with no companies located in newly developed large-scale industrial areas, open spaces were exposed for a long time.

### **6.2.3. *The 300,000 ton Ethylene Plan***

Under the Phase 2 Plan (1962-66), five ethylene centers were added bringing the total number of centers to nine. In 1965, the standard was set for new ethylene production capacity to reach 100,000 tons or more, and under this standard four more ethylene centers were added. The need for investment coordination rose in an already excessively competitive market.

In June 1967, MITI determined the 'Standards for the New Installation of Ethylene Production Equipment' based on discussions held during the Petrochemical Coordination Roundtable Meeting. The minimum capacity was raised immediately to 300,000 tons per year. This was an attempt to increase the annual production capacity of ethylene to the level of leading overseas centers and to pursue economic rationalization by expanding the scale and increasing the types of derivative products in ethylene centers. MITI expected that the number of the companies would decrease because fewer companies could handle additional investments to realize this scale expansion. It also expected that collaboration among companies and industry restructuring would be promoted accordingly. However, the reality was different. While investment coordination for the standard of 300,000 tons resulted in some joint and rotational investment, each company desperately expanded and revised their investment plans, and from 1969 to 1972 all ethylene centers in the country constructed 300,000-ton ethylene facilities. This 300,000 ton plan turned out to be a disappointment in terms of investment coordination and industry restructuring, but at this point the Japanese petrochemical industry became one of the most competitive in the world, in particular in relation to: (i) the expansion of the production scale of derivative products in

ethylene centers while keeping the price of basic materials low to establish a stable supply system; (ii) the complete conversion of raw materials from existing chemicals to petrochemicals; and (iii) the achievement of comprehensive use of naphtha. However, due to a subsequent recession, excess production capacity and reduced utilization occurred, and in 1972, for the first time a depression cartel agreement (production quantity regulation) was signed by ethylene manufacturers. In addition, aromatic products turned to exportation and an export cartel agreement was made to prevent dumping.

#### ***6.2.4. Structural changes after the oil crisis***

The oil crisis of 1973 forced a major shift in the management policy of petrochemical industry which had continued its scale expansion until then. In the 1980s, in response to soaring oil prices, major efforts were made to develop high-performance products, promote energy saving, and improve productivity. This meant transformation of the Japanese petrochemical industry from quantitative to qualitative development, a move that was largely successful. From the 1990s, however, a period of low growth continued in Japan while other countries in the Middle East and Asia experienced remarkable growth in their petrochemical industries. In general, common petrochemical products lost their competitiveness, and Japan's presence in the global petrochemical industry has declined significantly.

Today, the Japanese petrochemical industry is focused on the development and manufacturing of high value-added products such as high-performance plastics and is attempting to transform into a new advanced material industry.

Above we looked at the policy of industry coordination in the process of developing the petrochemical industry. Here we can recognize the following facts: building on public-private partnership, plans proceeded based on the opinions of both parties, while discussing how to design and implement policies. Throughout the process, the two parties maintained strong collaborative relationship. Furthermore, the staff in charge at MITI had the opportunity to hear from each company, obtain various information, and learn about various business plans. By comparing such information and plans, MITI staff nurtured their capacity to make more accurate judgements. I believe that this process resulted in individual

private companies educating the staff in charge at MITI to be able to make fair and accurate decisions, which in turn led to an increase in trust in the judgements of the government.

The development policy for the Japanese petrochemical industry can be regarded as one model of fostering a new key industry based on public-private partnership, in the form of the Petrochemical Coordination Roundtable Meeting. This was carried out by making full use of the existing general support laws and regulations, without having special designation under a petrochemical development law.

### ***6.2.5. Process of technological development in the Japanese petrochemical industry<sup>6</sup>***

The following section discusses the process of technology transfer by which the petrochemical industry, that was new for Japan in the 1950s, came to be transplanted to Japan, subsequently developed on its own, and grew into an industry with the highest level of technology in the world. By looking at this from a technology transfer perspective, we present the Japanese actual experience of technology transfer whereby foreign technology was introduced, assimilated, absorbed, and then improved to become self-reliant.

Almost all technologies introduced during Phase 1 was primarily in the form of products and production processes that had already been commercialized overseas for 10-20 years, although there were some advanced technologies that had just been developed such as Ziegler's process for polyethylene. At the time, all technologies that were not in the country were introduced because of a desire to close the technology gap with the West, and Japan succeeded in narrowing the gap rapidly. The 14 forms of technologies that were introduced and then commercialized in Japan in the 1950s were already commercialized in the West on average 16.5 years earlier (Wada 1971). In the first half of the 1960s (1960-64), the newly introduced 12 technologies was behind by 11.6 years in commercialization period compared to the West. By the latter half of the 1960s (1965-69), the number of introduced technologies had fallen to 7, and the difference in commercialization periods had also fallen significantly to 3 years. It can be said that by this point the technological gap with the West had all but

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<sup>6</sup> This section is based on Wada (1971).

disappeared, and that the Japanese petrochemical technology has caught up rapidly.

Some polymer research, in relation to materials such as polyethylene and nylon, continued during and after the war in Japan, and reached the level of prototype production. However, this domestic technology was not commercialized, while decisions were made to import overseas' technology. Nevertheless, the existence of the domestic technological base became the foundation to quickly assimilate, absorb, and improve any foreign technology that was brought to Japan.

We will look at whether such imported advanced technology was able to take root in Japan. 'The History of the Petrochemical Industry by Decade' (Wada 1971) describes in detail the process of how these forms of technologies were accepted. To summarize, initially there was adherence to the design of the foreign engineering companies, but then work was put into the mastering and operation of these technologies. As part of this process, various small troubles were resolved as they sought to learn the operating conditions for themselves.

In the case of petrochemicals, advance surveys, testing of the foreign technology, and in some cases experiments in pilot plants were conducted prior to the introduction of foreign technologies to create the foundation for installing new technologies. After their introduction, efforts were made to thoroughly understand the essence of the introduced technology. This included the confirmation of the operating conditions following revision of the operating manual. It also worked on clarifying the limits of equipment and operating conditions, the tolerance level. After those points were addressed, they determined by themselves the optimal operating conditions in terms of productivity, aside from what was mentioned in the manual. Furthermore, they constantly made efforts to improve production capacity by reworking the equipment.

This was an effort to understand the essence of the technology through trial and error, without relying on the manual. By such an effort, it was common for the companies that introduced the technology achieved higher productivity in a few years than those where technology originated. The re-exportation of improved technologies became common. There are also cases where unfinished Western technologies at that time were improved and completed in Japan, largely due to the strong will of

Japanese companies and engineers to fully master and perfect the newly introduced technologies. This may have been rooted in the fact that there was a fiercely competitive environment among companies that acquired these introduced technologies at a high price.

It is often said that in the period after the introduction of new technology, Japanese engineers had doubts about the operating conditions and manuals that they were given and immediately set about to change them. Japanese engineers skillfully operated the new equipment and improved it with details such as changing the way of installing pipe and equipment, often increasing production capacity and productivity. Their operating skill and fine improvements strengthened the influence of Japanese engineers when making expansions. They began placing orders for foreign designs and then making the fine adjustments to the designs themselves. Japanese people are skillful at up-scaling equipment, and the No. 2 polyethylene machine built by Sumitomo Chemical in 1951 overtook the ICI company (UK), which had 15 years of advanced production experience. Particularly in the case of polymers, market needs in Japan differed from those in the places from which the technology was introduced, making it necessary to develop a new grade of product to meet Japanese market demand; this development and improvement happened quickly. Toray Industries Inc. introduced nylon technology from DuPont, but DuPont did not have the nylon products that were suitable for the Japanese market and the original nylon fishing nets developed by Toray were their first successful nylon products in Japanese market. So even in the case of international standard technologies, such as petrochemicals, adjustments were always sought when these were introduced to the Japanese domestic market, and products were often improved and completed in Japan. In this way, the petrochemical industry was able to master and improve its operating technologies, and began developing its own technologies in the latter part of the 1960s.

What should not be overlooked when considering the process of introducing petrochemical technologies is that at that time petrochemical plants were not controlled by computer but were operated manually that required the operators to master the operating techniques; this required a sufficient understanding of the essence of the technology, which meant that reverse engineering was particularly effective during this era. Next, it is worth noting that the process of assimilation and improvement led to the emergence of other related industries such as

the engineering industry, the chemical machinery industry, the materials industry (special corrosion resistant materials), various instrument manufacturers, and the information processing industry including technologies of computer control. These industries became independent from foreign technologies at the same time as chemical companies. They took advantage of various opportunities created by vigorous investment from petrochemical companies in such things as in construction and operation of new facilities, accumulated know-how and learned a great deal about how to operate the facilities smoothly. The rapid development of the Japanese petrochemical industry occurred at the same time as the development of related supporting industries. This led to the development of complete domestication of technologies, including engineering and the manufacturing of chemical machinery, and the development of domestic chemical processing. My paper (Wada 1971) explains that many forms of domestic technology were developed and commercialized during the late 1960s. During this period, the Japanese petrochemical industry became the most productive and competitive industry in the world.

As mentioned above, MITI utilized the foreign currency allocation system in order to examine the relevance of the new expansion plans and sound development. Policy implementations were decided through close communication with the business community, based on which MITI carried out its permission procedures. As a result, the private sector was ready to accept decisions made by MITI. Again, this is evidence of the effective industrial policy implementation in Japan. Through sufficient communication between policy makers and policy beneficiaries, both parties were able to consent to the policies.

The assimilation, absorption, and further improvement of technology in a short period of time was not limited to the petrochemical industry during this postwar period, but can be said to have been the traditional model for Japanese technology transfer since the Meiji Restoration. This has been made possible in part by the economic concept of making the most of technologies obtained through the payment of large amounts of money, but also by the traditional Japanese disposition of wanting to make new foreign ideas their own.

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## The Learning Process for State Leaders and the Ministry of Industry in the Early Industrialization Stage: The Experience of Meiji Japan

Kuniaki Amatsu<sup>1</sup>

### 1. Background

Industrialization is one of the most popular topics in economic development. Some countries have succeeded in industrializing but others have not. Various arguments on how to achieve this status have been made, such as the relevance of government intervention, the choice of outward or inward-looking policies, and so on. This chapter sheds light on two of the issues involved, that is, the industrialization vision formulated by state leaders and the Ministry of Industry,<sup>2</sup> and the actual policymaking practices. The industrialization vision can be defined as the state view on what kinds of industries state leaders and government officials want to have in the country in the future, what development paths they want to pursue to achieve industrialization; who do they expect to lead industrialization, e.g., the state vs. the private sector or domestic vs. foreign investors; and what is the role of government. The policymaking practices can be defined as the styles of policymaking, i.e., what policies are chosen and designed based on factors such as the passion of the policymakers vs. the real situation in the industrial sector in the country; and whose views should be reflected in these policies, such as the state views vs. the industrial entrepreneurs' views (Amatsu 2021).

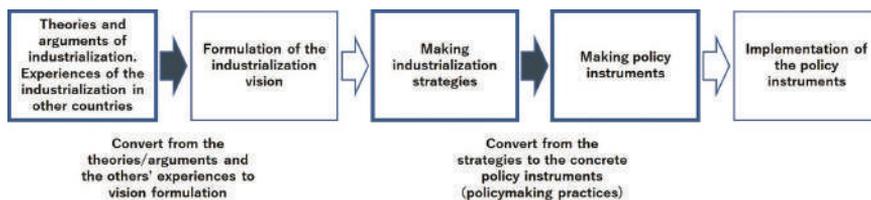
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<sup>1</sup> I am grateful to Prof. Kazuaki Kibe, Faculty of Economics, Yamaguchi University, Prof. Andrea Pressello, the National Graduate Institute for Policy Studies (GRIPS) and Prof. Horman Chitonge, University of Cape Town for helpful discussions and support. Special thanks to Prof. Linda Low, Singapore University of Social Science who gave me insightful comments on the state learning during my business trip to Singapore in November 2019.

<sup>2</sup> The Ministry of Industry is defined here as the central ministry mainly in charge of planning and implementation of the strategies and plans for industrialization. It can include not only industry policy but also trade and investment issues in the narrow meaning. The ministry can also include the relevant ministries and organizations in the areas of taxation and tariff policy in the wider meaning. However, the title Ministry of Industry usually indicates a narrow focus.

Vision formulation is the most upstream aspect that affects the development of strategy, concrete policy instruments, and decision-making in conjunction with state investment, positively and negatively. State leaders and the Ministry of Industry make choices based on the vision. Policymaking practice is closely associated with the problems impeding the business environment that occur in developing countries, such as uncertainty, unpredictability, and policy inconsistency. Therefore, the basic direction of the vision and the basic style of the policymaking practices adopted are crucial.

From these viewpoints, we would argue that the likely success and failure of industrialization efforts in developing countries can be simulated through a case study of the experiences of Meiji Japan (1868-1912). To argue what happens in developing countries, we should consider the flow chart from policy ideas to implementation in accordance with the figure below (Figure 5.1).



Source: Amatsu (2021).

### Figure 5.1. Flows from Vision to Policymaking and Implementation

In general, industrialization efforts can be crystallized by following those steps. First, state leaders and the Ministry of Industry may be influenced by existing theories and arguments about economic and industrial development and the experiences of industrialization in other countries. Second, based on these influences, the industrialization vision will be formulated. Third, the industrialization strategy that indicates preferred policy directions such as priority industries, the choice of import substitution vs. export-oriented policies and the direction of the concrete policy instruments for operationalizing the vision, will be developed. Fourth, policy instruments are designed and implemented (Amatsu 2021).

In this chapter it is suggested that some of the developing countries with the experience of failed or stagnant industrialization efforts have tended to see failures of the two conversion processes in the initial stage

of industrialization. The first conversion failure can occur in the process between the theories and the experiences of other countries and the vision formulation. Many countries tend to formulate unrealistic industrialization visions based on euphoria, desire, and the bias of state leaders and government officials, and not on the reality of the industrial sector in the country. As the industrialization process progresses, the vision should however become more realistic. The second conversion failure can occur during the process linking the strategy and the making of concrete policy instruments. Initially, concrete policy instruments will tend to be designed based on the desk thoughts within the government, and not based on the reality being experienced by the industrial entrepreneurs. They would also tend to be designed from the state point of view, not from the views of industrial entrepreneurs. As the industrialization stage advances, the policymaking practices should however shift toward a more reality-based set in line with the industrial entrepreneurs' views.<sup>3</sup>

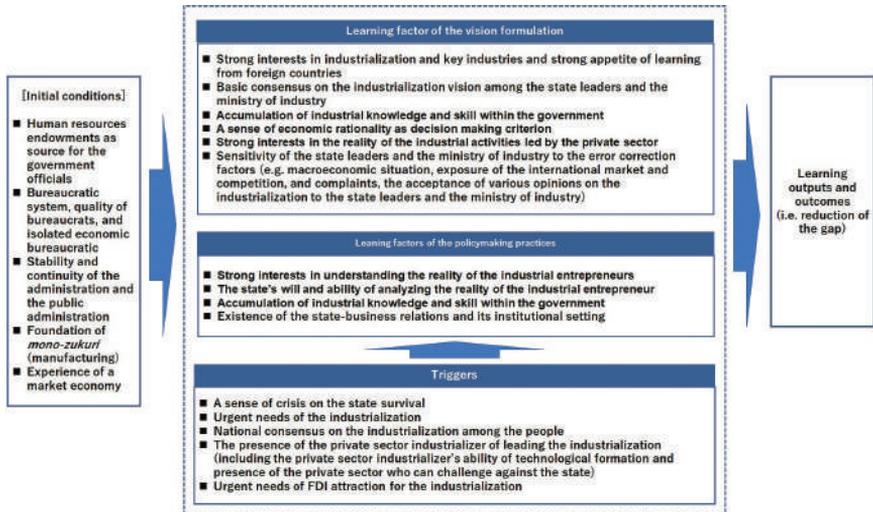
This can be considered as a state capability problem because some countries can manage these conversions and other countries cannot. Furthermore, this should also be considered as a state learning problem because there is no country that has managed these conversions smoothly in the early stages of industrialization. A huge gap between the initial and desired situations tends initially to occur, is reduced in the later stages. This is the learning process (Amatsu 2021).

This learning process is argued roughly in accordance with the following figure of preliminary thoughts on the initial condition, learning factors and triggers in the learning about vision formulation and policymaking practices (Figure 5.2). The learning process is a kind of function of the learning factors, given the initial condition. The trigger is an accelerator of the learning process. If the initial conditions are more favorable, the state learning process starts at a higher level and be accelerated. When the learning factors perform, the learning process is also accelerated. When the triggers function, the learning process will be further boosted (Amatsu 2021).

We would argue this learning process through a case study of Meiji Japan. For several reasons this is a good benchmark for the interpretation of the

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<sup>3</sup> The first and second types of failures are named 'Type I error' and 'Type II error' respectively in Amatsu (2021).



Source: Author. This figure is developed by expanding Diagram 3 in Amatsu (2021).

**Figure 5.2. Preliminary Thoughts on the Initial Conditions, Learning Factors, and Triggers in the Learning of the Vision Formulation and Policymaking Practices**

failures and stagnation of industrialization in some of the developing countries in the post-World War II era. First, there is a clear and simple contrast in the situation of industrialization between before and after the Meiji Revolution started in 1868. Second, Meiji Japan is regarded as a success story for industrialization efforts. It built a foundation for the subsequent industrialization of Japan. Third, there are many available data and academic research contributions to the industrialization literature.

Some argue against the relevance of Meiji Japan as a benchmark. In fact, around 150 years have passed since the Meiji Revolution, and the degree of globalization is perhaps too different between the Meiji and present. In addition, Meiji Japan had very good initial conditions such as a high literacy rate, a well-established administrative system, and a market economy in the pre-modern era. However, Meiji-period Japan has similarities to today in that the country was in transition during this epoch and was forced to experience dramatic changes of political regime, economy, and society due to external impacts. Despite the difference in the era then, the basics that need to be practiced by the state in the early industrialization stage are not so different. Therefore, the case study of Meiji Japan is still relevant for today's developing countries.

In the following section, the process of the state learning is argued, i.e., what happened in Meiji Japan in terms of vision formulation and policymaking practices. This section is divided into two sub-sections. In Section 2.1 and Section 2.2, learning relating to vision formulation and policymaking practices are argued, respectively. In each section, a brief history of those changes is overviewed. Also, which learning factors and triggers functioned and which did not are argued as tentative assumptions. Finally, the arguments are summarized and the implications for today's developing countries are described in Section 3.

## 2. The Experiences of Meiji Japan

The Meiji era, which started in 1868, was a dramatic period in the history of Japanese economy. As noted earlier, Japan had good initial conditions for change. Before the start of the Meiji period, Japan was ruled by the military administration of the *Samurai*, the so-called Edo *bakuhu*, which had continued for around 260 years. Under the Edo *bakuhu*, the administrative system had been built and was well-managed. The economy was well developed, covering products such as various traditional art and craft products, the presence of a vigorous merchant class, and a functioning market mechanism and transport and distribution systems. However, when Japan began to open the country in 1854, western-style modern industries were not present. After Meiji Japan had embarked on state modernization in 1868, only 30 years were required for the establishment of factory-based manufacturing in light industries, and 40 years for the establishment of the foundations for heavy industry.

We can look out over the path of those learning vision formulation and policymaking practices by dividing the Meiji period into the three eras: from the end of the Edo period to the era of the Ministry of Engineering (MOE, *Kōbushyō*) (Meiji 1 to Meiji 6,<sup>4</sup> 1868 to 1873),<sup>5</sup> the era of the Ministry

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<sup>4</sup> The Japan has its own year system separated from the western-styled 'year.' The periods are usually called either 'era' or 'period' in English. The word 'period' is used in this Chapter. The 'Meiji' is a period and started in Meiji 1 (1868) and ended in Meiji 45 (1912). Both are written together because the style of 'Meiji xx' is convenient for understanding what happened at any point since Meiji 1.

<sup>5</sup> Learning in the MOE era includes the efforts of industrialization from the end of the Edo period to the early Meiji period, as necessary. The naming of the MOE era did not mean that the ministries in charge such as the Ministry of Finance and the Ministry of Popular Affairs had not done anything at all for industrialization before the establishment of the MOE.

of Home Affairs (MOHA) (from the establishment of MOHA in Meiji 6 (1873) to the issuance of the regulation of the Disposal of the State-run Factories in Meiji 13 (1880)); and the era of the Ministry of Agriculture and Commerce (MOAC) from Meiji 14 (1881) to around 30 (1897) (Nagai [1961] 2001; Oe [1966] 2001).

## **2.1. Formulation and correction of the industrialization vision**

### **2.1.1. The Era of MOE: The initial vision of industrialization (1868-73)**

**2.1.1.1. Visits abroad and the vision formulation.** In Japan, any modern industrial sector did not exist at all before and during the early Meiji periods (Ministry of International Trade and Industry: MITI 1954). At the end of the Edo period, some industrialization efforts had already been started by the Edo *bakuhu*, and some feudal domains (*han*), although those were limited trials in the enclave.

When the industrialization efforts started, visits to western countries and studying abroad played a crucial role in vision formulation. Many state leaders and the younger generation were exposed to state-of-the-art modern states and economies in the world at the time. They felt the sources of western power, became excited and imagined success for their modern state building in the future.

The initial version of the industrialization vision was shaped in such a situation. The 'vision' was not expressed clearly on an official document basis. However, it is commonly said that the initial vision was very simple. That vision was composed of several elements such as the promotion of export products including silk, tea, copper, ceramics, and marine products; and the establishment of modern industries necessary for building the state and enhancing the military. The method of building a modern industry was simple copy and paste of western industrial factories and technologies to Japan. The state-run factories were expected to play a leading role because the private sector was not yet ready to run modern industries.<sup>6</sup> Perhaps that vision did not set clear numerical targets for specific industries, different from some developing countries in the

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<sup>6</sup> The Meiji government encouraged private sector activities from the early Meiji period. Thus, the presence of the private sector was not denied in the long term under the MOE era (MITI 1962).

post-World War II era.

The MOE was established in October Meiji 3 (1870) and initiated the early industrialization efforts. It was led by many officials with experience of negotiations with western powers and visiting and studying abroad, represented by Okuma Shigenobu (1838-1922) and Inoue Kaoru (1836-1915). MOE was dominated by the ‘western’ atmosphere (Kashihara 2009, 251-76). To realize its initial vision, MOE utilized the factories taken over from the Edo *bakuhu* such as shipbuilding yards and planned to establish various new factories of shipbuilding yard, machinery, cement, steel, and glass products (MITI 1954).

**2.1.1.2. A gap between the vision and the reality.** Obviously, the expected industrial composition in the MOE era did not reflect the reality of the domestic industrial sector at the time. First, according to the statistical data, modern industrial products did not appear in the list of the major trade items. The major export items were traditional goods such as raw silk, tea, coppers, ceramics, and sea products. On the import side, ginned cotton, cotton yarn, refined sugar, and wool were the major items (Table 5.1).

**Table 5.1. Major Export and Import Items in the Early Meiji Era**

Export						Import					
(Unit: thousand JPY)						(Unit: thousand JPY)					
(Unit: ten thousands JPY) after 1878						(Unit: ten thousands JPY) after 1878					
	Raw silk	Tea	Copper	Ceramics	Sea weads		Ginned cotton	Cotton yarn	Refined sugar	Sugar	Thick woolen cloth
1868	6,253	3,581	8	23	214	1868	421	1,239	356	529	235
1869	5,720	2,102		4	575	1869	1,087	3,418	531	1,090	606
1870	4,278	4,511	100	26	504	1870	628	4,522	729	2,317	646
1871	8,004	4,671	142	22	461	1871	206	3,520	845	2,188	840
1872	5,205	4,226	423	45	414	1872	85	5,335	533	1,156	3,036
1873	7,208	4,659	539	116	537	1873	264	3,400	576	1,599	1,320
1874	5,302	7,253	40	108	297	1874	1,091	3,573	706	1,888	112
1875	5,424	6,862	135	113	342	1875	371	4,058	842	2,582	53
1876	13,197	5,453	178	73	471	1876	456	4,151	595	2,182	594
1877	9,626	4,375	519	120	416	1877	418	4,084	688	2,105	684
1878	788	428	78	16		1878	28	720	66	222	
1879	937	744	79	30		1879	10	617	107	237	
1880	860	749	42	47		1880	17	770	95	248	

Source: MITI (1954), Table 2 and Table 3 (p. 12).

Second, western-oriented industrialization efforts were characterized by their superficial nature. A simple copy and paste introduction of western modern industry was adopted without underpinning by indigenous industries (Nagai [1961] 2001). Most of the state-run factories began their operations in the MOHA era, and failed financially. These failures imposed a heavy fiscal burden on the government. They also faced technical problems in factory operations.

The nature of this superficiality can be also observed as a gap between the responsibilities of MOE as laid out in its regulations and the little substance in the overall policy direction. On the former aspect, the MOE organizational regulations said that the MOE shall be responsible for everything relating to industrialization, such as the MOE shall pursue the encouragement of industrial activities, the expansion of industrial production, and the development of industry (Ministry of Finance: MOF 1888). Meanwhile on the latter aspect, 'a big picture of the industrialization policy with a holistic view could not be observed,' and 'the modern machines and equipment were merely introduced on an ad hoc basis in response to the military, political, and economic needs of building a foundation for the state and its development' (Nagai [1961] 2001, 176).

On the other hand, this does not mean that the modernization of the traditional export industries was totally ignored. Take the example of the Tomioka Silk Mill established in Meiji 5 (1872). The main purpose of its establishment was to improve the quality of silk reeling, which was already the largest export item. A quality problem became serious. As the export volume increased, the more its quality deteriorated. As a result, the reputation of Japanese silk reeling had seriously fallen in western markets. Therefore, the government needed to act, and it decided to show the private sector producers a model of how to standardize the production of good quality silk reeling and a certain volume through the introduction of modern machines and equipment.

The MOE era was substantively terminated by stepping down of Inoue Kaoru, a leader of the *Kaimeiha* group (the Progressive group) and the establishment of the Ministry of Home Affairs in Meiji 6 (1873), although the MOE continued to exist by Meiji 18 (1885).

Before moving to the next era, we should note the Iwakura Mission that was dispatched to the United States and Europe from Meiji 4 (1871) to 6 (1873). It consisted of 48 of the top state leaders such as Iwakura Tomomi (1825-83), Okubo Toshimichi (1830-78), Kido Takayoshi (1833-77), Ito Hirobumi (1841-1909), and other government officials, accompanied by their subordinates and young students going to study abroad. Its numbers were around 100 people in total. Its role in vision formulation was very significant (Tsuchiya 1944; Ishizuka 1973), as it observed the modern state machinery, industrial factories, and military facilities in those regions (Kume [1878] 2008b). As a result, the Mission recognized the importance

of economic power sustaining the strengths of military power. At the same time, they knew only 50 years had passed even in the United Kingdom since the beginning of the Industrial Revolution, and 30-40 years in the case of Prussia and Russia. This implied that Meiji Japan would be able to establish the modern industrial sector (Kume [1878] 2008a).

### **2.1.2. *The Era of MOHA: First correction of the industrialization vision (1873-80)***

**2.1.2.1. *The vision correction.*** The formulation of the industrialization vision entered its next era under Okubo. After his return to Japan from the Iwakura Mission, he enthusiastically started industrialization efforts. He established the Ministry of Home Affairs (MOHA) in Meiji 6 (1873) by merging some of the industrialization functions of MOF and MOE, and became the first Home Minister.

In his era, the industrialization vision was substantially corrected. This was made on two aspects. First, the view of industrial composition was modified in line with the reality of the domestic industrial sector. Before this, the industries necessary for building the modern state and enhancing the military and the limited light industries such as silk reeling were highly prioritized. The indigenous industry was substantively ignored even though they had contributed to the exports to western countries (Nakaoka 2006). After Okubo emerged, the industries which would contribute to a decrease in imports and an increase in exports (*Yunyū bōatu and Yusyutu sinkō*) came to be highlighted, more specifically domestic light industry such as cotton yarn, woolen fabrics, and refined sugar. Also, indigenous industries received attention.

Second, the view on the expected leading actors in industrialization came to be modified. Before MOHA the state sector was expected to play a leading role. After Okubo, the private sector came to be regarded as a key player, especially those industries contributing to a decrease in imports and an increase in exports. To this end, a slogan about the encouragement of industrial activities led by the private sector (*Mingyō syōrei*) was launched (Nakamura 1983).

On the other hand, Okubo considered that the private industrial entrepreneurs were not yet strong enough to lead industrialization. He felt the necessity for the guiding role of the state in the encouragement

of private sector industrial entrepreneurs for the moment. From this viewpoint, the establishment of state-run model factories were pushed to assist the private sector to build a technological foundation. According to a Proposal of Industrialization (*Syokusan kōgyō ni kansuru kengisyō*) written by Okubo in Meiji 7 (1874):

The strength and weakness are determined by the quantity of the wealth of the people. The wealth of the people was determined by the quantity of the goods. The quantity of the goods would be increased by the people's efforts of industrialization. However, *those efforts would be necessarily led by the state's promotion efforts. The efforts of industrialization had been made. [...] However, those efforts had not always been producing the good results yet. [...] Rather, the private sector performances have been deteriorating. ... The mindset of the people is not aggressive. [...] Thus, it is the state that is responsible for guiding the private sector to be more heavily engaged in industrial activities.* (Nihon Siseki Kyōkai 1983, 561-65, italics by the author)

This view was a mainstream thought in the MOHA era, and this is confirmed in various documents from this era. In April Meiji 10 (1877), a Proposal on Nurturing the State Economic Power (*Kokuhon baiyō ni kansuru kengisyō*) was written by Okubo. Accordingly, the establishment of state-run model factories was promoted strongly, such as the Shinmachi Waste Thread Factory in Meiji 10 (1877), the Senzyu Woolen Fabrics Factory in Meiji 12 (1879), the Hiroshima Cotton Spinning Factory (disposed of in Meiji 15 (1882) before the starts of operation), and the Aichi Cotton Spinning Factory (started operations in Meiji 14 (1881)). These industries were commonly expected to have a demonstration effect on private sector activities (MITI 1954). However, the role of the private sector was not forgotten even under these movements.

The industrialization efforts in the MOHA era were made based on a hybrid of euphoria driven and reality-based operations to a certain extent. As for the former point, Okubo was impressed with the modern industry in the United Kingdom during the Iwakura Mission. Watanabe Kunitake (1846-1919) described Okubo's enthusiasm:

The career of Okubo can be divided into two parts: the

first part is from the end of the Edo period to the Iwakura Mission and the second part is from the Iwakura Mission and onward, under which Okubo concentrated his energies on industrialization. (Katsuda [1910] 2004, 805-06)

**2.1.2.2. Reduction of the gap between the vision and the reality.** A gap between the corrected vision and reality was reduced after the vision correction in terms of the industrial composition and the expected leading actors. The vision began to step down from the ambitious level to reality during this period.

However, a gap remained. First, according to the trade statistics, the domestic production of key industries such as cotton yarn had not yet increased markedly, and thus a large volume of domestic consumption was imported (MITI 1954, 184-85, Graph 1). Second, the state-run factories failed financially<sup>7</sup> (Nagai [1961] 2001). On one hand, they contributed to building a technological foundation in Japan under the slogan of the encouragement of private sector activities. For example, the Tomioka Silk Mill employed and trained daughters from the former *samurai* class. After training, they returned to their home areas and transferred the silk reeling skills widely in Japan. The Mill also received many visitors from various regions in Japan. On the other hand, most of the state-run factories were operated in deficit (Table 5.2).

**Table 5.2. The Operation Performance of the State-run Model Factories**

Name of factories		Meiji 10	Meiji 11	Meiji 12	Meiji 13	Meiji 14	Meiji 15	Meiji 16	Meiji 17	Meiji 18	Total	Balance
		1877	1878	1879	1880	1881	1882	1883	1884	1885		
Hyogo shipbuilding	Investment		14,995	87,477	88,692			75,000	95,000	4,299	383,463	
	Revenue					417	703	15,971	4,607		21,698	
	Balance	-19,054	-10,011	-947	-11,959						-41,971	-20,273
Akabane machinery factory	Investment	7,636		16,621	13,200						37,547	
	Revenue	304	302	3,781	1,148						5,535	
	Balance					-7,401	-51,925				-59,326	-53,791
Senju woolen cloth factory	Investment	121,351	34,051	31,308	18,618			94,240	65,838		365,404	
	Revenue	2,792	224			16,068	64,162		51,440	75,498	211,184	191,816
	Balance			-19,368							-19,368	
Tomioka silk mill	Investment											
	Revenue					157					157	
	Balance			-50,000							-50,000	-49,843

Source: Ishizuka (1973), Table 2-3-2 (pp. 160-61). The original source is the Ministry of Finance (1888, 459-503).

Note: The unit is JPY.

<sup>7</sup> The performance of the state-run factories is evaluated both positively and negatively. Nagai (2001) and Nakaoka (2006) recognized their demonstration effects positively but also emphasized their limitations. That is, those factories pursued commercial viability but in vain. However, this chapter did not deny the role of those factories in technical formulation in the early industrialization age in Meiji Japan as described in the main text.

This gap can also be observed in the failure of the cotton spinning factories with 2,000 spindles, the so-called '2,000 Spindle Plan.' The plan was implemented around Meiji 10 (1877), and its main purpose was to contribute to a decrease in imports. Cotton spinning equipment with 2,000 spindles was purchased by the government at first then disposed of to local private entrepreneurs. However, the Plan almost completely failed. The government did not understand the appropriate production scale. The production capacity of equipment with 2,000 spindles was too small for them to be operated efficiently. In addition, the factories were located in areas remote from consumers because they relied on hydropower. Also, the private industrial entrepreneurs did not have enough experience of running modern factories. For example, they could not deal with maintenance work technically due to the lack of technicians (Kinugawa 1937).

In sum, Meiji Japan did not yet have enough capability to run modern factories and to establish those industries in this era.

### ***2.1.3. The Era of MOAC: Second correction of the industrialization vision (1881-1897)***

***2.1.3.1. The vision correction.*** After Okubo was assassinated in May Meiji 11 (1878), the industrialization vision was forced to change dramatically due to the more serious fiscal and trade deficits. However, the basic thought on industrial composition was not changed; that is, the importance of industries contributing to a decrease in imports and an increase in exports; and the industries necessary for building the modern state and enhancing the military.

Meanwhile, the vision on the expected leading actors was corrected in both name and substance. Before this, the state-run model factories were given a larger role in the MOHA era while the private sector activities came to be encouraged. In the post Okubo era, the private sector went mainstream except in the military related areas. The thought of expecting the private sector to lead industrialization came to be mainstreamed substantively within the government. Such a view can be confirmed in the 'Main Points of the Encouragement of Agricultural Development (*Kannō yōsi*)' by Matsukata Masayoshi (1835-1924), published in Meiji 12 (1879). He insisted that state intervention in economic activities, which should be led by the private sector, would make the private sector's vitality weaken,

enhance its dependency mindset on the state, impede other private sector activities, and reduce the production capacity of the national economy. Similar views were expressed in a Proposal of the Change of the Economic Policy (*Keizai seisaku no henkō ni tuite*) written by Okuma in Meiji 13 (1880).

In Meiji 13 (1880), a regulation for a disposal of the state-run factories (*Kōzyō haraisage gaisoku*) was issued. This regulation did not produce tangible results and was abolished in Meiji 17 (1884) because the requirement conditions for disposal were too strict for the private sector to respond to this disposal policy. However, the view on the expected leading actor was corrected completely among state leaders. The disposal of the factories became a pre-determined official policy. Accordingly, the disposal was implemented incrementally in three phases: the first phase was from the issuance of the regulation in Meiji 13 (1880); the second phase was from the disposal of mining industries in Meiji 17 (1884); and the third phase was the issuance of the regulation of the disposal of Miike Mining in Meiji 21 (1888) (Kobayashi 1980).

In April Meiji 14 (1881), MOAC was established by the merger of some functions of MOE and MOHA in line with the streamlining of public administration against the deteriorating fiscal situation. A new policy of industrialization was not launched at all. The government policy stance was changed from direct to indirect intervention (Nagai [1961] 2001).

In the cotton spinning industry, the 2,000 Spindle Plan was substantively abolished in Meiji 18 (1885). The Osaka Cotton Spinning Company (Osaka Bōseki) was established by private entrepreneurs in Meiji 15 (1882). Based on the experience of failure of the 2,000 Spindle Plan, electricity was adopted for the power sources in the Osaka Bōseki instead of hydropower. Gas came to be used later. The factory was operated for twenty-four hours in night and day shifts to raise the factory operating ratio. As a result, the company achieved good performance. Many private industrial entrepreneurs emerged and followed this success (Table 5.3).

Around Meiji 19 (1886), a boom in new establishment of privately run manufacturing companies occurred. Afterward, factory-based manufacturing was established in light industry around Meiji 27-28 (1894-95). In heavy industry, its foundation was established around Meiji 37-38 (1904-05) by the start of the Yahata Steel Works in Meiji 34 (1901) (MITI 1954).

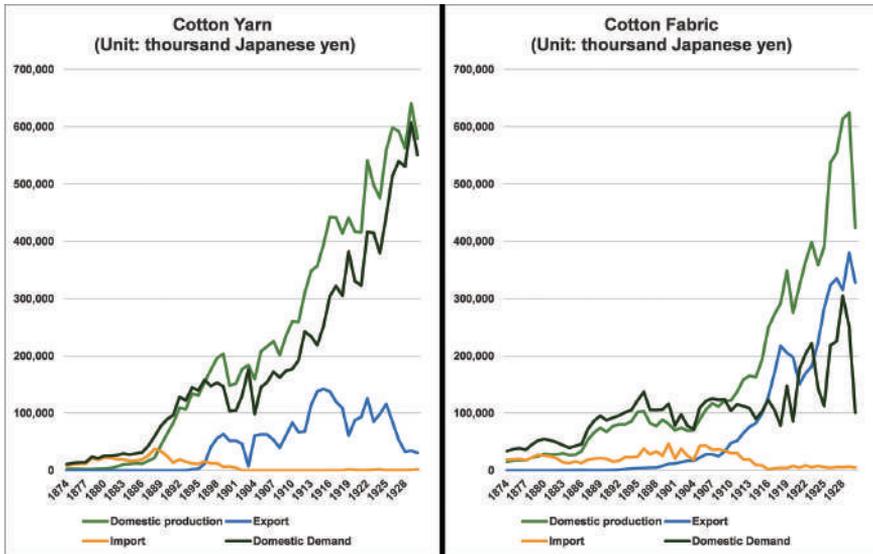
**Table 5.3. The Development of the Cotton Spinning Industry from 1877 to 1895**

Meiji	Year	Numbers of factories	Numbers of spindles (Unit: thousand)	Volume of domestic production (a) (Unit: Thousand cone)	Volume of import (b) (Unit: Thousand bale)	Total volume (a+b) (Unit: Thousand bale)	Volume of export (Unit: Thousand bale)
10	1877	-	8	2	50	52	-
20	1880	19	76	23	110	133	-
22	1882	28	215	67	142	209	0.031
23	1883	30	277	104	106	211	0.108
24	1884	36	353	144	57	202	0.109
25	1885	39	385	204	81	285	1
26	1886	40	381	214	64	279	11
27	1887	45	530	292	53	345	11
28	1888	47	580	366	48	415	11
29	1889	63	757	401	66	468	43
30	1890	74	970	511	53	564	140
32	1892	83	1189	757	27	784	341
35	1895	80	1246	770	8	779	197

Source: MITI (1954), Table 10 (p. 197).

**2.1.3.2. Reduction of the gap between vision and reality.** The gap reduction can be observed from the trends in domestic production, export, import, and domestic demand for cotton yarn. From the viewpoint of the Flying Geese Model, in the cotton spinning industry, imports exceeded domestic production from the beginning of the Meiji period to around Meiji 21 (1888). Then domestic production started increasing sharply and exceeded imports around that time. Finally, exports exceeded imports around Meiji 29 (1896). In the cotton weaving industry, the development process lagged around ten years (Figure 5.3).

In the middle of the MOAC era, state leaders came to be equipped with a more realistic vision. For example, Kaneko Kentaro, the Senior Vice Minister of MOAC gave his views on the situations of industrialization in his opening remarks in the First High-Level Meeting of Agriculture, Commerce, and Industry (*Nōsyōkō kōtō kaigi*) held in Meiji 29 (1896). According to his address, Japanese industrialization had been progressing steadily, compared with the time of the establishment of MOAC, and Japan was now becoming an industrialized state. As for trade policy, it was noted that Japan could not compete against the advanced industrial technologies and products of the western countries; therefore, Japan needed to avoid competition with them. Instead, it was thought to be better to export to them indigenous products such as silk reeling, tea, and traditional arts and crafts, or those goods which could not be produced by the western countries. By contrast, Japan should also export in its



Source: Yamazawa (1984), Appendix 3-1 (pp. 248-49).

**Figure 5.3. Trends of the Domestic Production, Export, Import, and Domestic Demand of the Selected Industries from 1874 to 1930**

local Asian market products that are manufactured by using modern equipment imported from the western countries. In so doing, Japan should utilize the East and Southeast Asian market for the practices of further industrialization (MITI 1961).

Kaneko also pointed out the weakness of Japanese products in international competition and showed his analysis of its reasons. In his remarks, there was no element affected by euphoria, which had been used to induce state leaders in the eras of MOE and MOHA. The attitudes of looking at the reality and coming up with a policy based on the reality solely can be observed.

His address implies that in the case of Meiji Japan, the industrialization vision formulated and corrected by state leaders and government officials had affected private sector activities in the early era; by contrast, when industrialization reached the stage of the establishment of factory-based manufacturing in the light industries, it was the reality of the industrial sector driven by the private sector which came to influence vision formulation and correction by state leaders and government officials.

The Figure 5.3 of the Flying Geese Model implies that the reality of the domestic industrial sector was that it could catch up with the ambitious level expected by the vision at this timing. This movement would contribute to the reduction of the gap from the private sector side. In Meiji Japan, a gap also had been reduced on the state side through the vision correction prior to gap reduction efforts from the private sector. By so doing, state leaders and government officials could avoid dampening the take-off although this would be a chicken-and-egg problem.

The learning process of vision formulation and correction in the initial stage of industrialization reached a significant milestone in this MOAC era. At the end of the Meiji period, the slogans of *Hukoku kyōhei* and *Syokusan kōgyō* were not emphasized by the government anymore (MITI 1954).

#### ***2.1.4. Functioning and non-functioning learning factors and triggers in vision formulation and correction***

We can see which learning factors and triggers worked in accordance with the framework of Figure 5.2. Then we organize the facts of the selected learning factors and triggers in a chronological order (Figure 5.4). This figure describes the historical events in the upper side and the statistical data of the numbers of the establishment of the companies and graduates of the Imperial College of Engineering in the lower side. What we observe is at first, the strong interest of state leaders leads the process. Then, the accumulation efforts of industrial knowledge follows. However, the gestation period of those accumulation efforts was not short. After state leaders and government officials experienced many trials and errors during the gestation period, they built a better understanding of industries. A sense of economic rationality was nurtured only at the end. Throughout these processes, the error correction factors and triggers played a stimulus role.

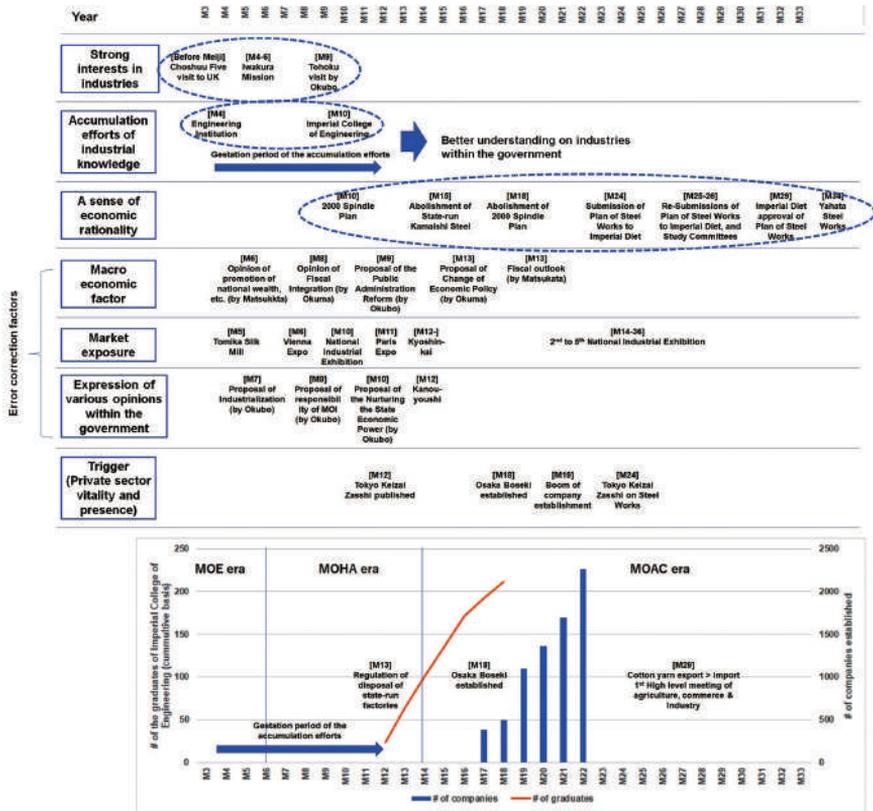
##### ***2.1.4.1. The Era of MOE (1868-73)***

###### ***Learning factors***

We would argue several learning factors and triggers characterizing the learning process in this era selectively in accordance with Figure 5.5.

First, the most important learning factor was the strong interest of state

## The Learning Process for State Leaders and the Ministry of Industry in the Early Industrialization Stage: The Experience of Meiji Japan



Source: Author.

**Figure 5.4. Chronology of the Functioning of the Learning Factors and Triggers**

leaders and government officials in the industries they wanted to build in the future. The functioning of this factor led off the subsequent learning process. For example, five young men from Tyōsyū *han* consisting of Inoue Kaoru, Ito Hirobumi, Yamao Youzou, Inoue Masaru, and Endo Kinsuke went to the United Kingdom at the end of the Edo period. The main purpose of their visit was to watch the western countries and to study their navies. They were surprised to see many modern factories with chimneys smoking all day, and a steam locomotive running in London. Before this visit, they had been involved in the anti-foreign movement. However, by watching the modern state and the situation of industrialization there, they recognized that Japan could not compete against this modern state sustained by industrial power and needed to



Shizuoka in 1854, replacement shipbuilding work was done for Russia by Japanese traditional craftsmen under the supervision of the Russians. A replacement vessel made in steel with the same specification could not be built. However, western-style shipbuilding techniques were obtained by Japanese craftsmen during this process (Nakaoka 2006). In addition, shipbuilding yards were built in Yokosuka, Hyogo, and Nagasaki by the Edo *bakuhu*. Cotton spinning factories were built in Kagoshima and Sakai by Kagoshima *han*. A steel mill was built by the Edo *bakuhu* and feudal domains, respectively. After the Meiji period started, Kamaishi Steel tried to launch, and various state-run factories were newly established in the MOE era. Many of these trials and errors failed. However, Meiji Japan accumulated experience of manufacturing on-site.

In the process of this knowledge and skill accumulation, many foreign government advisors were hired. Their numbers were 153, 221, and 93 people respectively in Meiji 5, 9, and 13 (1872, 1876, 1880), out of which the percentage in the MOE was the largest and accounted for 50-60 per cent. In the MOE, the Bureau of the Manufacturing (*Kōsaku kyoku*) invited 73 advisors from Meiji 1 (1868) to 18 (1885) (Ishizuka 1973, 164-67). Paradoxically, some of their behavior made state leaders recognize the irrelevance of the simple copy and paste style.

At the same time, the state leaders and government officials started knowledge accumulation efforts from a long-term perspective. The Engineering Institution (*Kōgakuryō*) was established in Meiji 4 (1871). According to the regulations in Meiji 4 (1871), the main purpose of the establishment was to supply government engineers to MOE. The graduates who had received government scholarships were obliged to work for MOE at least seven years, although graduates from the Institution only started to be produced in the late MOHA era (MOF 1888).

These efforts in knowledge accumulation did not produce tangible results immediately partly because the gestation period of the accumulation efforts was not short and partly because the MOE era was the euphoria era and there was little space where the *Kaimeiha* group could turn their eyes to the reality of domestic industries even if they had knowledge accumulation to some extent on this. Consequently, those efforts did not result in a better understanding of industries among state leaders and government officials in the MOE era. The lack of sufficient knowledge was confirmed by examples of adoption of the simple copy and paste

method and the consequently poor performance of the state-run factories established in this and the early part of the next era.

Nevertheless, if there was a sense of economic rationality in this era, widening the gap of the vision could have been prevented. However, it is doubtful if the factor of a sense of economic rationality could be performed under the lack of the understanding about industries. Take the example of the poor performance of the state-run factories. Some argued that this was partly because public interests were prioritized intentionally rather than profit motivation and a sense of economic rationality, and officials tried to drive modern industries instead of letting the private sector handle this task (Harada 1972). However, this view needs to be qualified. The poor performance financially as well as technically cannot be explained by those strategic intentions only. It is therefore natural to see if the main reasons of the failures were due to the lack of a sense of economic rationality.<sup>8</sup>

From the viewpoint of the vision correction, the role of the two error correction factors needs to be examined. In this chapter, the error correction factors are defined as the learning factors which would make state leaders and government officials recognize the necessity for the vision correction. If they are responsive to these factors, the width of the gap could be reduced. If their responsiveness is weak, the gap could not be reduced.

One of the important factors was the factor of market exposure. This functioned in the silk reeling industry, and contributed to reinforcing the reality of the vision, though to limited extent. State leaders and government officials understood the importance of silk reeling as a growing export-oriented industry, and seriously acknowledged the complaints of the western countries against the quality problems in the silk and cocoons. Therefore, they responded to those complaints. When we consider the experience of some developing countries in the post-World War II era, this reaction of Meiji Japan might be considered exceptional. The governments of some developing countries did not put a higher priority on the existing leading industries in state-led industrialization, such as the cotton yarn industry in India and cocoa production in Ghana. Rather, they damaged

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<sup>8</sup> The positive and negative aspects of the evaluation of the state-run factories are as previously described.

the development of those industries. A response by Meiji Japan to the complaints could also be considered as evidence that Meiji Japan had a sense of economic rationality in a sense, though to a limited extent. A long history of experiencing the well-developed market economy would have enabled them to react reasonably.

The second error correction factor was a fiscal and trade deficits problem. The Meiji government suffered from a serious fiscal and trade deficits due to its massive investment in the modernization efforts and in military action against political instability. The trade deficit had continued since Meiji 2 (1869) (Table 5.4).

**Table 5.4. Export and Import Trends**

(Unit: thousands of JPY)

Year		Export	Import	Balance
Meiji 1	1868	15,553	10,693	4,860
Meiji 2	1869	12,908	20,783	-7,875
Meiji 3	1870	14,543	33,741	-19,198
Meiji 4	1871	17,968	21,916	-3,948
Meiji 5	1872	17,026	26,174	-9,148
Meiji 6	1873	21,635	28,107	-6,472
Meiji 7	1874	19,317	23,461	-4,144
Meiji 8	1875	18,611	29,975	-11,364
Meiji 9	1876	27,711	23,964	3,747
Meiji 10	1877	23,348	27,420	-4,072
Meiji 11	1878	2,608	3,305	-697
Meiji 12	1879	2,840	3,356	-516
Meiji 13	1880	2,884	3,789	-905

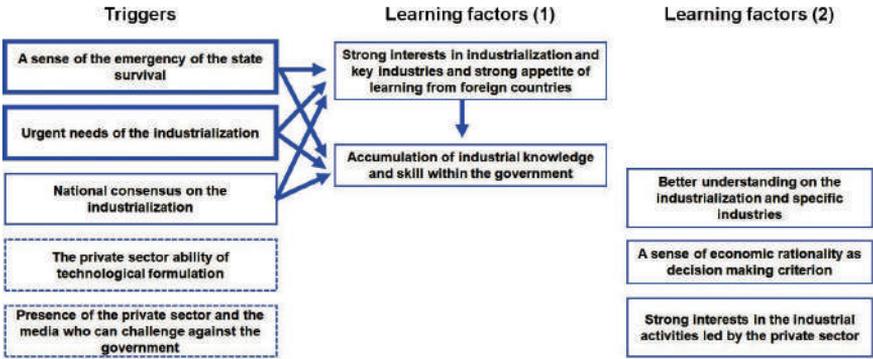
Source: MITI (1954), Table 1 (p. 11).

Note: The unit after Meiji 11 is ten thousand JPY.

Various arguments on whether the industrialization efforts should be continued in such a bubbly manner were made within the government against the situation of the fiscal and trade deficit. As a consequence some of the state leaders and government officials including Inoue stepped down. The error correction factor thus functioned in a sense. It made it possible to draw a curtain over the MOE era. However, the correction of the industrialization efforts was not realized in the MOE era. The actual correction of the vision needed to wait for replacement of the leaders initiating industrialization from Okuma and Inoue Kaoru to Okubo.

**Triggers**

Learning was not preceded by the functioning of the abovementioned factors only. Exogeneous factors played a crucial role (Harada 1972). The triggers did not allow state leaders and government officials to spend the moratorium in their learning path and gave stimulus to their stronger interests in industrialization and the accumulation efforts of the industrial knowledge and skills within the government (Figure 5.6).



Source: Author.

Note: In this figure, the meaning of the types is the same as in the previous figures.

**Figure 5.6. Relationship between Triggers and Elements of the Vision (MOE Era)**

First, the most important trigger was a sense of emergency over state survival. Because of the Opium War in China and the experience gained from the visits to the western countries and the military conflicts such as the Bombardment of Kagoshima and the Shimonoseki campaign in 1863 and 1864, the military threat of colonialization by the western countries were already seriously recognized and induced urgent action on state modernization (Ishizuka 1973). Second, industrialization was considered as a necessary measure in the policy of enriching the country and strengthening the military. State leaders visiting western countries were struck by the industrial power sustaining their imperialism. Third, there existed a substantive national consensus on industrialization.

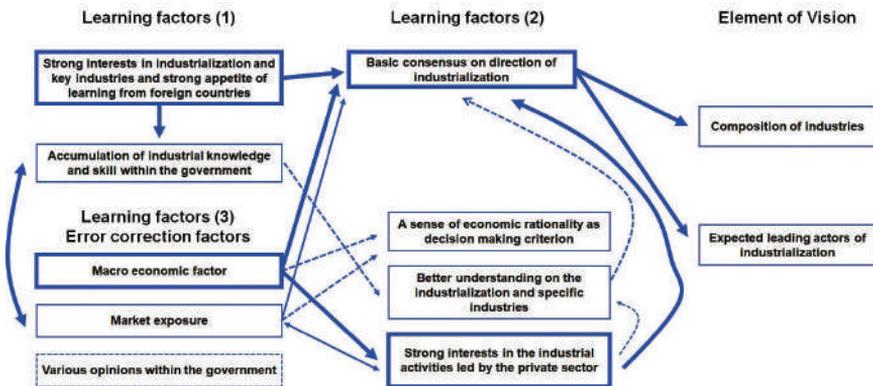
On the other hand, there was a trigger which did not function in the MOE era. That was the private sector related triggers. We assume there were two options for reducing this gap: one is that the state leaders and government officials would modify their vision to meet the reality; and

the other is that industrial entrepreneurs would make efforts to upgrade their industrial activities and bring the reality closer to the demands of the vision. The former option could not be expected in the euphoria era. However, the latter option could also not be expected. In the MOE era, the private sector had existed since the end of the Edo period. They had been engaged in the export of raw silk, etc., and *Nishizin-ori* (*Nishizin Weaving*) dispatched their technicians to Lyon, France. Political merchants such as Mitsubishi had already emerged. However, the private sector was not yet strong enough to lead the new industries and engage in technological formulation. Their progress would also not become a force to assist government to have better understanding on the desired industries and to make the government turn its eyes to their presence as a leading actor.

#### 2.1.4.2. The Era of MOHA (1873-80)

##### *Learning factors*

The learning process of how the learning factors and triggers perform interactively in this era are described in Figure 5.7.



Source: Author.

Note: In this figure, the meaning of the types of the line is same as in the previous figures.

**Figure 5.7. Relationship between the Learning Factors and the Vision Formulation (MOHA Era)**

##### *Functioning learning factors*

First, the learning factors characterizing the learning process in this era remained a strong interest of the state leaders and government officials engaged in industrialization. This continuously played a strong role in the

learning process. For example, the effect of the Iwakura Mission was very large in terms of vision shaping and consensus building on the direction of industrialization among state leaders and government officials. During and after the mission, they showed strong interest in industries and promoted the aggressive appetites of learning to industries and sought to take advantage of the accumulation efforts in industrial knowledge and skills. For example, they left bulky records of the mission. Okubo was impressed with industrialization in Europe as the source of their power and driven to the industrialization efforts after the mission. Okubo allocated time for the discussion on industrialization even in an extreme busy situation after the mission (Katsuda [1910] 2004).

Second, the factor of the efforts to accumulate knowledge continued functioning because of the stimulus of those visits abroad. Sending young Japanese to the western countries for study was continued. Experiencing manufacturing was also continued. For example, the state-run factories were administered within the organizational charts of the ministry in charge. It was hardly possible that MOE and MOHA did not accumulate the industrial knowledge and skills inside these organizations and come to acquire better understanding of such industries. Ishikawa Seiryu (1826-95) was involved in the launching of the cotton spinning industry, although many factories failed in the MOAC era. In the steel industry, Oshima Takato (1826-1901) and Noro Kageyoshi (1854-1923) were involved in Kamaishi Steel, although this facility could not operate successfully due to many technical troubles. This experience would however be the necessary failures for the next era. In fact, Noro Kageyoshi was also involved in launching the successful Yahata Steel Works in Meiji 34 (1901).

The opportunities of international Expos were also utilized. They tried to study other countries' exhibits of industrial products that Meiji Japan could learn about and should introduce for future technological improvement. For example, the Vienna Expo in Meiji 6 (1873) became a good opportunity to study state-of-the-art manufacturing products including manufacturing methods, the way of use, pricing and making a comparison with the equivalent products of Japan. To this end, engineering technocrats as well as many engineers and technicians gathered nationwide were dispatched to that Expo (*Gizyutu densyū seido*). They were instructed to visit many modern industrial factories, collect information about modern industries, learn the relevant industrial knowledge and skills, and bring them back to Japan (Fujiwara 2016).

The Engineering Institution was re-organized into the Imperial College of Engineering (*Kōbu daigakkō*) in Meiji 10 (1877). The function of the engineering education and the quality of educational system were enhanced by inviting Henry Dyer from Scotland. According to the regulations of the College, students with a state scholarship were obliged to work for MOE for seven years after their graduation until that policy was changed in Meiji 16 (1883) (Uemura 2015; MOF 1888). It was in Meiji 12 (1879) under the late MOHA era that the graduates of the Imperial College of Engineering started to be produced and work for MOE. Therefore, the impact of this engineering education was not so influential in the early MOHA era.

These accumulation efforts were conducive to building a better understanding of industries to some extent. However, the level of this understanding was not yet enough to nurture a sense of economic rationality and to make this factor perform in the euphoric atmosphere. That is evidenced by the failures of operations of the state-run factories and the 2,000 Spindle Plan. As an example, the dominance of euphoria atmosphere can be confirmed in a meeting of the cotton spinning producers held in Meiji 18 (1885). According to their meeting record, they started the establishment and the operation of the cotton spinning factories with 2,000 spindles. This was ambitious and a big plan, simply pushed by reckless loyalty toward the country without enough capital and necessary knowledge and skills and followed the encouragement by the government to avoid being criticized against the imports of cotton yarn. Finally, the plans became completely stuck (Nawa 1937). The cotton spinning producers accepted the view that the 2,000 Spindle Plan was the product of the simple copy and paste of the western modern industry driven by euphoria.

Meanwhile, these examples imply that a movement toward a more reality-based vision formulation was not realized by the functioning of the factors of strong interest and knowledge accumulation efforts only. Against this situation, the error correction factors performed strongly to urge state leaders and government officials to move toward a reality-based vision correction. First, one of the most important factors was to deal with the fiscal and trade deficit problem. Huge amounts of funds had been spent since the early Meiji period on domestic political stabilization and the industrialization policy under MOE (Nagai [1961] 2001). State leaders and government officials were very sensitive to this problem.

Their serious recognition can be observed in various documents written by the state leaders. For example, Matsukata raised serious concerns in his 'Opinion on the Promotion of the National Wealth and Streamlining of the Unurgent Spending' (*Kokka hukyū no konpon wo syōreisi, hukyū no hi wo husegubeki no ikensyo*) in Meiji 6 (1873). Similarly, the urgency of dealing with the fiscal and trade deficit problem was emphasized in an Opinion on the Establishment of the Foundation of the State Budget by Okuma in Meiji 8 (1875) and in the Opinion on the Fiscal Integration by Promoting the National Economy (*Tenka no keizai wo hakari kokka no kaikei wo taturu no gi*) by Okuma in September of Meiji 8 (1875). In Meiji 9 (1876), an instruction requesting the central ministries to limit their budget proposals to the same amount of the previous year was sent by MOF. Against this fiscal situation, Okubo was also forced to come up with the 'Proposal of the Public Administration Reform (*Gyōsei kaikaku no kenpakusyo*)' in December of Meiji 9 (1876) and emphasized that the fiscal deficit would be a serious bottleneck factor for further promotion of industrialization efforts. To deal with this crisis, the merger of the functions of MOE and MOHA and a decrease in the numbers of foreign government advisors were inevitable. Based on these documents, it is obvious that a fiscal and trade deficit problem forced the government to streamline its efforts to industrialize, and to cut un-necessary spending, to reallocate the budget to the industrialization efforts, and to review the overall direction of industrialization efforts.

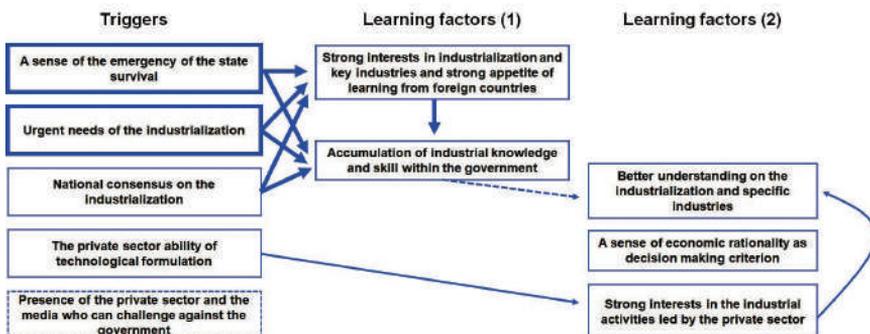
On the trade deficit side, because of this error correction factor, Meiji Japan began to emphasize the industries which would contribute to a decrease in imports and an increase in exports and promoted the indigenous industry in addition to the key industries targeted since the MOE era. The decline of the industrial activities led by the private sector was regarded as the main reason why imports had been increasing sharply, while the exports had not been increasing proportionately in an 'Opinion on the Promotion of the National Wealth and Streamlining of the Unurgent Spending' by Matsukata in Meiji 6 (1873). He sought solutions to the enhancement of private sector vitality. A similar policy direction was proposed by a 'Proposal on the Responsibilities of MOHA' written by Okubo in May of Meiji 8 (1875). In May Meiji 9 (1876), Okubo visited the Tohoku region prior to the Meiji emperors' visit and observed the situation of local industries. He met Sasaki Uemon, a local industrial entrepreneur who had launched a silk reeling factory with installed modern equipment and came to recognize the potential of the private sector. The atmosphere

of the encouragement of the private sector went mainstream thereafter. Without this error correction factor, the views on the expected leading actor may not have modified at this timing.

Another important error correction factor was an increase in market exposure. Participation in the various expos such as Vienna, Philadelphia, and Paris in Meiji 6 (1873), Meiji 9 (1876), and Meiji 11 (1878), respectively, functioned as an error correction factor. One of the purposes of the mission to Expos designated by the Meiji government was to watch and study the markets and products in those countries. State leaders and government officials could thus know the latest situation of industrialization in western countries and where Japan was from the international perspective. For example, the exhibits by Japan in Paris Expo in 1867 in the Edo period were dominated by Japanese traditional arts and crafts. In the Philadelphia Expo (1876), Meiji Japan could not exhibit products made by machines. A clear contrast with the western industrial powers already entering the iron and steel age must have been recognized.

### Triggers

Some triggers functioned supportively in urging state leaders and government officials to shift toward a more realistic vision correction (Figure 5.8).



Source: Author.

Note: In this figure, the meaning of the types of the line is same as in the previous figures.

**Figure 5.8. Relationship between Triggers and Elements of the Vision (MOHA Era)**

The military threat was still serious in the MOHA era, and affected the direction of industrialization, i.e., what kinds of industries did Japan

need to build for its survival. This urgency did not allow Meiji Japan to follow the learning process at a slow pace. The members of the Iwakura Mission fully recognized the urgent needs for modernization in all fields of state building. For example, they were told by Bismarck, the German Chancellor during the mission:

In today's world, the western countries build a good relationship each other. However, this is a very superficial phenomenon, and they compete with each other and the powers of the world despise small powers. [...] The international laws that they claim would be treated as the public laws of preserving of rights of the superpowers in a peace time. *However, if the conflicts occurred, the superpowers would insist on the relevance of their position based on international law without appealing to the military actions as far as they feel the benefits to do so. On the other hand, they would appeal to their military actions and break the laws if they did not feel beneficial for them.* [...] Therefore, Prussia decided to enrich our country and became the country which could built an equal partnership with those superpowers. [...] As far as I heard, the United Kingdom and France colonialized foreign countries with military force and deprives them of the products of those colonialized countries. (Katsuda [1910] 2004, 51-3, italics by the Author)

The various mission members came to consider that enriching the country should be the most fundamental basis for state building to avoid the risk of colonialization from the western powers and re-confirmed the necessity for industrialization (Tsuchiya 1944).

In addition, the factor of private sector vitality functioned in the MOHA era. For example, *Nishizin-ori* established a modern factory in Meiji 7 (1874). Factory-based manufacturing appeared, such as Kataoka-gumi in the silk reeling industry around Meiji 10 (1877). These modern-style entrepreneurs appeared mainly in light industry. The direct factor making Okubo and state leaders give attention to the role of the private sector industrial entrepreneurs was the fiscal and trade deficit problem as an error correction factor. However, Okubo may not have reached the recognition of the private sector as an expected leading actor without the existence of a vigorous private sector even though it was not strong

enough to lead industrialization. It did play the role of a pull factor in Meiji Japan.

#### **2.1.4.3. The Era of MOAC (1881-1897)**

##### ***Learning factors***

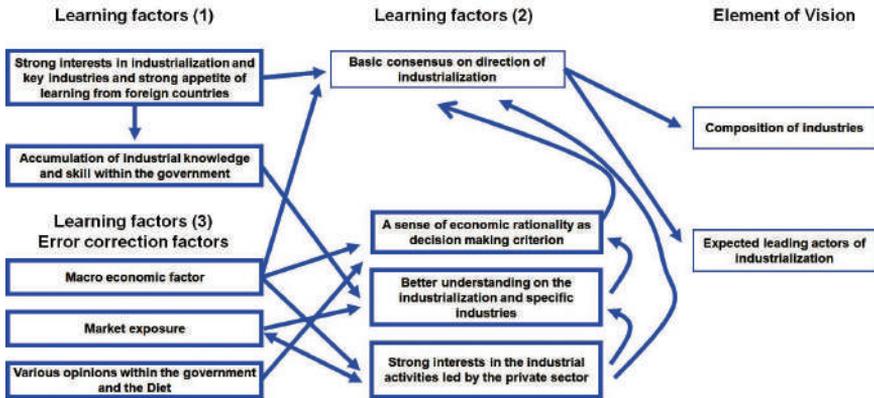
The learning in this era was characterized by the functioning of all learning factors. For example, the factor of the efforts in knowledge accumulation actually started playing an important role in building of a better understanding of industries, and there was the development of a sense of economic rationality at last with the stimulus of the error correction factors as described.

First, the effects of the accumulation efforts in industrial knowledge and skills within the government finally came to be recognized. It was hardly possible that this accumulation had not been made within MOAC because for example, the Senzyu Woolen Fabric Factory, Shinmachi Waste Thread Factory, and Tomioka Silk Mill had been administered within MOAC by Meiji 21 (1888), Meiji 25 (1892), and Meiji 26 (1893) respectively. Engineering technocrats were dispatched for the support of installation work on the machines and equipment invested in by private entrepreneurs. They were also engaged directly in surveys of manufacturing (MITI 1954, 283-303).

In addition, graduates from the Imperial College of Engineering started to be produced and to work for the ministry in the MOAC era. Those numbers began exceeding the numbers of the government foreign advisors by Meiji 14 (1881) (Figure 5.10).

The downward trend in government foreign advisors since the middle of MOHA era was mainly because of fiscal reasons. However, the replacement of government foreign advisors by the graduates of the Imperial College of Engineering should also be acknowledged as another main reason. For example, the graduates from the Imperial College of Engineering worked for Hyogo Shipbuilding Yard, the engineering officials of MOE, Akabane Machine Factory, and the Imperial College of Engineering as teaching staff (Umetani 1984).

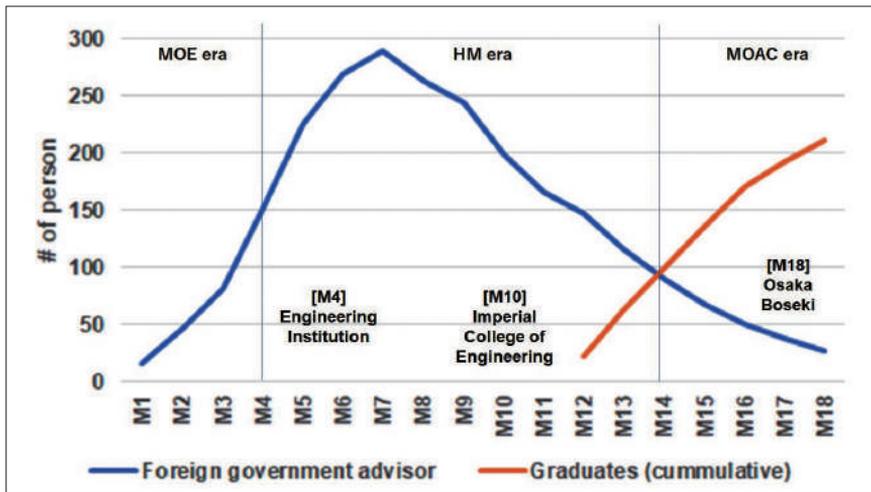
The knowledge accumulation acquired through these activities produced positive effects, at first on building the better understanding on industrialization, then, on nurturing a sense of economic rationality in



Source: Author.

Note: In this figure, the meaning of the types of the line is the same as in the previous figures.

**Figure 5.9. Relationship between the Learning Factors and the Vision Formulation (MOAC Era)**



Source: The data on the numbers of the graduates from the Imperial College of Engineering comes from Table 4-1 and Table 4-2, page 38 in Uemura (2010). The data of the numbers of the government foreign advisors comes from Table 2-3-4 (pp. 166-67) in Ishizuka (1973). The author processed these data.

**Figure 5.10. Trends of the Numbers of the Government Foreign Advisors and Graduates from the Imperial College of Engineering from Meiji 1 to 18**

state leaders. Meanwhile, the role of the Expo in this context decreased in the Meiji 10s (MITI 1954). Second, better understanding of state

leaders and government officials on industries was enhanced through another channel, that is, increased familiarization of the state leaders and government officials with the industrial activities led by the private sector. The opportunities for this interaction were supported by an example of the organization of the National Industrial Exhibition, which was initiated by Okubo in Meiji 10 (1877) and continuously organized five times up to Meiji 36 (1903). In addition, a new initiative of *kyōsinkai* was launched by Matsukata based on the experience of his visit to France for the Expo in March Meiji 12 (1879). He found the French government held *kyōsinkai* meetings for the exchange of information among the industrial entrepreneurs and improvement of the quality of their products, thereby promoting industrial development. After his return to Japan, he came up with a proposal to organize its Japanese version and obtained approval. As a result, the *kyōsinkai* of silk reeling and cocoon and the *kyōsinkai* of tea were organized in September and November, Meiji 12 (1879) respectively (Tsuchiya 1944).

Third, a sense of economic rationality came to be developed at last, backed by knowledge accumulation and better understanding of industries, thereby allowing a more realistic vision formulation. For example, in the cotton spinning industry Maeda Masana (1850-1921) showed his sense of economic rationality in the National Survey titled the '*Kōgyō iken*' conducted in Meiji 14 (1881). He argued the appropriate production scale for commercial viability (Nagai [1961] 2001). Take another example in the steel industry. The necessity of establishing a steel works was recognized widely among state leaders and government officials. Toward the establishment of this, many arguments for and against the plans were made. Even among its supporters, a lot of arguments took place such as the choice of the supervising ministry, the usage of the steel products, the management (run by either the state or public sector), the technological choice (integrated steel works or other types), location of the steel works, and the size of the budget needed. Also, there were the budget arguments in the Imperial Diet, and several steps such as a survey on the availability of raw materials and a feasibility study were requested. Some of the disturbances were caused by other reasons in the political game. However, these arguments from the budget request to the establishment of the steel works indicated that a sense of economic rationality had been nurtured steadily in the later Meiji period (MITI 1954; Kobayashi 1980; Nihon Tekkōshi Hensankai 1981).

In this learning process, the role of the error correction factors was also very large in the movement toward a more reality-based vision correction. The functioning of the three error correction factors needs to be emphasized. These factors contributed to accelerating the vision correction. The most important factor was the fiscal and trade deficit problem. The situations of the fiscal and trade deficits had deteriorated seriously. This did not allow the Meiji government to initiate industrialization efforts based on euphoria or to stay in a transition. It finally forced it to completely shift to a reality-based vision formulation. The encouragement of the private sector in industrial activities was accelerated more from the fiscal perspective (Nagai [1961] 2001). The arguments on redefining the role of the state sector and the division of labor with the private sector came to be pushed by the successors of Okubo. For example, an Okuma document titled a 'Proposal of the Change of the Economic Policy' in May Meiji 13 (1880) criticized the many state-run factories that were operating in a poor financial way and creating the losses financed by the state (Nihon Siseki Kyōkai 1932). It was also argued in a 'Paper of the Fiscal Outlook' (*Zaisei kanki gairyaku*) by Matsukata in June Meiji 13 (1880) that industrial activities should be provided by the private sector completely (Matsukata and Nishie 1982). In sum, the policy changes from direct to indirect state intervention became inevitable and made state leaders and government officials turn their eyes to private sector industrial entrepreneurs, increase their approaches to them and increase their understanding of industries through interaction with the private sector. The role of this error correction factor was reduced around Meiji 17 (1884). For example, Phase 1 of the disposal of the state-run factories was motivated by fiscal factors whereas in Phase 2, the disposal did not need to be done primarily for fiscal reasons (Kobayashi 1980).

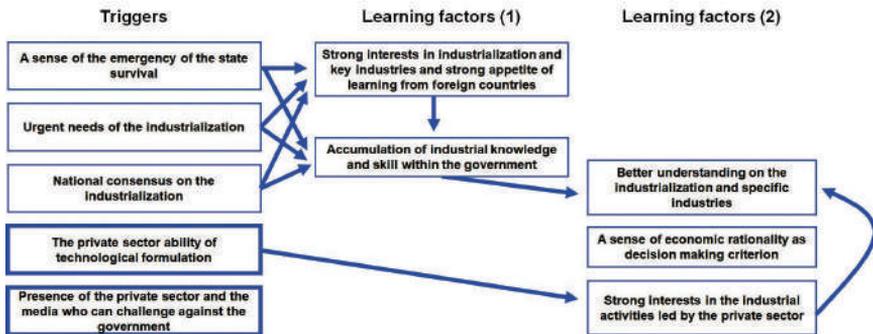
Next, the factor of market exposure performed more highly. The participation in Expos and the organization of the National Industrial Exhibitions remained a good opportunity for the government to know the position of Japanese manufacturing in terms of international competition and a shift toward a more reality-based industrialization vision. The market exposure through these occasions would give stimulus to the government's building better understanding of industries.

Last, the expression of the various opinions was allowed within the government and the Imperial Diet. A series of hot debates were held in the Imperial Diet on the establishment of the blast furnace plants as described

previously. Some argued for the start of the proposed feasibility study while others argued against the plan (MITI 1954). It is supposed that this generosity of different views contributed to the further elaboration of the industrialization vision.

### Triggers

Some triggers functioned continuously from the MOE era such as the sense of emergency over state survival, the demands of industrialization and the national consensus on industrialization.



Source: Author.

Note: In this figure, the meaning of the types of the line is same as in the previous figures.

**Figure 5.11. Relationship between Triggers and Elements of the Vision (MOAC Era)**

The most influential triggers characterizing learning in this era were the emergence of the private sector and the media. First, these performed as a pull factor making state leaders and government officials more aware of the private sector industrial activities. In the MOAC era, successful private manufacturers emerged and the boom in company establishment occurred around Meiji 19 (1886) as already described. Private sector industrial entrepreneurs were very active in the silk reeling industry, such as Katakura-gumi, Yamazyu-gumi, and Okaya-Seisi. Osaka Bōseki succeeded, following the emergence of mega-cotton spinning companies afterwards. A power loom was invented by Toyoda Sakichi in the fabric industry, and Tanaka Seisakusyo and Oki denki came out in the machine tools industry. They became able to catch up with the demanding level of the industrialization vision. The private sector then became an indisputable main actor in industrialization.

Second, the private sector and the media became actors that raised their voices and challenges against the government in this era. The changes in industrialization policy in this era therefore cannot be explained solely by the fiscal deficit factor. There were voices raised by the private sector and the media that requested the government to step down from being a leading actor of industrialization. As a result, the government views on their way of intervention were induced to change (Tsuchiya 1968). For example, before the 1880 Regulation of Disposal of the State-run Model Factories, arguments that the state-run factories should be disposed of to the private sector were made by a magazine titled '*Tokyo Keizai Zasshi*' (Tokyo Journal of Economy) published by Taguchi Ukichi (1855-1905) in January of Meiji 12 (1879). This was published in the MOHA era. These factors induced the Meiji government to change its policy direction (MITI 1962). This implied that the private sector had been growing rapidly and the necessity of the government intervention in the form of the state-run factories was now reduced in this era. An article in this Journal also argued against the establishment of steel works in '*Tokyo Keizai Zasshi*' in Meiji 24 (1891) (Nihon Tekkōsi Hensankai 1981).

## **2.2. Policymaking practices**

### **2.2.1. Changes in the policymaking practices**

**2.2.1.1. Era of MOE (1868-73).** It can be assumed that in the MOE era policymaking tended to be undertaken that was not based on the reality of the industrial entrepreneurs. Policy ideas tended to come from the state view, not from the industrial entrepreneurs' views although further research is necessary on this point.

However, this did not mean that the government and the private sector did not have any communication and that understanding the current situation did not exist at all in the early Meiji period. In September Meiji 3 (1870), a survey of local products was conducted by the Ministry of Popular Affairs (*Minbusyō*) with prefectural government assistance. According to an instruction by the Ministry, it was urgent to take stock of the products produced locally for proper state management; thus, the Ministry conducted a detailed survey on this. This survey was taken over by MOF in Meiji 5 (1872). However, the task was not completed. It is not clear how the planned survey was arranged and conducted (Yamaguchi 1963). Therefore, it cannot be considered that there was any clear linkage between this survey and the early industrialization efforts led by MOE

with a strong orientation towards westernization. In addition, the atmosphere of the predominance of the government over the people was dominant in the Meiji period (Inoue Kaoru Kō Denki Hensankai [1933] 2013a). The eyes of the Meiji government tended to focus on their own thoughts, i.e., what kinds of policy instruments were necessary to attain their industrialization vision, in the enthusiastic atmosphere of westernization.

**2.2.1.2. The Era of MOHA (1873-80).** The MOHA era was in a transition from being euphoria-based to being reality-based and from the state views to the industrial entrepreneurs' views of policymaking practices.

After the establishment of MOHA in Meiji 6 (1873), the Bureau of Industrial Promotion (*Kangyōryō*) was set up in January Meiji 7 (1874). Initially, there was a possibility that the conventional style of the euphoria based and the state views would be practiced. For example, the responsibility of conducting the survey planned under the Ministry of Popular Affairs and later MOF was inherited by the Bureau of Industrial Promotion. A series of the survey, which covered from the agricultural products to industrial products and mining products, were conducted in Meiji 6, 7, and 8 (1873, 1874, 1875). The results of the survey were apparently published.<sup>9</sup> However, this survey was abolished along with the closing of the Bureau of Industrial Promotion and the new establishment of the Bureau of Agricultural Promotion (*Kannōryō*). The reason was very simple, that is, the survey procedures and arrangements were too complicated (Yamaguchi 1963). After abolishing the Bureau the surveys continued but were simplified, focusing on the agricultural sector. Thus, the thought of reality-based policymaking practices from the industrial entrepreneurs' views had not yet emerged at this time.

However, it can be seen from four examples that the atmosphere had begun to change gradually. The first is that Okubo came to emphasize the importance of statistical data in his proposal of April Meiji 9 (1876). The second is Okubo's visit to Tohoku. He observed the situation of local industrial development and its entrepreneurs in May Meiji 9 (1876), and fully recognized the importance of understanding the local situation. After these visits, Okubo came to encourage the prefectural governments to submit a report about their local industries and instructed MOHA to

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<sup>9</sup> The production and publication of the data from Meiji 8 (1875) cannot be confirmed.

analyze those reports carefully. He came up with the idea of organizing regional meetings for the encouragement of local industrial development. Also, Okubo decided to allocate a budget for local industrial development to the prefectural governments in the Tohoku region. This could be interpreted as evidence that the Meiji government had started to pay attention to the industrial entrepreneurs' views linking policy designing with reality (Ando 1999).

The third example is found in the 'Main Points of the Agricultural Development (*Kannō yōsi*)' written by Matsukata in Meiji 12 (1879). In this paper, it was described that observation on the current situation and analysis of their causes should be undertaken prior to policymaking: if policymaking were undertaken based on superficial inferences, those policies and their implementation would not meet the demands of reality. The *Kannō yōsi* was a paper on agricultural development, not on industrialization. However, it can be regarded as evidence that Matsukata recognized the importance of situation analysis prior to policymaking. Similarly, an 'Opinions on the Industrial Development (*Kangyōron*)' by Kawase Hideharu (1840-1928) in December Meiji 11 (1878) emphasized the necessity of conducting surveys on the current situation prior to policymaking about industrialization (Waseda Daigaku Syakai Kagaku Kenkyūzyo 1959).

The last example is the organization of the National Industrial Exhibition. The necessity of collecting many products produced in Japan and selecting the best to be exhibited was emphasized prior to the Exhibition. The Meiji government did not have enough information about domestic products at the time, such as on where, what, and how much local products were present. Therefore, they tried to take advantage of those opportunities for that purpose (Kuni 2013).<sup>10</sup>

Based on this evidence, it can be considered that in the MOHA era, the opinions about emphasizing the importance of reality-based policymaking had begun to appear. However, the Meiji government still tended to come up with industrialization efforts from benevolent paternalistic standpoints (Nihon Siseki Kyōkai 1932), thus the orientation on the state

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<sup>10</sup> The aspect of information collection by the government is emphasized here. However, it should be recalled that the primary purpose of the National Industrial Exhibition was to assist the private sector to upgrade their technological formation.

views remained strong in this era.

**2.2.1.3. The Era of MOAC (1881-1897).** In the MOAC era, there was remarkable progress made in policymaking practice. The policymaking in the MOAC era was characterized by a shift toward more reality-based considerations and the industrial entrepreneurs' views.

On the aspect of 'reality-based' discussion, a milestone event was a National Economic Survey (*Kōgyō iken*) led by Maeda Masana. The *Kōgyō iken* was conducted nationwide in Meiji 14 (1881). The product was a kind of government economic report at the time. The *Kōgyō iken* was conducted in line with the thought that policymaking should be undertaken based on reality. It aimed at indicating a basic direction for Japan's development systematically through reviewing the conventional policymaking processes, examining the reality of the Japanese economy in detail, and referring to the policy experiences of Japan and foreign countries (Soda 1978). It covered a wide range of sectors and the issues and described the current situation of the Japanese economy. Around three years were spent on the concept development of the *Kōgyō iken*. The survey report became a basic document when the Meiji government came up with policies for the encouragement of industrial development later (Fujimura 1958). It was clearly stated in the 'Summary of the Opinion on the Industrial Development (*Kōgyō iken yōsi*).' According to the Summary, to obtain an equal position with the western superpowers, it was necessary to develop the Japanese agricultural and industrial sectors to the same level as the superpowers. To this end, first, it was necessary to understand the current situation of the agricultural, commercial and industrial sectors in detail; and second, it was necessary to conduct a survey and identify the causes of the current situation of those sectors, to examine the experience of domestic and foreign countries; to explain the value of the industrialization efforts clearly, and finally to come up with a basic direction of industrialization for the future, bearing in mind current national capacity and its future (Maeda 1884).

Unfortunately, *Kōgyō iken* was a one-off activity. However, this survey left a big footprint in reality-based policymaking practices. Takahashi Korekiyo (1854-1936) states that:

Maeda Masana started preparation for the survey of *Kōgyō iken*. He assumed the Imperial Diet would be organized

in Meiji 23 (1890). [...] The Diet members would not be familiar to the reality of industrialization in our country; thus, at first, they need to know it. [...] He examined the current situation of the industrialization efforts made by the feudal lords in the Edo period and their results in detail. [...] As a result, a survey report consisting of around 30 volumes was produced. Afterward, it was intended to urge the prefectural government to examine the reality of their industrialization at the prefectural level; and to urge MOAC to send the supervisors and capture the real situations of the local industrialization and to make policies based on the facts and to update the *Kōgyō iken* report every year. (Takahashi [1936] 1976, 217)

Moreover, in September Meiji 14 (1881), a Report on the Current Situations of the Development of the Domestic Industries in Japan was produced (Nōsyōmushyō 1957).

On the aspect of the views in the policymaking practices, it can be seen that the traditional views based on the superiority of the public sector to the private sector in the feudal era persisted as of Meiji 11 (1878). A view of the work of Inoue Kaoru around Meiji 20 (1887) is very interesting. Inoue Kaoru was one of the leaders who had initiated industrialization in the MOE era. He showed his intention to put priority on the role of the private sector when he became the Minister of Agriculture and Commerce in Meiji 21 (1888)<sup>11</sup>. According to his views, if policy planning and implementation were undertaken based on desk theories and arguments, the government's policy actions would be different from the reality of the private sector, and serious misjudgments would occur. If the rules and regulations relating to agriculture, commerce, and industry were devised from the top down of the state views, nothing would change compared with the present ones even if those rules and regulations would be amended repeatedly. Thus it would be necessary for the government to adopt policies proposed by the private sector otherwise the real benefits would not be brought because politicians always tended to consider the superiority of the public sector to the private sector and tried to repress the private sector and ordinary

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<sup>11</sup> It is considered that Inoue recognized the important role of the private sector in industrialization from the beginning under MOE era. He initiated the state-led industrialization due to the weak presence of the private sector with risk-taking.

people through public authority. Politicians also tended to develop policies and rules and regulations without knowing the peoples' perception and the reality; as a result, the peoples' views would not be conveyed to state leaders; in addition, the guidance of the leaders would not reach out to the people (Inoue Kaoru Kō Denki Hensankai [1933] 2013b).

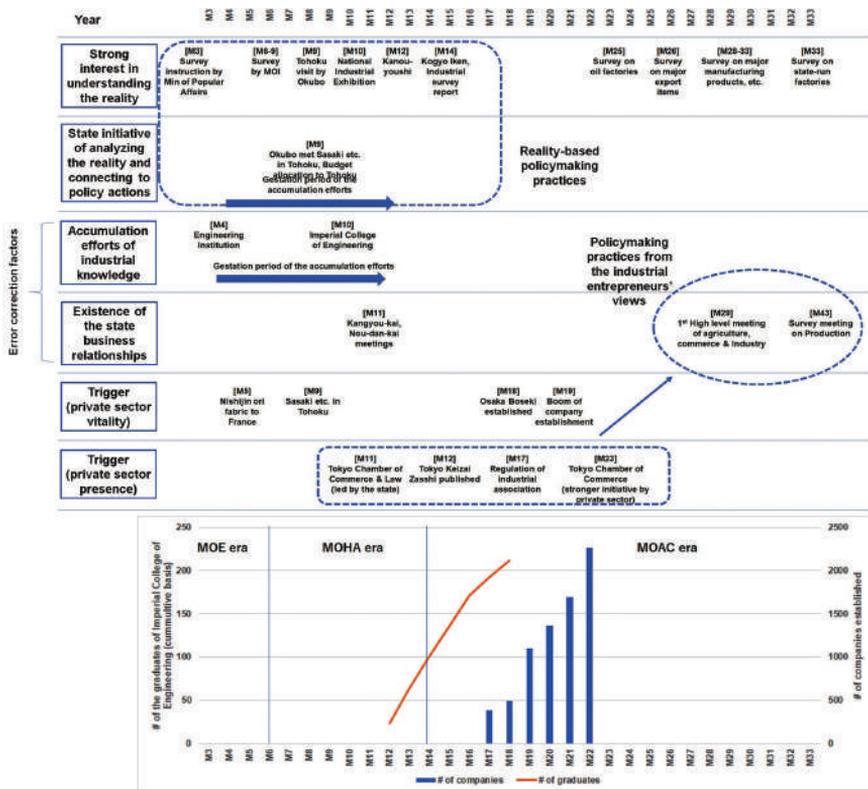
In addition, an obvious change in the government's recognition toward industrial entrepreneurs can be observed in an opening address by Kaneko Kentaro, the Senior Vice Ministry of Agriculture and Commerce in the First High-level Meeting of Agriculture, Commerce, and Industry organized in Meiji 29 (1896). According to his address, it was impossible for the government to come up with a policy of industrialization and foreign trade without listening to the opinions of that part of the private sector that was engaged in industrial activities. He also said that it was impossible to discuss under which policies the government needed to plan industrialization and under which policies the government needed to encourage private sector-led industrialization (MITI 1961).

These statements are evidence that the policymaking practices were shifted from the state views to the industrial entrepreneurs' views. Afterward, these movements were further developed to the implementation of the Survey of the State-run Factories (*Kanritu kōzyō tyōsa*) in Meiji 33 (1900) and the organization of the Investigation Council of Production (*Seisan tyōsakai*) in Meiji 43 (1910), which was the successor organization of the High-Level Meeting of Agriculture, Commerce, and Industry. The state-business relationship came to be organized systematically within the institutional set-up. In the subsequent era, practices were inherited such as the Investigation Council of Economy (*Keizai tyōsakai*) in Taisyo 5 (1916), the Ad hoc National Investigation Council of Economy (*Rinzi kokumin keizai tyōsakai*) in Taisyo 7 (1918), and several deliberative councils before World War II in the Syowa period. These meetings and deliberative councils were set up in accordance with the government regulations and with the participation of a wide range of stakeholders such as the government, private sector industrial entrepreneurs, and academics.

### **2.2.2. Functioning and un-functioning of the learning factors and triggers in vision formulation and correction**

In the same way as in the learning process of the vision formulation and correction, all the learning factors and triggers did not function all at

once. Learning is a cumulative process where the learning factors perform incrementally. Figure 5.12 describes the historical events in the upper side and the statistical data of the numbers of the establishment of the companies and graduates of the Imperial College of Engineering on the lower side. According to Figure 5.12, the learning process was preceded by the elements of the ‘reality-based’ policymaking, followed by the elements of the industrial entrepreneurs’ views. Prior to the movement toward the industrial entrepreneurs’ views, there was the success of the Osaka Bōseki and subsequently a boom in company establishment. In response to the emerging private sector with vitality, the state-business sector relationships came to be built and formalized gradually. In this way, shifting to the reality-based policymaking practice from the industrial entrepreneurs’ views were realized in the Meiji period.



Source: Author.

Figure 5.12. Chronology of the Functioning of the Learning Factors and Triggers

### **2.2.2.1. The Era of MOE (1868-73)**

#### ***Learning factors***

It could be assumed that MOE dominated by a westernization atmosphere would not always be enthusiastic about the reality of industrial entrepreneurship in Japan except in the silk reeling industry. It can be considered that they intended to concentrate on building a western style modern industry through imitation, although it is not always clear whether those learning factors that would facilitate the learning process in relation to policymaking practices, functioned in this era.

As described already, several surveys were arranged by the Ministry of Popular Affairs and MOF. Therefore, the existence of the state will to understand the current situations to a certain extent cannot be denied. However, state leaders and government officials were not strongly motivated by the elements of the reality-based environment and the industrial entrepreneurs' views. On the other hand, they also recognized the importance of the accumulation of industrial knowledge and skills within the government, for example, the establishment of the Engineering Institution. However, it is assumed that this establishment would not have contributed to the practices of 'reality-based' policymaking with 'the industrial entrepreneurs views' in the MOE era. The graduates had not yet been produced. They first appeared in Meiji 12 (1879).

The learning factor in the state-business relationship did not yet function therefore. There was some communication between them though. For example, when industrial entrepreneurs wanted to start an activity, they often requested the government to purchase and to dispose of the modern equipment to them. However, this was on an on-demand ad hoc basis and relied on personal relationships. Therefore, it did not drive the government to move toward the direction of reality-based policy and investment and the industrial entrepreneurs' views.

#### ***Triggers***

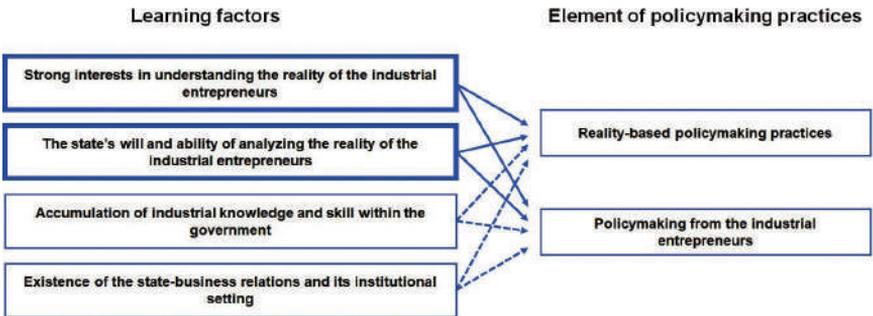
The trigger did not function to facilitate the learning process in the context of policymaking practices. There already existed private industrial entrepreneurs. The indigenous industry continued their production activities as already described. However, state leaders and government officials were not yet ready to turn their face to them because of their excessive orientation towards westernization. Also, the presence of the

private industrial entrepreneurs was too weak to make state leaders give attention to them.

**2.2.2.2. The Era of MOHA (1873-80)**

**Learning factors**

Some of the learning factors started functioning in the MOHA era, mainly in the context of ‘reality-based’ policymaking practices. Some sprouts come out gradually in this era. In Figure 5.13, the error correction factor is not described. However, a fiscal and trade deficit problem played the role of a push factor for the government and nurtured the environment in which state leaders and government officials turned their attention to the actual situation of the industrial entrepreneurs and their views.



Source: Author.

Note: In this figure, the meaning of the types of the lines is the same as in the previous figures.

**Figure 5.13. Relationship between the Learning Factors and the Policymaking Practices (MOHA Era)**

**(a) Learning factors relating to reality-based decisions**

First, the state leaders and government officials became interested in understanding the real situation of the industrial entrepreneurs. A typical example was Okubo’s visit to the Tohoku region in Meiji 9 (1876). After his visit, he started to encourage government officials, especially from MOHA to go around the local areas in Japan to know the real situation of the local industrial entrepreneurs. The occasion of the National Industrial Exhibition was also utilized in this context since Meiji 10 (1877) as already described (Kuni 2013). A high awareness of reality-based policy can also be confirmed in a description in the *Kannō yōsi* in Meiji 12 (1879) by Matsukata.

Second, state leaders and government officials became interested in coming up with concrete policy actions based on the reality. After Okubo visited Tohoku region, the prefectures in Tohoku region were encouraged to submit a report about their industrial activities, and MOHA was instructed to analyze the report and to come up with the next policy actions for the encouragement of the private sector as already described (Ando 1999, 23-26).

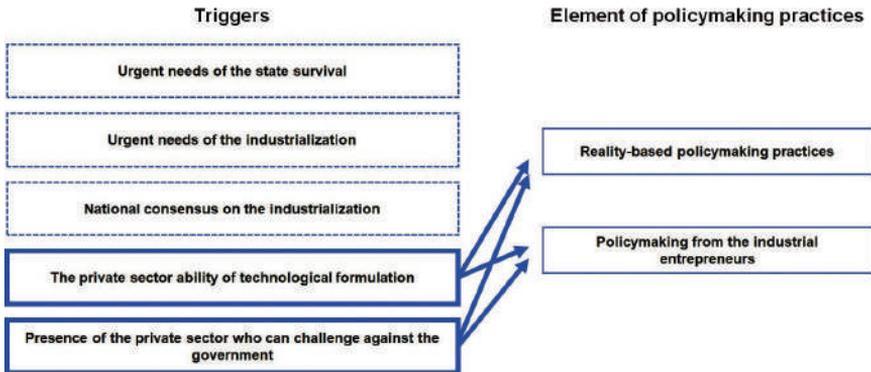
The effects of the accumulation efforts relating to industrial knowledge and skills were probably not so influential in this era. The Imperial College of Engineering was established in Meiji 10 (1877) under MOE by re-organization of the Engineering Institution. As already stated above, the original main purpose of this establishment was to supply the government engineers to MOE. The educational system of the College was characterized by its practicableness and on-site orientation. To this end, the on-site training programs were incorporated into its educational system and the students experienced on-site manufacturing on the ground (Uemura 2010, 2015). The Akabane Machinery Factory had the function of providing opportunities of on-site training for the students (MOF 1888; Suzuki 2013). However, the first graduates of the Imperial College of Engineering had just been produced in Meiji 12 (1879), in the late MOHA era. Thus, even if these efforts began to get results, it would have been after the Meiji 12.

**(b) Learning factors relating to the industrial entrepreneurs' views**

The effects of the accumulation efforts of the industrial knowledge were still weak as stated above. Meanwhile, interaction between the government and the industrial entrepreneurs with the institutional set-up were expanded gradually such as *kyōsinkai*, meetings of the *kangyōkai* since January Meiji 11 (1878). Various prefectural *nōdankai* meetings and *syūdankai* meetings were organized (Nōsyōmushyō 1957). The distance between the government and the private sector was reduced. This is confirmed by the example of the existence of the section in charge under MOAC. The exposure to and familiarization with the industrial entrepreneurs' views by the government increased, though those arrangements were not always on a regular basis. In addition, it could be considered that the organizations of these meetings contributed to the enhancement of the bonding among the industrial entrepreneurs and the presence of the industrial entrepreneurs who could challenge against the government in the next era.

**Triggers**

The emerging private sector industrial entrepreneurs played the role of the pull factor. As seen in Okubo’s encounter with Sasaki Uemon in Tohoku, their emergence induced state leaders and government officials to give more attention to them. Furthermore, on the presence of the industrial entrepreneurs, its role as a trigger was probably increasing. Certainly, the Osaka Chamber of Commerce and Industry was set up and a regulation of the Tokyo Chamber of Commerce and Law was issued in Meiji 11 (1878), although the latter was still a state-led initiative and may not always have become an actor that could challenge the Meiji government. One of the important movements was the publication of the *Tokyo Keizai Zasshi* in Meiji 12 (1879). Taguchi, a publisher, insisted on the replacement of the leading actors from the state to private sector industrial entrepreneurs. This was an important movement in making the government give attention to the private sector.



Source: Author.

Note: In this figure, the meaning of the types of the line is the same as in the previous figures.

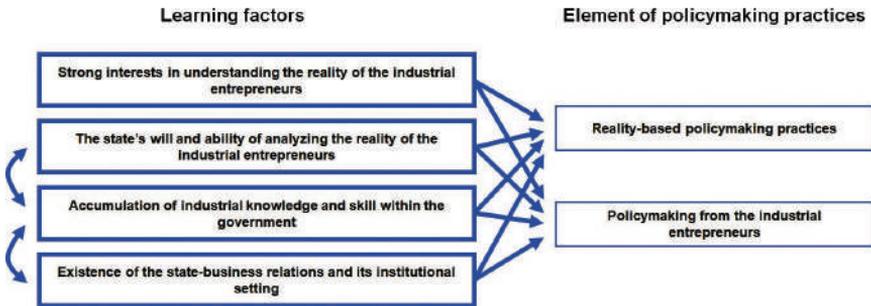
**Figure 5.14. Relationship between Triggers and the Policymaking Practices (MOHA Era)**

**2.2.2.3. The Era of MOAC (1881-1897)**

**Learning factors**

The learning factors started having an effect on the government’s shift to reality-based policymaking practices by incorporating the industrial entrepreneurs’ views in those policy changes after abolishing state-led industrialization. Especially the factors of knowledge accumulation within the government and the existence of the state-business relationship would

begin to work (Figure 5.15).



Source: Author.

Note: In this figure, the meaning of the types of the line is same as in the previous figures.

**Figure 5.15. Relationship between the Learning Factors and the Policymaking Practices (MOAC Era)**

**(a) Learning factors relating to reality-based policy**

The factor of the interests of state leaders and MOAC in understanding the reality of the industrial entrepreneurs and their commitment to converting to actual policymaking played a crucial role, represented by the *Kōgyō iken* in Meiji 14 (1881). There was the increase in the number of documents that emphasized the importance of understanding the reality prior to policymaking as already described. Surveys were continuously conducted after the *Kōgyō iken*. Many surveys were conducted prior to the First High-level Meeting of the Agriculture, Commerce, and Industry in Meiji 29 (1896). This implies that the learning factor of linking the survey results to policy actions was already rooted as a process in policymaking. According to Kawai (1969), the main duties of MOAC officials were research, studies, and planning. Thus, they studied hard and understood the reality of the industrial sector as of Meiji 44 (1911).

**(b) Learning factors relating to the industrial entrepreneurs' views**

First, the effects of the knowledge accumulation efforts within the government began to appear as already described. The start of supply of government engineers by the Imperial College of Engineering in Meiji 12 (1879) contributed to the knowledge and skill accumulation within the government. This implied that the pool of engineering technocrats who obtained enough knowledge and skills, had a practical background, and had common words with the industrial entrepreneurs increased. In fact, the timing of the increase in the number of the graduates from the Imperial

College was not irrelevant to the emergence of the private sector with its vitality and increased presence such as the Osaka Bōseki in Meiji 15 (1882) and the issuance of the regulation of the Tokyo Chamber of Commerce in Meiji 24 (1891), followed by the institutionalized public-private sector dialogues in the later stage.

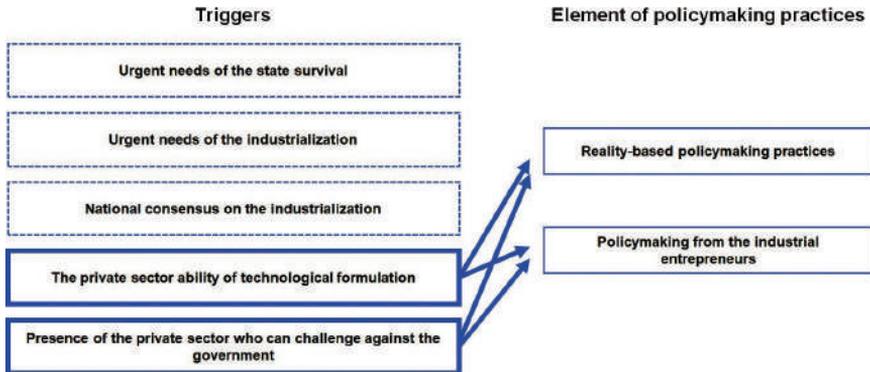
Second, the distance between the government and industrial entrepreneurs was further reduced. The institutional arrangements began to be made formally, such as the High-Level Meeting of Agriculture, Commerce, and Industry in Meiji 29 (1896). By so doing, the views of the industrial entrepreneurs were enhanced within the government. In fact, the agenda items dealt with in the Meeting were very concrete and could not be established without there being interaction between the two sides. Building the institutional arrangements became a both cause and result of the reality-based policymaking practices with the entrepreneurs' views. The built-in nature of the mechanism smoothed interaction among government officials, entrepreneurs, and academics. It sustained those practices in the long run.

### **Triggers**

A most important trigger which functioned in this era was the emergence of private industrial entrepreneurs in the MOAC era. After the Osaka Bōseki and the subsequent boom in company establishment around Meiji 19 (1886), state leaders and government officials needed to give their full attention to the private sector. The media and the private sector that could challenge the government had been emerging, as already described. These triggers induced Meiji Japan to dramatically shift to reality-based policymaking practices in accordance with the industrial entrepreneurs' views.

In relation to the establishment of the Tokyo Chambers of Commerce and Law (*Tokyo syōhō kaigisyō*) in Meiji 11 (1878), the Regulation of the Chambers of Commerce was issued in Meiji 23 (1890). Subsequently, the local Chambers of Commerce and Industry and the association of the chambers of commerce and industry were established. This movement reflected the rapidly growing presence and economic and political power of the industrial entrepreneurs in the private sector in the mid-Meiji era. These movements also reflect the change in the government's stance toward the industrial entrepreneurs (Harada 1972).

This indicates the desired sequence of the performing and learning factors: at first, the boom in company establishments, then the enhanced presence of the private sector such as the chambers of commerce, and last, the more formalized setting of the state business relationship (Figure 5.12). Private sector development was very crucial in nurturing the industrial entrepreneurs' views within the government and making the learning process function through the channel of this trigger.



Source: Author.

Note: In this figure, the meaning of the types of the line is same as in the previous figures.

**Figure 5.16. Relationship between Triggers and the Policymaking Practices (MOAC Era)**

### 3. Conclusion

This chapter deals with a very challenging issue, the learning by state leaders and the Ministries of Industry in developing countries. Basically, the arguments on the role of the learning factors and triggers in this state learning process in Meiji Japan are built based on the historical facts but are still limited to tentative assumptions to some extent in parts of the interpretation of the learning process in each era. Vision formulation and the policymaking practices are one of the most fundamental elements of state learning when seeking to interpret why some countries have achieved industrialization smoothly in a shorter period and others failed or are stuck despite serious industrialization efforts. Everything about the failures and stagnation of industrialization in all developing countries cannot be explained solely by this approach. However, it is the vision that affects the direction of the industrialization strategies upstream. These are the policymaking practices that will affect the style and the execution of

downstream policy instruments.

Ideally, the vision of industrialization should be formulated based on the reality of the industrial sector in the country. Policymaking needs to be exercised based on the reality faced by the industrial entrepreneurs. However, in this reality, the vision tends to be formulated based on euphoria and the bias of state leaders and the Ministry of Industry in the initial stage of industrialization. As a result, an ambitious industrialization strategy will tend to be developed. Failure in this early stage of industrialization can lead to serious problems in the future. Also, the policy would tend to be made not on the reality as revealed by the industrial entrepreneurs. It would also tend to be made from the state views. Consequently, the policies instrument would often be designed and introduced but not be desired by the entrepreneurs. The learning process can be defined as the process of reducing those gaps.

The learning experiences of Meiji Japan can give important messages to currently developing countries. First, there is no country that is able to formulate a realistic industrialization vision and exercise reality-based policymaking practices from the industrial entrepreneurs' views in the early stages of industrialization. Thus, a key issue is how to follow the learning process of state leaders and government officials smoothly in the early stage of industrialization.

Second, the learning factors do not start functioning all at once. The learning factors start to function progressively in line with the learning stage. Of primary importance is a strong and very serious interest of state leaders and the Ministry of Industry in local industries and the real situation of the industrial entrepreneurs and their aggressive appetites of learning from other countries. The degree of the seriousness of their interests matters. It needs to be accompanied by its own efforts and a serious attempt to accumulate the industrial knowledge and skills within the government, and experience manufacturing directly.

On the aspect of the vision formulation and correction, a strong interest and aggressive learning appetites should lead off the efforts of the accumulation of industrial knowledge and skills within the government in the early stages. This accumulation would build a better understanding on industries among state leaders and the Ministry of Industry. Without this accumulation and their better mutual understanding, a sense

of economic rationality as a decision-making criterion would not be nurtured and rooted among them. There would be a time lag between the timing of starting the accumulation efforts and when the results of those accumulation efforts would appear. If industrialization is pushed forcibly during this gestation period, the industrialization efforts could fail and lead to serious damage to the subsequent industrialization process for a long time unless the country would be in favor of the changing external environment luckily by chance. During this gestation period, some error correction factors such as a fiscal and trade deficit and market exposure would function and send out signals urging state leaders and the Ministry of Industry to correct the vision. The extent of their responsiveness to those signals is very crucial for vision correction. These learning process would not be complete if within the government only, thus the role of the triggers is important. The vitality of the private industrial entrepreneurs matters when they are an actor stimulating the government from the outside and making it turn its eyes to the private sector as a potential leading actor of industrialization. Therefore, private sector development is very important.

On the aspect of the policymaking practices, the two elements of the ideal policymaking practices such as the reality-based policymaking and the industrial entrepreneurs' views would not be realized all at once. The practice of reality-based will appear at first, then the industrial entrepreneurs' views will follow later. To obtain this learning result, the government's strong interest in understanding the actual situation of the industrial entrepreneurs should lead off the learning process. A strong will and ability to analyze the reality of the industrial entrepreneurs by themselves, and not outsource this to external consultants, are also important. The accumulation of industrial knowledge and skill within the government plays a crucial role in the aspect of policymaking practices as well. This accumulation would make it possible for the government side to build a better understanding of the industrial entrepreneurs and to obtain a common language for the smoother communication between them. In addition, an interactive communication between the state and industrial entrepreneurs will have an important role. This communication will need to be made under the institutional setting backed by the above-mentioned strong interests in the reality of the industrial entrepreneurs and the industrial knowledge accumulation efforts. Otherwise, those institutional settings will not produce substantive results.

The learning processes of the vision and the policymaking practices are two sides of the same coin in a sense. Each interacts with the other. Without one side, the country will not be able to reduce any gaps in the other side.

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# Part II

How can Development Policy  
Support Facilitate Translative  
Adaptation? :  
Japanese Experiences



## Japan's Development Policy Support in Latin America: The 'Okita Report' for Argentina and the 'Study on Economic Development of Paraguay'

Akio Hosono

The 'Study on Economic Development of the Argentine Republic,' a project of cooperation between Argentina and Japan, is considered to be the first case of development policy support by Japan, as discussed in the Overview Chapter. While the final report of this cooperation project has the same title as the study itself, in Argentina, it has become widely known as the 'Okita Report' (Informe Okita). It was unofficially named after the late Saburo Okita, an architect of the Japanese post-war economic recovery program (as Vice-Minister of the Economic Planning Agency), and later, Minister of Foreign Affairs. Okita led this first large-scale, development policy support mission to Argentina. Subsequently, several development policy support programs were carried out in other Latin American countries, although their modalities regarding purpose, scale, participants, and duration were diverse. One of these was the 'Study on the Economic Development of Paraguay,' a cooperation project between Paraguay and Japan. This project is usually referred to in Paraguay as EDEP.

This chapter aims to review the experiences involved in the development of the Okita Report and EDEP as cases of Japanese cooperation for development policy support programs in Latin America. It consists of three parts. Sections 1 and 2 will discuss the Okita Report and EDEP, respectively, focusing on (i) the background and context of the cooperation; (ii) the purpose, scope, and modalities of cooperation; (iii) the main pillars and recommendations of the studies as the outcomes of cooperation; (iv) the follow-up process after the cooperation, including subsequent Japanese cooperation with Argentina and Paraguay; and (v) the significance of the Okita Report and EDEP as cases of development policy support through international cooperation highlighting their main features. Finally, some concluding remarks will be presented (Section 3).

## 1. Okita Report

### 1.1. *Background and context*

The industrial structure of Argentina gradually changed due to the prolonged industrialization process that began before the World War II. By 1979, the share of the manufacturing industry in GDP had increased to 36 per cent, while that of agriculture had decreased to 12 per cent. Moreover, the share of persons occupied in the manufacturing sector as a proportion of the total labor force increased to 25 per cent in 1978, while the share of those employed in agriculture decreased to 19 per cent. In this process, the share of the manufacturing industry in GDP of the Argentine economy exceeded that of the Brazilian economy. However, the share of manufactured goods in total exports was lower than that of Brazil. Agricultural and livestock products, such as beef, wheat, maize, and other foraging crops, as well as seeds for vegetable oil, corresponded to 78 per cent of exports, while industrial products accounted for 22 per cent. On the other hand, the salient characteristic of the import structure was that the share of consumer goods was very low due to the deepening of import substitution for these goods, and that intermediate goods and capital goods corresponded to 73 per cent of total imports in 1979. Imports of fuel were low because the country was self-sufficient in petroleum.<sup>1</sup>

However, prolonged import substitution-led industrialization to provide consumer products for the domestic market was reaching its limit. From the second half of the 1950s, the Argentine economy frequently experienced stagnation of growth. In the mid-1970s, together with political turmoil, the economic crisis was aggravated by a high rate of inflation and negative rate of growth. Against this backdrop, General Jorge Rafael Videla staged a military coup d'état in 1976. The Videla administration implemented liberal economic policies but failed to control inflation, and in 1980 the country faced balance of payment difficulties. General Roberto Eduardo Viola took office in 1981, but the economic and political situation in the country only deteriorated further. General Leopoldo Fortunato Galtieri succeeded Viola at the end of 1981, but the economic crisis deepened even more due to the War of the Malvinas (Falklands War) against the United Kingdom. The negative growth rates and high debt burden continued. Moreover, most Latin American countries, including Argentina, ran into a serious external debt crisis in 1982. Faced with the debt crisis and defeat

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<sup>1</sup> This paragraph draws on JICA (1987).

in the Malvinas War, the military government had no other alternative other than to return to democracy. Through a presidential election, Raul Alfonsín was elected as the first president of the new democratic era at the end of 1983. The new government decided to formulate a new development strategy and requested Japan's cooperation in preparing the Study on the Economic Development of the Argentine Republic.

The Japanese study team commenced its activities in August 1985. Five months before this, the International Monetary Fund (IMF) suspended its standby credit to Argentina due to the country's non-fulfillment of the conditionality of the loan. In protest against the government's austerity policies, general strikes were conducted. In June 1985, a drastic new policy, the Austral Plan, was brought into force in order to control inflation. This plan was a kind of shock therapy, reducing currency denominations by 1,000 per cent in the switch from the peso to the new currency, the austral,<sup>2</sup> freezing of prices and public utility charges, and so on. The cooperation provided for the Study on Economic Development of the Argentine Republic was carried out in this Austral Plan period, when inflation was under control. The Okita Report was submitted to President Alfonsín in January 1987.<sup>3</sup>

## ***1.2. Purpose, scope, and modalities of cooperation***

In 1985, responding to a request from the Government of Argentina, the Japanese government sent a team to study the economic development of Argentina. Dispatched by the Japan International Cooperation Agency (JICA), the team was led by Saburo Okita, to carry out its work between August 1985 and December 1986.<sup>4</sup> This study later became widely known in Argentina as the Okita Report.

Intense and fruitful economic policy dialogues between Raul Alfonsín, the President of Argentina, and Okita were held, alongside other meetings headed by the Minister of Economy with the Minister of the

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<sup>2</sup> The austral was introduced in 1985 and reverted to the peso at the end of 1991.

<sup>3</sup> This paragraph draws partly on Kohama (2016). High inflation returned in 1988 and accelerated to 3,000 per cent in July 1989. President Alfonsín resigned on July 8, 1989, 155 days before the expiration of his term of office. Carlos Menem, the next elected President assumed the presidency on July 10 (Kohama 2016).

<sup>4</sup> Saburo Okita was the Team Leader, and Hirohisa Kohama was the Deputy Team Leader. The author of this chapter was one of the members of the Team.

Planning Secretariat and the JICA study team. Results of these dialogues were reflected in the Okita Report. About 30 Japanese experts, many of them economists, and about 30 Argentine counterparts participated in the study.

The main focus of the Okita Report was on macroeconomic issues, development of agriculture, livestock, industry, transport, and exports. In close cooperation with their Argentine counterparts, the Japanese mission evaluated structural characteristics of the Argentine economy and productive sectors, and studied policy measures to address problems that were restricting the possibilities for development of Argentine economy. In this context, the mission emphasized the importance of the market economy and the process of reforms that could contribute to redefining economic policies, as discussed in Sub-Section 3 (Hosono 2007). In this sense, promotion of external trade and foreign direct investment were considered to be essential approaches. The Okita Report states that, in this framework, Japanese experiences during the post-World War II period could offer options for policies and measures, especially regarding industrial development and export promotion. From this point of view, a special volume, which summarized the Japanese experience in this regard, was prepared as part of the Okita Report.<sup>5</sup>

In addition to intense meetings with their counterparts from the Argentine government, the Japanese mission also had frequent meetings with scholars, non-governmental organizations, enterprises, and industry associations to exchange views and information regarding economic development of the country from a long-term point of view. One of the think tanks that the mission had close contact with was Fundación Mediterranea, of which the President was Domingo Cavallo. Cavallo later became the Minister of External Relations and Minister of Economy<sup>6</sup> in the President Carlos Menem administration, which succeeded the Alfonsín administration. Among associations of enterprises involved in the process, interactions with the Sociedad Rural Argentina (Argentine Rural Society)

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<sup>5</sup> The report explains that 'the reviews of Japanese experiences have been prepared partly as references to be used by the members of the Study Team in their analysis of the characteristics of the Argentine economy, and partly as supplementary materials to aid the understanding of relevant Japanese experiences by the Argentine counterparts and other representatives.'

<sup>6</sup> In 1991, its name was changed to Ministry of Economy, Public Works and Services. However, the Ministry of Economy is used throughout this chapter.

and the Union Industrial Argentina (UIA) were the most significant. The president of Sociedad Rural was Guillermo Archouron, who later became the first President of Fundación Okita (Okita Foundation), referred to below.

According to Nélide B. Mairal, Adviser of the Ministry of Economy, the sectors that made the biggest efforts following the Okita Report were agriculture and the computer industry (Abe 2008, 12). Juan Carlos Yamamoto, former deputy representative of JICA Argentina Office expressed a similar view:

Agriculture has been one of the sectors which implemented most of the recommendations of the Okita Report. It should be remembered that the report put special emphasis on the development of biotechnology and strengthening of the National Institute of Agricultural Technology (INTA). (original Spanish, translated by the author from 'Interview with Juan Carlos Yamamoto' 2006)

By 1992, bearing in mind the drastic changes of the global economy in previous years, structural transformation had taken place in the Argentine economy following a series of reforms. The Argentine government requested the Government of Japan to carry out a new study, extending the Okita Report, with the aim of expanding the economy. The government wanted to ensure sustained growth in the long term and a new focus on the export potential of Argentine products to Japan and other East Asian countries. The report issued at the conclusion of this new study became widely known as the Okita Report II, while the original study was thereafter called the Okita Report I. The new study was conducted in the period between 1994 and 1996. It explored different approaches for Argentine products to attain a better presence in East Asia, based on an improved understanding of the region and the implementation of systematic policies for strengthening the relationship between Argentina and the region.

The Okita Report II contains practical recommendations, which provided Argentina with a more global perspective and options regarding specific issues, such as promoting exports to East Asia and investments from the region. In this regard, improvement of the competitiveness of Argentine products in global markets and upgrading of physical and institutional

infrastructure were considered the main challenges.

### **1.3. The main pillars and recommendations of the Okita Report**

As stated above, the original Okita Report (Okita Report I) covered the following five areas: macro-economy, agriculture, industry, transportation, and exports. Major issues in the report were selected through discussion with the Argentine counterparts of the Planning Secretariat and members of the Coordinating Committee of the Argentine Government, including the Ministry of Economy, within the framework of the Scope of Work. This was signed by representatives of the Argentine Government and JICA.

One of the outstanding features of the Okita Report is its emphasis on industrial development and exports. Another feature is that the study for the report was conducted with reference to Japanese experiences of development. These features are explicitly highlighted in the introduction to the report, as follows:

The Study chiefly focused on industrial activation and export promotion, which are considered as major policy issues in the *Guidelines for an Economic Growth Strategy 1985-1989*, announced in January 1985. In this regard, Japanese experiences in rapid postwar economic development might have something useful to offer, especially concerning various policies and measures implemented for industrial and trade promotion. Therefore, the Study has examined some relevant aspects of Japanese experiences. Based on the Japanese experiences during postwar economic development, but with the awareness of the different circumstances between Argentina and Japan, the Study Team has tried to present policy implications and suggestions for the said five sectors, as indicated in the Scope of Work. (JICA 1987, 1)

As regards the macro-economy, the report makes suggestions in three areas: (i) future directions of the Argentine economy; (ii) role of government; and (iii) dynamism of the private sector.

First, with regard to future directions of the Argentine economy, the

report emphasizes (i) restructuring of the industrial sector through increased competition in domestic and external markets with controlled liberalization; and (ii) industrial policies to promote selected strategic industries. These are justified as follows:

The traditional pattern of heavy dependence on agriculture for foreign exchange earnings will not suffice to activate the entire economy. The most important issue is how to restructure and reactivate the industrial sector. From the viewpoint of economic efficiency, the restructuring of the industrial sector must be through increased competition in the domestic and external markets. This will require a clear scenario for controlled liberalization in the medium and long term. [...] Argentina is endowed with the fertile Pampas and vital natural resources like petroleum and natural gas, and has educated human resources. The key is then how to utilize the endowments of such factors effectively. The government industrial policies need to selectively promote such strategic industries as agro-industry, petrochemical industry, computer industry, machine tool industry, and bio-industry. (JICA 1987, 2-3)

Second, with regard to the role of the government, the report considers the importance of transparency in terms of its economic perspective, which can influence the level of industrial investments. The report states that the government policies and measures for economic management are an important determinant of transparency. In this regard, the report also refers to the relevance of medium and long-term economic plans for continuity and consistency of economic policies, as follows:

In order to enhance the transparency in terms of its economic perspective, it is of primary importance that the government ensures the continuity and consistency of basic economic policies it pursues. [...] One effective way to ensure overall continuity and consistency of economic policies is to formulate a medium- and long-term plan based on the national consensus. The plan should offer the framework and standards with which the private sector can envision its future business prospects and make investment decisions accordingly. Argentina at this stage will need an

economic plan that contains specific policy statements and concrete commitments. (JICA 1987, 4)

Third, in order to activate the dynamism of the private sector, the report highlights the importance of the market mechanism, privatization of public enterprises, strengthening support systems for research and development, and development of efficient infrastructure. It states that:

It is important to the Argentine economy to create an environment where the market mechanism functions properly. For this purpose, it will be necessary to establish competitive conditions in the domestic market by withdrawing the excessive protection given to the domestic industries. [...]In order not to repeat the experiences of the late 1970s, the government needs to provide clear guidelines for liberalization in close consultation with the private sector and provide appropriate incentives during the period of transition. (JICA 1987, 6)

The report emphasizes the importance of introducing advanced technology and innovation as well as partnerships between the government, private sector, and universities. It argues that:

Promotion of active research and development efforts will have a great impact on technological innovation in production processes and support industrial investments for economic activation. [...]The systems to encourage the cooperative efforts of the government sector, universities, and private industries will enable the government to understand the needs of the private sector and mobilize the vitality and dynamism of the private sector for what the government plans to achieve. It is also important for the systems to facilitate the introduction of advanced technologies that are likely to change the foundations of manufacturing industries and other sectorial activities in the economy. (JICA 1987, 7)

Specific recommendations are made regarding agriculture, industry, transport, and exports. For example, the study on the industrial sector consists of five parts. The first part reviews the past trends and structural

characteristics of the industrial sector as a whole. The second to fourth parts examine the current situation and prospects for three industrial subsectors, namely the petrochemical industry, electronics (computer-related industry), and agro-industry (packaging). These three sectors were selected in accordance with the scope of work and discussions between representatives of the Argentine government and the Japanese mission. The fifth part studies small and medium industries, which the Argentine government considers important in its industrial promotion policies.

The report recommends that the new Argentine industrial policies need to take into account the following points: (i) identify clear guidelines for industrial promotion; (ii) introduce competitive conditions for industrial production; (iii) formulate government policies through exchanges of opinions with the private sector; (iv) enhance the confidence of foreign capital; (v) strengthen support systems for technology development; and (vi) establish a long-term capital market.

The key messages of the Okita Report, as summarized above, reflect the basic concepts of Okita's economic thoughts, as discussed in the Overview Chapter of this report. They are related to, among others, scheduled trade liberalization, the importance of industrial development, collaboration of public and private sectors, continuity and consistency of economic policies, and insights from Japan's experiences.

#### ***1.4. The main proposals of the Okita Report compared with predominant economic thoughts in Argentina***

The report was prepared in the mid-1980s, in the very midst of the lost decade caused by the debt crisis. It is well known that, in this period, the most dominant view on economic policies to overcome the crisis in Argentina was the so-called 'orthodox approach,' which emphasized liberalization, privatization, small government, and so on. Jorge Vasconcelos (2010), an Argentine economist of Fundación Mediterranea, considers that the approach of the Okita Report was orthodox compared to state-led and domestic market-led approaches. However, he adds it was heterodox in relation to the supposition that a simple change in the rules of games (*un cambio en las reglas de juego*) would be enough to relaunch the Argentine economy.

With regard to industrial policies, Vasconcelos elaborates on this

comparison, arguing that,

In its orthodox side, the Okita Report stated that the investment coefficient (percentage of GDP) had stagnated and that the efficiency of investments (incremental capital-output ratio) was low, partly due to an import substitution policy that strongly protected national industries that provided their products to small domestic markets. (Vasconcelos 2010; original Spanish, translated by the author)

On the other hand,

On its heterodox side, the Okita Report recommended against total liberalization, but instead focused on the promotion of selectively strategic industries such as agro-industry, the petrochemical industry, computers, machine tools, and the bio-industry. Although the Okita Report agreed with the view known today as productive development policies, it warned that restructuring of the industrial sector should be realized through strengthening its competitiveness in domestic and foreign markets. (Vasconcelos 2010; original Spanish, translated by the author)

Furthermore,

The Okita Report insists on the importance of a stable perspective for the business environment, because investors need to have a clear idea about what they should expect in future. For this, the report considered it necessary for the government to assure the continuity of basic economic policies. (Vasconcelos 2010; original Spanish, translated by the author)

Aldo Ferrer, one of the best-known Argentine economists, and the author of *The Argentine Economy: An Economic History of Argentina*, also published a comprehensive review of the Okita Report, keeping in mind the long-term economic development of Japan and its outstanding characteristics. Aldo Ferrer (1991) states that 'orthodox bias had been prevailing since the mid-1970s in the political economy of Argentina' (original in Spanish,

translated by the author). He affirms that 'the Okita Report's perspective provokes significant convergence with the heterodox visions of Argentine authors,' including himself. In relation to these views, he highlights the following crucial aspects of Japan's economic development, which need to be taken into account as background to the Okita Report:

The public sector accomplished an essential role in technological development and the integration of its actors: enterprises, the scientific community, and political power. This holistic, systematic, and endogenous concept is a dominant feature of the development strategy of self-reliance adopted in Japan, and of the proposal of the Okita Report for the Argentine economy. The technology transfer from abroad is inserted in the *copying-adaptation-innovation* path<sup>7</sup> and the expansion of national assets and of the original capacity of innovation (in Japan). (Italics in original)

Related to this view, Aldo Ferrer emphasizes that 'Japan never handed over to the static comparative advantages revealed by the international division of labor and resource endowments in a static scheme' (Ferrer 1991).

Aldo Ferrer emphasizes that 'Argentina's economic development demands the active presence of the State in a market economy.' In this regard, he cites the following remark from the Okita Report. 'It is important to the Argentine economy to create an environment where the market mechanism functions properly.' He argues that, for this purpose, competition is essential. In support of this, he again cites the Okita Report, which asserts that 'withdrawing the excessive protection given to the domestic industries' is necessary. However, he then emphasizes the following sentence from the report: 'In order not to repeat the experiences of the late 1970s, the government needs to provide clear guidelines for liberalization in close consultation with the private sector and give appropriate incentives during the period of transition' (Ferrer 1991).

It is worth mentioning that Okita had several chances to exchange views with Domingo Cavallo, one of the most well-known economists of the

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<sup>7</sup> This concept is similar to the 'process of learning, adaptation, and innovation' in Japan and other countries discussed in the Chapter 2 of this volume.

orthodox approach in Argentina. After Cavallo was appointed Minister of External Relations during the Menem government, he invited Okita to Argentina in September 1990 to receive a decoration from the Argentine government and present the conclusions of the Okita Report to a wider audience in the country.<sup>8</sup> Later, the Argentine government requested that Japan conduct the Okita II study in 1992. By this time, Cavallo was the 'Super' Minister of Economy and promoter of the so-called Convertibility Plan.<sup>9</sup>

In this regard, Alejandro Mayoral, Undersecretary of the Ministry of Economy, Public Works and Services, on behalf of the Argentine government, stated in 1996 that,

In 1985, as a result of the *Okita I: Study on Economic Development of the Argentine Republic*, our country received valuable information and recommendations, most of which have been implemented since 1989 and formed important lines of thinking for the modernization of Argentina. [...] In 1989, Argentina initiated deep economic reforms in order to stabilize, deregulate and open its economy. (Secretariat of Trade and Investment, Ministry of Economy and Public Works and Services and JICA 1996)

The deep economic reforms highlighted here are known as the Convertibility Plan, formulated and implemented by Domingo Cavallo and his team. Mayoral goes on to say that,

Continuing the task of economic growth and free-market policy, the Argentine government has made steady efforts to promote external trade and attract foreign direct investment. To realize this objective, the government has developed close trade relations with Latin American countries, especially in MERCOSUR (Southern Common Market, Mercado Común del Sur in Spanish, in which Argentina, Brazil, Paraguay, and Uruguay participate), as

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<sup>8</sup> According to Okita (1992), the Menem government wanted to revisit the Okita Report. President Menem made the opening speech at a two-day seminar at which Okita presented the first report. Okita passed away in February 1993.

<sup>9</sup> Domingo Cavallo was the promoter of the so-called Convertibility Plan, which produced economic growth for several years, and became known as the 'Miracle of La Plata.'

well as the new approach towards Japan and the other East Asian countries. To promote these relations, our President, Dr. Carlos Menem, our Minister of Economy, Dr. Domingo Cavallo, and other officials, as well as business people, have traveled regularly to this area.

These remarks imply that the Menem administration inherited the Okita Report as a valuable asset. After implementing the Convertibility Plan, President Menem and Minister of Economy Cavallo then decided to ask the Japanese government to carry out this second Okita study on the economic development of Argentina, focusing on exports and foreign direct investment. Mayoral discusses the invitation process as follows:

It was in this context that, in 1992, the Argentine Government asked the Japanese Government to produce a report titled the *Study on Economic Development of the Argentine Republic (The Second Study)*, arranged by JICA and our National Undersecretary of External Trade of the Ministry of Economy. The main goal of the study is to analyze the macroeconomic and sectoral development environment, strengthened by the Convertibility Plan, since 1989, when the deepest economic changes occurred. It also studies the potential for expanding the export capacity of Argentina to Japan and other East Asian markets, as well as the possibility of increasing foreign direct investments to Argentina. (Secretariat of Trade and Investment, Ministry of Economy and Public Works and Services and JICA 1996)

### **1.5. Follow up of Okita Report in frameworks of Argentine-Japan cooperation**

In keeping with the recommendations of Okita Reports I and II, JICA implemented a range of new projects in Argentina, including the following cooperation projects.<sup>10</sup>

In the industrial sector, a series of technical cooperation projects were

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<sup>10</sup> These projects were implemented for several reasons, including the suggestions of the Okita Report. The purposes and outcomes of most of these projects are summarized in JICA (2007).

carried out after the Okita Reports. For example, the Project of Center of Technology of Containers and Packing (1989-1993), Project of Upgrading of Design and Manufacturing of Industrial Machinery (1995-1998), Project of Energy Saving in Industries (1995-2000) and others were carried out through the National Institute of Industrial Technology (INTI). The Study on the Promotion of Total Quality Control (Gestión de Calidad Total) for Small and Medium Scale Industries and Certification System for Industrial Export Products (1989-1990) and The Study on Revitalization of Small and Medium Enterprises (2004-2006) should be highlighted in the area of industrial SMEs. It is also worth mentioning the Project of Training Center for Informatics through the National Institute of Technological Education (Instituto Nacional de Educación Tecnológica, INET) of the Ministry of Education (1991-1996). Many projects in the area of agriculture, livestock, and fishery were implemented through the National Institute of Agricultural Technology (INTA) and other specialized institutions. Several projects were implemented in the mining sector as well.

It should be highlighted that during this period, the Okita Foundation was established in Buenos Aires in order to disseminate and follow up on the Okita Report. As a counterpart of the Okita Foundation, the Japan Advisory Committee of Okita Foundation (FO-JAC) was set up in Tokyo.

Another outstanding follow-up initiative was carried out in 2002 and 2003. Seven years after the publication of Okita Report II, a new cooperation project was undertaken through JICA to update the report in the context of the post-financial crisis of 2001 in Argentina. This new initiative aimed at studying challenges for specific productive sectors that had high potential for strengthening their competitiveness and increasing their exports. This new study was supported by the Okita Foundation, United Nations Economic Commission for Latin America and the Caribbean (ECLAC, Buenos Aires Office), and other institutions. The report of this study was launched in a symposium organized by JICA in Buenos Aires in 2003.

In 2006, a commemorative seminar of 20 years of Okita Report was held in Buenos Aires by the Ministry of External Relations of Argentina, JICA, and the Okita Foundation. Yoichi Okita, Professor of the National Graduate Institute of Policy Studies and son of Saburo Okita, was invited as the keynote speaker for the seminar.

### **1.6. Significance of the Okita Report: A pioneering initiative of policy dialogue and development policy support through international cooperation**

The Okita Report provides a valuable experience in the history of Japan's international cooperation. It was a pioneering cooperation project for formulating and supporting development policy through joint studies and policy dialogues. Based on the experiences and results of the Okita Report, similar cooperation projects were subsequently carried out in other countries of Latin America. The case of the 'Study on Economic Development of Paraguay' will be discussed in the next section. The experiences of preparing and implementing the Okita Report constituted a valuable precedent for Japanese cooperation in countries of other regions, as discussed in other chapters of this volume.

As distinct features of this cooperation, through both of the Okita reports, the following points should be highlighted:

- (1) It was different from common technical cooperation with narrowly prescribed terms of reference. It was overarching, covering both the macro-economy and selected industrial sectors.
- (2) It was largely long-term and real-sector-oriented. Its approach was generally hands-on and included sector-specific analysis and recommendations.
- (3) It involved diverse stakeholders, such as scholars, non-governmental organizations, enterprises, and associations of industries, in addition to counterparts from the Argentine government.
- (4) Insights from Japan's experiences of economic development were considered in the process, with awareness of the different circumstances between Argentina and Japan. A special volume on Japan's experiences was prepared as a part of the Okita Report.
- (5) The report has been used as one of the basic references for development and industrial strategies and policies for some decades in Argentina.
- (6) It has also been used as a reference for Japan's cooperation with Argentina from this time onwards.

## 2. Study on Economic Development of Paraguay (EDEP)

### 2.1. Background and context

The Republic of Paraguay, a landlocked country of South America, was under a military government headed by President Alfredo Stroessner for 35 years from 1954. In 1989 General Andrés Rodríguez became president in a military coup. In 1993, Juan Carlos Wasmosy was elected as Paraguay's first civilian president. However, political instability continued. At this time, the country was making efforts to formulate a strategy for developing competitive industries and promoting economic growth in the scheduled trade liberalization process for members of MERCOSUR (Southern Common Market).<sup>11</sup>

The foreword to the 'Study on Economic Development of Paraguay' (EDEP) provides the following context. The Paraguayan government had been pursuing the introduction of market economy principles since the democratic government took power in 1989. In the 1990s, after joining MERCOSUR, they proceeded to liberalize trade by abolishing tariffs along with the other MERCOSUR countries. In the course of this liberalization, Paraguay was aiming to improve agricultural productivity, reduce its dependency on agriculture, encourage diversification of industries, strengthen export competitiveness and foster small-sized enterprises. However, the export goods that were relatively competitive were limited to cotton, soybeans, and other agricultural products. As the integration of the common market evolved, exports of these products, as well as industrial products, met increasingly stiff competition from Brazil and Argentina. As a result, the agricultural sector, along with other less competitive sectors, was declining. Paraguay was facing an increase in unemployment, deterioration of its fiscal balance and an international balance of payments crisis. EDEP was carried out in this context.<sup>12</sup>

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<sup>11</sup> Since the last decade of 20th century, substantial transformation of the industrial structure has taken place in Paraguay. In short, an economy that was dependent on cotton exports was transformed into one based on soybeans and agro-industry. In other words, the country's engine of growth changed from tropical commodity exports to grain production and food value chains. This enabled the country's transformation into one with a higher value-added and diversified industrial structure. The export of soybeans increased from 370 million dollars in the second half of 1990s (average) to 1,020 million dollars in the second half of 2000s (average) and 2,500 million dollars by 2013. By contrast, the export of cotton, which had been the main export product of Paraguay for a long period, decreased from 100 million dollars in the second half of 1990s (average) to 20 million dollars in 2009-10. For details see Kitanaka et al. (2019).

<sup>12</sup> Team Leaders of the JICA study team were Kagehide Kaku (until October 1999) and

## **2.2. Purposes, scope, and modalities of cooperation**

With the above-mentioned background, the government of Paraguay, through the Technical Secretariat for Planning (STP) of the Presidency, requested technical cooperation from the Government of Japan to conduct a study of Paraguay's economic development (later to be called EDEP). The agreement on the Scope of the Work was signed in April 1998. In collaboration with STP, the Ministry of Agriculture and Livestock (MAG), the Ministry of External Relations (MRE), the Ministry of Finance (MH), the Ministry of Industry and Trade (MIC), and the Ministry of Public Works and Communications (MOPC), JICA carried out the EDEP study between October 1998 and November 2000. The main purpose of the study was: to formulate a new strategy to promote economic development, mainly through the diversification of industry, industrialization and export promotion. The strategy needed to be based upon an analysis of the competitiveness of each industry, and aimed at securing economic independence and development under the changing economic circumstances brought by the market liberalization that resulted from entry into MERCOSUR (JICA 2000a).

As such, EDEP was the result of more than two years of analysis, evaluation, and dialogue, involving the Government of Paraguay (through STP and the above-mentioned ministries, among others), JICA, and other public and private entities specialized in economic and social research (such as universities). It also involved the Centre for Analysis and Information on the Paraguayan Economy (CADEP) and other institutions. The President of CADEP, Dionicio Borda, was later appointed Minister of Finance, and Vice-President of CADEP, Francisco Macci, was appointed later an adviser to Minister of Industry and Trade. Many business leaders who had close contacts with the EDEP study team later participated in the National Organization for the Promotion of Market Competition (ONPEC), discussed in more detail below. It is worth noting that Cesar Ross (director of a meat processing and exporting company, UPISA, and President of ONPEC), Caballero Vargas (president of a textile and apparel company, Pilar, and Minister of Commerce and Industry), Jorge Gattini (director of one of the largest agricultural cooperatives of Paraguay, the Colonias Unidas Cooperative), and Ronaldo Eno Dietze (Rector of the

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Hidesuke Kotajima (November 1999 onward). The author of this chapter was the Chairman of the JICA Advisory Committee.

University of San Carlos) were among the leading members of ONPEC.

### **2.3. Main pillars and recommendations of EDEP**

As mentioned above, the basic aim of the EDEP was to examine a strategy for strengthening competitiveness and exports (JICA 2000a).<sup>13</sup> EDEP has the following two distinctive characteristics: First, it utilizes an integrated approach; second, it puts forward a series of specific strategies considered essential for Paraguay.<sup>14</sup>

In terms of the first point, EDEP proposes a far-reaching and comprehensive approach to help strengthen the country's competitiveness. This certainly reflects the position of the Paraguayan Government, which was hoping for this study to be a kind of master plan for the country's economic development. JICA took this on board fully, while also trying to take account of its own cooperation experiences in other countries, including the Okita Report. EDEP suggests strategies at three different but closely connected levels, or scopes: the general (or macro), the sectoral/regional, and economic actors and/or groups (micro). At the economic actors and/or groups' level, a cluster or agro-industrial chain is identified as an ideal mechanism for increasing competitiveness in Paraguay.

In terms of the second point, EDEP sets out to focus specifically on the particular aspects affecting Paraguay. In other words, while all aspects of the integrated approach to developing a competitiveness strategy are considered important, many of the factors are common to those that most other developing countries are also facing. Examples include strengthening the financial sector, export promotion, and an improved business climate to facilitate investment (mainly foreign direct investment). EDEP analyzes these aspects and places them in the context of Paraguay to ensure that any measures taken are appropriate.

In addition to these aspects, it is also considered essential to examine the specific features of Paraguay. For instance, the country's economic structure was highly dependent on a few commodities such as cotton, soybean, maize, and others. EDEP considers it important to diversify

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<sup>13</sup> See the JICA website for the complete original version of EDEP at: <http://libopac.jica.go.jp/images/report/11600350.pdf>.

<sup>14</sup> This and following four paragraphs are based on Hosono (2014) and JICA (2000b).

the export structure based on these products with their comparative advantage and competitiveness on the international market. This leads to the development of an EDEP proposal for a cluster or agro-industrial chain strategy, mainly food chains, as one of the major axes of competitiveness. In summary, the aim is to increase the country's competitiveness based on the externalities of internationally competitive commodities such as soybeans and others. Having well-linked production chains around these competitive products enables them to benefit from the externality of each commodities' comparative advantages.

Furthermore, the country can use production chains to produce products with greater added value, which will also have other economic effects, including stronger job creation. It is considered essential to identify strategies aimed at reducing the limitations resulting from the country being landlocked, including measures to strengthen export corridors and *maquila* systems.<sup>15</sup> It is also a priority to increase productivity through human capital formation as a way of overcoming the disadvantages in relation to other MERCOSUR countries (Argentina, Brazil, and Uruguay). The EDEP study also considers it important to make development into a more inclusive concept. The prioritized strategies therefore include the cluster or agro-industrial chain strategy, export corridors, quality and productivity, and the 'One Village, One Product' Movement. These strategies are inextricably linked to the territorial approach within the integral competitiveness strategy.

Among the specific strategies mentioned above, EDEP puts special emphasis on the creation of agri-food chains and clusters, owing to the availability of crops such as soybeans, cotton, maize, and other commodities—as well as the development potential of the associated agro-industry chains. At the time EDEP was being prepared, agro-industry chains were lacking inter-sectoral coordination (between agriculture and the processing industry) and intra-sectoral coordination. Chains and clusters were emerging, but there were not enough linkages to take advantage of economies of scale at that time. EDEP saw the potential to boost Paraguay's economy by industrializing agricultural production. A study of the production potential of 32 agricultural products resulted in the prioritization of soybeans, melon, wheat, tomatoes, maize, chinaberry (*melia azedarach*), sorghum, beef, cassava, pork, cotton, chicken, and

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<sup>15</sup> For the maquila system, see ECLAC and JICA (2014), and Footnote 16.

oranges. Six emerging clusters were also earmarked as needing a boost: feed, vegetables, fruit, cotton, wood, and metalwork.

## **2.4. Follow-up of EDEP**

The EDEP final report boosted various government and private-sector efforts in Paraguay. One example was the joint work between the government and the private sector to create ONPEC in late 2001. ONPEC arose as a result of EDEP to promote national competitiveness through the National Competitiveness Agenda, and take part in various sustainable economic and social development initiatives. It also supported the creation of Regional Offices to Promote Competitiveness Strategy (ORPECs) to develop production chains and clusters by promoting regional competitiveness, and to become established as a national benchmark in the promotion of production chains and clusters.

Belén Servin and Fabricio Vásquez (2014, 144) consider that the main tool for driving EDEP forward was provided by ONPEC. They highlight the development of new institutions and initiatives, related to EDEP, that have impacted economic development in recent years as follows:

- Development of the *2001 Strategic Economic and Social Plan* (a national development plan), which picks up some of the EDEP concepts, especially those relating to chains and clusters.
- Strengthening of private-sector clusters involved in bolstering ONPEC, which did not operate fully but focused international cooperation contributions on the following production chains: cassava, software, chicken, and pigs. This was done as part of the creation of the project of export enterprises' competitiveness in Paraguay (FOCOSEP) and implemented by STP with funding from the European Union and the general State expenditure budget.
- Creation of the Investments and Exports Network (REDIEX), as part of the Ministry of Industry and Trade, to promote exports and attract investment to boost the country's economic and social development. This agency works with the main representatives from the public, private, and education sectors. It has eight sectoral chambers: biofuels, meat and leather, forestry, fruit and vegetables, stevia, textiles and garments, information and communications technologies (ICTs), and tourism.
- Creation by the Ministry of Agriculture and Livestock of product

competitiveness chambers made up of working groups of representatives from the primary, secondary, and educational sectors to promote specific products such as dairy, fruit and vegetables, beef, pork, and mutton. These chambers are in some way an expression of the willingness to work under public-private partnership schemes.

- More recent developments, including programs and instruments to improve export competitiveness, productivity, quality, associativity, innovation, and development of undertakings (including the Business Incubators Program and the Business Development Program for Small and Medium-Sized Enterprises of the Ministry of Industry and Trade).
- Regulation of the *maquila* system<sup>16</sup> by the Law on the Maquila Export Industry in 2000, which aims to promote the establishment and regulation of industrial enterprises partly or totally dedicated to carrying out industrial and services processes that incorporate labor and other national resources. Maquila in Paraguay is now operational and expanding thanks to the joint work of the public and private sectors through the National Council of the Export Maquila Industry (CNIME), Chamber of Maquila Companies of Paraguay (CEMAP) and other relevant associations.

## **2.5. EDEP and Japan's cooperation with Paraguay**

Following the presentation of the final report of EDEP, JICA continued working on boosting the Paraguayan economy at the request of the Paraguayan Government.<sup>17</sup> From 2000 to 2011, JICA worked on implementing EDEP in various sectors, with thirty technical cooperation projects, seven visits by individual experts, four technical cooperation projects run by the Partnership Program (JPP), two technical cooperation for development planning activities, one grant aid project, and two Japanese ODA (official development assistance) loans.

JICA's activities consisted of both cross-cutting strategies and sector-specific strategies. Cross-cutting strategies included human resource development, export promotion, and quality control systems, as well

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<sup>16</sup> In simple terms, the *maquila* system is an improved regime for temporary admission of goods into the country. In Paraguay, enterprises with the benefits of the maquila system only have to pay 1 per cent of value-added tax. Imports of raw materials, machinery, and equipment are exempt from tariff payment.

<sup>17</sup> This section draws heavily from Fujishiro (2014, 186-93).

as attracting foreign investment. For human resource development, the projects implemented were the Japan-Paraguay Skill Development Promotion Center project and the project on extending and strengthening the training program for senior technicians in rural areas with National Service for Professional Promotion (SNPP), a dependency of the Ministry of Justice and Labor. These projects helped to train human resources through vocational training.

For export promotion, an advisor on industrial and trade policy was sent from Japan to advise the Ministry of Industry and Trade on the promotion of exports. To improve the quality control system, the National Institute of Technology, Standardization, and Metrology (INTN) was strengthened through the technical cooperation project for the inspection and verification of weights and measurements, the project to strengthen the area of containers and packages, and the project to strengthen microbiology and bromatology laboratories. To attract foreign investment, the project to promote and strengthen the *maquila* industry in Paraguay with the National Council of the Export Maquila Industry (CNIME), was implemented.

Sector-specific strategies included cooperation projects for the agricultural sector, industrial sector, and transport infrastructure sector. As for the agricultural sector, there were three focal areas involved in the cooperation: agricultural policy advice, technological development of crops and livestock, and strengthening of production cooperatives. With regard to the first focus, in order to strengthen and support agricultural policies, several Japanese experts were dispatched to the General Planning Directorate and the Agricultural Extension Directorate of the Ministry of Agriculture and Livestock (MAG). To achieve the second focus, JICA concentrated on the technological development of soybeans, vegetables, sesame, dairy, beekeeping, and fish farming.<sup>18</sup> For the third focus, JICA transferred the experiences of production cooperatives from Japan through the project on strengthening cooperatives in the south-east of Paraguay, which boosted

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<sup>18</sup> Projects carried out include the Research Project on Soybean Production, the Project for the Identification of Soybean Germplasm with Resistance to the Soybean Cyst Nematode, the Project for the Improvement of Vegetable Production Techniques among Small-Scale Farmers, the Project on Strengthening the Production of Sesame Seeds by Small-Scale Farmers, the Improvement of Small- and Medium-Scale Dairy Farm Management Project, the Project for the Diversification of Beekeeping, and the Project of Rural Pisciculture.

collaboration between large and small cooperatives. More recently, the government's need to have a medium- and long-term public policy for rural development prompted JICA to carry out the Study on Integrated Rural Development for Small-Scale Farmers (EDRIPP) between 2009 and 2011. This study resulted in the Guidelines for the Formulation of the Sustainable Development Strategy for Rural Territories, which became the driving force for changing the JICA assistance policy in Paraguay.

To implement strategies for the industrial sector, JICA assisted the Ministry of Industry and Trade (MIC) and the Paraguayan Industrial Union (UIP) in strengthening productivity and quality through the mini-project, Leader Training in Small and Medium-sized Companies and the Project on Strengthening the Paraguayan Quality and Productivity Centre (CEPPROCAL). These projects introduced the idea of productivity and quality control using the Japanese '5S' method.<sup>19</sup> They also introduced a new culture in which the private and public sectors worked together in industry. Cooperation for the transport infrastructure sector included a Japanese ODA loan for a road improvement project and technical cooperation for development planning activities, such as the Study on the Export Corridor and Grain Port Improvement in Paraguay, and the Preparatory Survey on the Eastern Region Export Corridor Improvement Project in the Republic of Paraguay.

## ***2.6. Significance of EDEP as development policy support through international cooperation***

The United Nations Economic Commission for Latin America and the Caribbean (ECLAC) and JICA (2014) summarized the lessons learned from EDEP as follows:

EDEP represented a fresh approach to efforts to boost the economy. Unlike sectoral plans or those that treated agriculture as an isolated production system, EDEP approached it as integrated or systemic. Some of the contributions and effects of EDEP were as follows:

- (1) Introduction of new ideas and concepts, including: the idea of

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<sup>19</sup> 5S represents 'Sort, Set in order (or Systematic arrangement), Shine (or Sweep), Standardize, Sustain.' Each of these corresponds to five simple actions that can be taken to obtain discernible results towards promoting Kaizen in a short period of time (JICA 2016).

clusters or production chains; the concept of 'export corridors'; emphasis on the role of communications infrastructure; and public-private linkages as a tool for improving competitiveness.

- (2) Creation of a new business climate through a fresh, positively-framed discourse aimed at implementing a new economic development model at a historically difficult time for Paraguay.
- (3) Creation of new institutions, such as the National Organization for the Promotion of Market Competition (ONPEC), Project for development of export enterprises' competitiveness in Paraguay (FOCOSEP), and the eight REDIEX sectoral panels (2000-10).
- (4) Strengthening the role of public institutions that have adopted policies aimed directly at promoting productivity, industrialization, and competitiveness.
- (5) Consolidation of private activity: in addition to the obvious economic buoyancy in recent decades, various business chambers and associations have emerged, which is a sign of the private sector's determination and robustness in production matters.
- (6) Changes in the behavior and learning experiences of the private sector: rethinking management models and strategies to tackle crises; extending production capacity in accordance with international markets; emergence of an enterprise spirit in the form of cooperatives and associations; capacity to innovate and incorporate new products into companies; capacity to adapt and emulate other companies; and geographical differentiation (ECLAC and JICA 2014, 25-26).

Jorge Máttar, Chief of the Latin America and Caribbean Institute for Economic and Social Planning (ILPES), an affiliate of ECLAC, and Hiroshi Kato, Vice President of JICA, made the following comments in the Introduction to the book, *Study of Inclusive Development in Paraguay: International Cooperation Experiences* (ECLAC and JICA 2014):

[JICA's] work in Paraguay [...] deserves to be highlighted as a benchmark cooperation program for other Latin American countries. As well as JICA's commitment to Paraguay (manifested through studies, field projects, visits from Paraguayan officials and professionals to Japan, missions to Paraguay by Japanese professionals, courses and technical tours of third countries), JICA has also shown an interest in implementing a national economic development strategy

that harnesses all of Paraguay's economic potential. This is interesting because it reveals the Japanese intention to develop a cooperation program with a high impact in the country that goes beyond specific projects. [...] Beyond the problems and limitations, the emergence of agro-industrial clusters in Paraguay is a trend that needs continued support, as it forms the basis for a development strategy that should be followed by all of the region's countries. The strengthening of clusters and production chains should also be promoted alongside a territorial development strategy (as suggested by EDRIPP for the next few years). Both strategies are complementary and have been promoted by ECLAC and ILPES in many publications and forums, as they have been shown to make an effective contribution to the economic development of many countries in the region and worldwide. (Máttar and Kato 2014, 40)

Furthermore, the foreword of the above-cited volume emphasized the importance of seeing the cooperation from two different perspectives:

The transformation of the Paraguayan economy and society is not the only narrative in this book. There is another: the story of an international development agency that engages in debate on national development strategy. [...] For ECLAC, the case study on Paraguay presented in this volume provides original insights into the question of how to promote structural change for equality in Latin America and the Caribbean. It confirms that the role of the State is crucial and that international development cooperation can also contribute greatly to this process. (Bárcena and Tanaka 2014, 20)

Summing up, as distinct features of this cooperation to support Paraguay through EDEP, the following points should be highlighted:

- (1) It was different from normal technical cooperation with narrowly prescribed terms of reference. It was overarching, covering both macro-economy and selected industrial sectors and clusters. EDEP proposed an integral approach and it put forward a series of specific strategies.

- (2) It was largely real-sector oriented from a long-term perspective. Its approach was generally hands-on and included sector-specific and cluster-specific analysis and recommendations.
- (3) It involved diverse stakeholders such as scholars, universities, think-tanks, non-governmental organizations, enterprises, and associations of industries.
- (4) Insights from Japan's experiences of economic development were considered, with an awareness of the different circumstances between Paraguay and Japan.
- (5) The report has been used as one of the basic references for development strategies and policies for some decades in Paraguay.
- (6) It was used as a reference for Japan's cooperation with Paraguay afterward.

### **3. Concluding Remarks**

We can summarize the main findings of this chapter as follows. Regarding the context in which the cooperation program for the Study on Economic Development of the Argentine Republic (the Okita Report) and the cooperation program for the Study on Economic Development of Paraguay (EDEP), both countries were in critical transition periods from military governments to civilian ones and facing enormous challenges of economic transformation. The Argentine economy needed to transform its industrial structure by enhancing its competitiveness to increase industrial exports in order to overcome the low economic growth caused by the limitations of decades of import-substitution-led industrialization. Moreover, the country had to address its debt crisis and hyperinflation. Paraguay needed to transform its export structure away from one centered around a few traditional primary commodities, to a new structure with more diversified and higher value-added products, addressing the challenges of liberalization of trade within MERCOSUR, in which the country decided to participate.

Among the distinctive features of the two cooperation projects, the 'ingredients approach' and 'hands-on approach' need to be highlighted. In terms of the 'frameworks' vs. 'ingredients' approaches to economic development discussed in the Overview Chapter, it is clear that both the Okita Report and EDEP made much of the 'ingredients' approach. The Okita Report and EDEP discussed the 'framework' aspects, such as the rules and functions of a market economy. However, they demonstrated

stronger concerns with regard to the real sectors, with a focus on industry structure and components (industrial sectors, human resources, technologies, firms, especially SMEs, and so forth) of the market economy.

In terms of 'normative' vs. 'hands-on' approaches, also discussed in the Overview Chapter, we can conclude from the findings of this chapter that both the Okita Report and EDEP emphasized hands-on approaches. They had a strong field orientation, real sector pragmatism, adaptation to the local context, and an emphasis on concrete projects or programs at *gemba* (a Japanese term meaning the place where the real action takes place, such as factories and crop fields). As the Overview Chapter argues, backed by the understanding of a country-specific context from field-based perspectives, a hands-on approach facilitates the establishment of concrete goals and policy measures that are both desirable and feasible for each country. As such, a hands-on approach emphasizes the sharing of context-specific, tacit knowledge with counterparts, and interactive communications with them. This was also an important feature of the Okita Report and EDEP. Furthermore, the sharing of knowledge and interactive communications was extended beyond direct counterparts to scholars, non-governmental organizations, enterprises, associations of industries, and think tanks.

Another feature of the Okita Report and EDEP is that, in both cases, they were not accompanied by the quick implementation of financial or technical cooperation projects. There was a clear separation between 'development policy support' and specific cooperation projects.

It is worth reiterating that the Okita report has special significance in the history of Japanese cooperation for development policy support. First, it was the outcome of the first large-scale, development policy support mission led by Okita, an architect of Japanese post-war economic recovery programs, including the Income Doubling Plan, which is well-known in Japan. Second, it has several features that later became common among development policy-support cooperation (or industrial policy support cooperation) implemented in other countries. Third, the report contains several views that characterize the economic thoughts of Okita, based on, among other things, lessons from the experiences of Japanese economic development.

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## The Ishikawa Project in Vietnam: Policy Support to Transition to a Market Economy

Kuniaki Amatsu

### 1. Introduction

This chapter highlights the so-called Ishikawa Project, Japan's policy support to Vietnam implemented by the Japan International Cooperation Agency (JICA) for six years from 1995 to March 2001. This was symbolic policy support for a country in economic transition in the 1990s and early 2000s. The Ishikawa Project left important footprints in the history of Japan's intellectual policy support and has had a strong impact on subsequent intellectual support by JICA in other projects. It placed a country with a strong sense of national ownership in a very complicated situation by mixing the two features of 'development of a country with a low-income economy status and one at a very early development stage of the market economy.'

Its style was unique but applicable and can be practiced by other donors as well. Thus, it provides a useful reference to other donors that may try to design and implement this form of policy support now and in the future. At the same time, the Project's experience is likely to be especially useful for the governments of those developing countries that receive policy support from donors now and in the future. It will give them clues about the spirit of the recipients, the method of agenda setting about policy support and what the policy support process should look like.

The discussion proceeds as follows: In Section 2, the background of the Ishikawa Project including the economic situation on the eve of the Project and at the start of the Project is overviewed. In Section 3, the situation of Vietnam's industrialization is overviewed mainly through observations by the Japanese team during the Ishikawa Project. In Section 4, the focus of the industrial studies in each Phase is compared, i.e., what each phase highlights and in what context. In Section 5, the views of the Japanese team

on the controversial issues of industrialization are described. Industrial policy support usually confronts dichotomic arguments, for example on the relevance of government intervention to the industrialization process. How the Project dealt with those issues is an important point. Sections 6 and 7 outline the main characteristics and the achievements of the Project. Finally, Section 8 summarizes what the Ishikawa Project left to current and future policy support in the area of industrialization.

## **2. Background**

In 1986, Vietnam started the 'Doi Moi' (renovation) policy that pursued enhancement of its socialistic economic management system through the introduction of the market mechanism. Before the 'Doi Moi' policy, economic growth was sluggish, and real GDP growth was 2.8 per cent per annum when Vietnam started the policy in 1986. However, under this policy, it grew rapidly in the range of 5.1-8.6 per cent from 1988 to 1994. Exports increased at more than 30 per cent per annum during 1989-92. The inflation rate went down from 411 per cent in 1988 to 5.2 per cent in 1993. The fiscal deficit was reduced from 10.3 per cent of GDP to 3.7 per cent in 1992, and the current account deficit declined from more than 8 per cent of GDP in 1989 to less than 1 per cent in 1992 (World Bank 1994, 3).

Vietnam came to face concerns about economic management again in the mid-1990s; for example, increases in the fiscal deficit due to the expansion of public investment and increases in the wage levels of government officials, the increases in the ratio of trade deficits to GDP, and the decreases in the disbursement of Official Development Assistance (ODA) and Foreign Direct Investment (FDI) (World Bank 1994, 4; JICA 1994, 13, 17).

Throughout the reform process, various forms of support were provided by the World Bank and the International Monetary Fund (IMF) through active policy dialogues. Initially, these dialogues were well received by the Vietnamese government and a wide range of reform programs were completed, such as monetary policy changes, fiscal reforms, rural reforms, price liberalization, devaluation, financial sector reforms, State-Owned Enterprise (SOE) reforms, private sector reforms, openness to FDI, and trade reforms. In 1993, a Standby Credit Arrangement was arranged by the IMF against an increase in the risks due to the excessive expansion of public expenditure (World Bank 1994, 2-4). In 1994, the First Structural

Adjustment Credit (SAC) in the amount of 150 million US dollars was provided by the World Bank. In addition, an Extended Structural Adjustment Facility (ESAF) in the amount of 535 million US dollars was provided by the IMF in 1994.

Meanwhile, differences between the two sides in the views on what the reform should look like, in particular, the approach of SOE reform, gradually came to be obvious. Trần Xuân Gi, Minister of Planning and Investment stated, 'Tensions were mounting between the Vietnamese Government and the International Financial Institutions (IFIs) over conditionality.' In this situation, the Vietnamese side expressed the opinion that 'the long lists of conditions imposed by the Bank and Fund were painful and humiliating.' Finally, the negotiations on SAC II broke down (World Bank 2011, 19). The reform packages were moderate for the World Bank and IMF, however, they were drastic for Vietnam. In this impasse, a third-party opinion was sought by the Vietnamese side.

In this situation, the drafting work of the Sixth Five-Year Development Plan 1996–2000 (FYP6) was started with the slogan of industrialization and modernization. Initially, the draft FYP6 set the ambitious target of an increase in GDP per capital by eight to ten times (JICA 1996a, 11). In Japan, a Country Assistance Study on Vietnam was started in 1994 under JICA, headed by Shigeru Ishikawa, who was a well-known development economist with a strong background in Chinese economic development. The purpose of this study was to develop a country assistance strategy prior to the restart of Japan's development cooperation with Vietnam. Its final report was produced in 1995. This report was handed over to Do Muoi, the General Secretary of the Communist Party of Vietnam through the Japanese Ambassador to Vietnam. Do Muoi was strongly impressed with the deep insights and the recommendation of the report and met Ishikawa one day in Tokyo when he was taking the opportunity to visit Japan. He invited Ishikawa to Vietnam and requested the Professor to give advice on the draft FYP6. In these processes, an official request for the policy support came from the Vietnamese prime minister to Tomiichi Murayama, the Japanese prime minister. That was the start of the subsequent six-year policy support project.

In June 1995, Ishikawa visited Vietnam under the JICA program, and had discussions with the Vietnamese government on the drafting of FYP6. The Vietnamese government explained they needed to prepare and submit

the draft FYP6 to the National Assembly by October 1995 and requested Ishikawa and JICA to support their drafting work urgently for its submission. However, it did not seem to be feasible for the Japanese side to meet their expected timeframe. Only several months were left before the deadline. Finally, both sides agreed that the policy support would be divided into two stages; in the first stage the Japanese team would present the Vietnamese side with a paper describing the minimum main points to be reflected in the draft FYP6; and would submit comments on three urgent issues raised by the Vietnamese side (the forecast of world and regional economies, the tax reform, and the Budget Law). It was also agreed that for the second stage, the Japanese team would conduct analyses on the Vietnamese situation more deeply and come up with a report by April 1996. The first and second stages were called Phase 1 and Phase 2, respectively. Following these two phases, Follow-up Cooperation (1998-99) and a Phase 3 (1999-March 2001) were implemented. The Ishikawa Project was the name given to the policy support covering Phase 1, 2, the follow-up Project, and Phase 3.<sup>1</sup>

After the Project was completed, four thematic policy research projects were spun off and continued until early 2004 in the areas of producing higher value-added products in agriculture, personal income tax, monetary policy (dollarization), and industrialization in the economic integration era, all built on the legacies of the Ishikawa Project.

### **3. The Situation of Vietnam's Industrialization around 1995**

#### ***3.1. The Japanese views on Vietnam's industrialization***

When Phase 1 started, the Japanese academics group interpreted Vietnam as being in a transition stage. After the completion of the economic recovery period in the early 1990s, Vietnam finally became able to consider the development of its economy. The further progress of market-oriented reforms and building the production capacity of the nation remained as challenges.

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<sup>1</sup> Officially, the Ishikawa Projects were named: The economic development policy in the transition toward a market-oriented economy in the Socialist Republic of Viet Nam in Phase 1; A Study on economic development policy in the transition toward a market-oriented economy in Viet Nam in Phase 2; A Follow-up study for the economic development policy in the transition toward a market-oriented economy in Viet Nam in the Follow-Up period; and a Study on the economic development policy in the transition toward a market-oriented economy in the Socialist Republic of Viet Nam in Phase 3.

Against these situations, the Japanese team considered that Vietnam would need to come up with a development scenario and a concrete way of achieving its long-term development. Vietnam's policies were characterized by the two mixed elements when the Project started: the first was designed in response to emerging needs against an economic crisis; and the second was driven by exogenous factors, that is, the World Bank and IMF conditionalities. This situation made economic management in a transition complicated. Therefore, it was assumed that development of the scenario would enable Vietnam to follow the reform process more smoothly. From this viewpoint, China was considered as a benchmark for the reform process and scenario development. China had started its reform in 1978, and came up with its comprehensive picture of economic reform in 1993, which was a scenario or roadmap with clear targets for specific sectors, the target years and policy actions. If Vietnam similarly developed a roadmap for long-term development, it would be able to proceed with an economic transition incrementally in a comprehensive and systematic manner as China was able to do. China spent 15 years to formulate a roadmap. However, it was considered that Vietnam might be able to shorten that period for the roadmap development because of the advantage of backwardness (Ishikawa and Hara 1999, 23-25).

In the context of industrialization, it was also considered that Vietnam needed to formulate a more realistic scenario. The Vietnamese government had a strong expectation that the industrial sector would play a leading role in economic growth, for example, to grow at 14.5 per cent per annum from 1996 to 2000, and to reach 31.5 per cent of the industrial sector contribution (value-added basis) to GDP in 2000. To this end, FDI attraction, the development of a non-SOE sector, and an increase in the competitiveness of the SOE sector were prioritized. And the adoption of both import substitution and export-led industrialization strategies was assumed (JICA 1996d, 2). Moreover, Vietnam had a strong orientation towards industrial targeting. The specific targets set by the major industries in the initial draft FYP are as follows, although these targets seemed to be ambitious to the Japanese team (JICA 1996d, 3):

- Consumer products: Textiles and apparel, leather goods, footwear, construction materials, crafts, and household goods. Graduation from outsourcing manufacturing abroad;
- Oil refinery: The establishment of two oil refinery plants with a processing capacity of 6.0-6.5 million tons per annum (by 2002, one

- of the two plants would be installed);
- Urea fertilizer: The establishment of a urea fertilizer plant with a production capacity of one thousand tons per day of ammonium;
  - Petrochemical industries: The establishment of a plant after 2000;
  - Machinery industry: Supplies of machines and equipment for agricultural processing, transportation and spare parts would be secured. Shipbuilding and ship repair industries would be established for maritime transportation. Exports of automotive products and electric appliance products would be promoted;
  - Electric and electronics: The production modality would be upgraded from SKD (semi-knockdown) to CKD (complete knockdown) and to IKD (intensive knockdown). The development of a supporting industry for spare parts. Computerization would be promoted widely from research and development to production and daily activities;
  - Construction materials: The cement industry is highly prioritized. The establishment of cement plants with a production capacity of 16-20 million tons per annum by 2000 and 30 million tons per annum by 2010. The establishment of glass factories with a production capacity of 20-5 million m<sup>2</sup> after 2000; and
  - Iron and steel industry: The establishment of a domestic production capacity of 2 million tons per annum by 2000. The establishment of blast furnaces with a production capacity of 1.5-3.0 million tons per annum after 2000. Steel production of 7-8 million tons per annum by 2010. Aluminium production of 150-200 thousand tons per annum after 2000.

Vietnam experienced an investment boom in 1994 just before the start of the Ishikawa Project. This had drawn attention from advanced countries, and many investors had visited Vietnam. As a result, the Vietnamese government had strong confidence about the bright future of their industrialization and economic development.

The initial draft of FYP6 reflected this atmosphere within the government and pursued an ambitious program of industrialization in various sectors (JICA 2002, 88). The development of large-scale new investment projects in the natural resource-based capital intensive heavy and chemical industries were targeted, reflecting a strong interest from the Vietnamese political leadership for steel (blast furnace), oil refinery, and petrochemical (ethylene center) industries in the draft FYP6. It was considered that Vietnam was endowed with ample natural resources;

thus, those industries must have high potential.

Their confidence and ambitions were expressed by the Vietnamese government quite often in meetings with the Japanese team. According to one Japanese team member, the Vietnamese side often insisted that 'the era of the garment and textile industry is over. The era of the high-tech industry will come.' However, the garment and textile industry is still one of the leading export industries at present. It keeps playing a pivotal role in Vietnam's industrialization. Meanwhile, at this time high-tech industry had not yet developed, therefore, the ICT industry was considered to be too early as a priority industry. Nowadays the high-tech industry of Vietnam is known worldwide for its competent ICT human resources and growing companies.

In addition, an incident involving the withdrawal of a Multi-National Corporation (MNC) from the investment plan of an oil refinery plant soon occurred, and a growing concern had emerged within the government about the feasibility of the projects described in the draft development plan. Policymakers were deeply confused about how to deal with investment in the oil refinery projects given the strong political expectation and concerns over the feasibility of such investment.

However, even in this situation a strong orientation towards industrial targeting was maintained by the Vietnamese government. As a result, a critical policy issue for Vietnam was how to select the priority industries and make investments in large-scale projects in the five industries of steel, oil refining, petrochemicals, urea fertilizer, and cement already laid out in the draft FYP6 (JICA 2002, 88-89).

### ***3.2. The policy support for priority industries under the Project***

The Ishikawa Project was inevitably requested to indicate the best path for Vietnam's industrialization to the Vietnamese policymakers in such a complicated atmosphere after the start of Phase 1. There was no doubt about the importance of industrialization. Several observations were tentatively made by the Japanese teams on the situation of Vietnam's industrialization. First, Vietnam remained in the early stage of industrialization, and a modern industry sector had not yet emerged at the time (JICA 1996a, 33). The situation was very similar to that in China in the era of state building in the early 1950s. There, modern industries

existed only in limited areas such as Shang Hai and Tianjin (JICA 1996a, 34-35). Also, the percentage of the industrial sector (value-added) to Gross Domestic Product (GDP) accounted for 29.6 per cent in Vietnam in 1994. This was almost equivalent to that of Thailand in the early 1990s (JICA 1996b, 1).

Second, two models of economic development, the dual economy development model of Arthur Lewis and the Feldman model, would be applied to interpret the situation of Vietnam's industrialization. Each model sheds light on different aspects of economic development and those two different aspects needed to be combined for proper interpretation of Vietnam's situation. For example, the Lewis model, which assumes that the national economy consists of dual traditional and modern sectors and interprets the economic development process as a labour transfer from the former to the latter, could fit the interpretation of the country in the initial stage of industrialization. It indicates that the development of agriculture and the rural economy needs to be paid much attention at the beginning. On the other hand, the Feldman model, which assumes that the economy is made up of capital and consumer sectors and provided a theoretical foundation for Soviet industrialization, could fit in with the growth structure of the newly emerging industrial sector and the transition of the leading industrial branches. This indicates how the selection of priority industries, the size of the industrial plants and the selection of the applied technologies need to be considered within the industrial sector (JICA 1996a, 9).

Third, both the modern sector and the SME and indigenous industrial sector need to be given attention in the industrialization process. According to the experience of Japan and neighbouring Asian countries, it was obvious that both sectors would play a crucial role in industrialization. The modern industrial sector would lead industrialization on one hand, and SME and indigenous industries would contribute to the creation of employment opportunities, the development of supporting industries, poverty reduction in rural areas, and a reduction of the income disparity between the urban and rural areas on the other. The development of SMEs and the indigenous industrial sector had been supported by the governments in neighbouring countries and therefore Vietnam was not exceptional in terms of the necessity for a two-track approach (JICA 1996a, 34-35; 1996b, 8-9).

Fourth, the experience of the industrializing East and Southeast Asian countries would be very helpful in their consideration of Vietnam's industrialization scenario. In those countries, simple labour-intensive industries such as the garment and textile industry led industrialization with government support of export promotion in the first stage. Labour was absorbed by that sector. In the second stage, leading industries shifted to more advanced labour-intensive industries such as the machinery industry. FDI played a leading role in that shift. The same strategy would be pursued in Vietnam. That is, low-tech labour-intensive industries would be highly prioritized in the early stage. The leading industries would be shifted to more high-tech labour-intensive industries progressively afterwards based on Vietnam's comparative advantage (JICA 1996b, 2-3). Meanwhile, the reality of Vietnam was far from that scenario. Manufacturing products existed but their percentage of GDP was quite low. The industries which had led the export-oriented industrialization of the ASEAN countries had not yet emerged. In sum, the pattern of the export-led industrialization achieved by advanced ASEAN countries had not yet been realized in Vietnam's industrialization (JICA 1996b, 1). These situations were confirmed by the statistical data of major export and import items being dominated by primary products and in the low contribution of the materials, capital goods and intermediate goods sectors.

One of the crucial points in this scenario for the development of industrialization was the treatment of capital-intensive industries that were given a higher priority in the draft FYP6. It was not realistic to consider that Vietnam with its large population size would continue to import capital and intermediate goods from abroad in the long run. In general, those industries would have a strong linkage effect on others and contribute to the further development of the industrial sector in the future. Meanwhile, it is certain that huge amounts of investment would be required for development of those industries while few jobs would be created. The investment in that industry was very risky for a country that was still in the early development stage. Therefore, it was thought that Vietnam would need to build a better understanding of industrialization in general and of the specific industries it wanted to develop. Also, building on that understanding, Vietnam would need to prepare a realistic masterplan of the development of the capital-intensive industry prior to decision-making on those investments. The timing of the commencement of the industrial plants and the scale of the plants would

need to be indicated clearly based on appropriate demand forecasts of the domestic and international markets. Then, Vietnam would need to make judgments about investment into specific industries on the assumption that the adoption of a prudent policy was maintained for the stable macroeconomy. In so doing, Vietnam would need to avoid investment failures (JICA 1996b, 3).

#### **4. Industrial Studies in Each Phase**

The focus of the industrial studies conducted in each phase shifted gradually to meet the changes in the latest domestic and external circumstances surrounding Vietnam. These can be characterized as follows: First, under Phase 1, the situation of the industrial sector in Vietnam and the industrialization policy laid out in the draft FYP were reviewed and the main issues to be dealt with were clarified. Then, new investment into capital-intensive industries was analyzed. The experiences of successful and failed investments made in other countries were learnt. Finally, based on those analyses, the conditions of investment were explored to avoid investment failures in Vietnam. On the other hand, the Vietnamese government was not familiar with industrialization in general and in the specific industries; however they were very keen to promote large-scale investment into the five capital-intensive industries in the enthusiastic atmosphere of the investment boom of the early and mid-1990s. Therefore, Phase 1 also assisted the Vietnamese side to build a basic understanding of the selected five industries. More specifically, this included their nature (e.g., structures of the industry, types of products and profit margins and costs), the technological options (e.g., electric furnaces or blast furnaces in the steel industry), the situations of domestic demand and supply, the current situation and forecasts of demand and supply; and investment in the neighboring countries including planned investment. The task was then to show the feasibility of the planned investments to the Vietnamese policymakers.

Phase 2 deepened the Phase 1 studies of the specific industries and added the perspectives of international and regional economic integration such as the ASEAN Free Trade Area (AFTA), the Asia-Pacific Economic Cooperation (APEC), and the World Trade Organization (WTO). The experience of AFTA was highlighted the most. Vietnam was required to reduce tariffs in the range of zero to five percentage points from 2006 in accordance with the tariff reduction schedule designated under the

Common Effective Preferential Tariff (CEPT) of AFTA. Building a better understanding of industrialization in general and the specific industries continued. Furthermore, the coverage of the studied industries was expanded. The automotive industry and export-oriented industries with high potential were added, based on the request by the Vietnamese side, in addition to the five capital-intensive industries. Phase 2 assisted the Vietnamese side to understand what kinds of commitments would need to be made under AFTA, what kinds of policy measures Vietnam would be allowed to take in promoting its industrialization, and what Vietnam would not be allowed to do. Phase 2 also dealt with what Vietnam would need to do before 2006 and what Vietnam would need to do after 2006 from the perspective of industrial policy. In this context, the necessity for the development of the industrialization scenario was emphasized and the scenarios were presented by each industry based on the updated information on the demand and supply in domestic and international and regional markets so that Vietnam could use the limited period more effectively.

In Phase 3, more in-depth studies on the selected industries were conducted, updating the latest information on the ongoing and planned investments in neighboring countries. The scenario was further elaborated. For example, the FDI issue was dealt with more boldly in Phase 3, focusing on international and regional production networks led by MNCs. Policy consistency was emphasized in one chapter of the final report. It was considered that Vietnam's negotiations on WTO accession and AFTA-CEPT had not been effective, in particular in relation to the tariff reduction schedule. Ideally, its schedule should be renegotiated, bearing in mind the industrialization strategies in more detail; for example, how did Vietnam assume the phasing of development of the key industries in line with a long-term roadmap; by when did Vietnam assume decision-making on investment would occur and in what type of project; and how did Vietnam want to lower the tariff rate progressively in a manner consistent with the roadmap and the timing of investment decision-making.

The difference in the industrial studies in each phase can be summarized as in Table 7.1.

**Table 7.1. Comparison of the Specific Industries Studied under the Project**

	Phase 1	Phase 2	Phase 3
Capital-intensive industries	Steel Oil refinery Petrochemical Urea fertilizer Cement	Steel Oil refinery Petrochemical Urea fertilizer Cement Automotive	Steel Oil refinery Petrochemical Urea fertilizer Cement Automotive
Export-oriented industries		Electric & electronics Tool and die industry Garments and textiles Ship repairs	Garments and textiles Footwear Electric & electronics
Cross-cutting issues	SME and indigenous industries	SME and indigenous industries	Possible measures for WTO-AFTA negotiation, and FDI attraction

Source: Author.

It could be said that Phases 2 and 3 were more scenario-oriented while the studies on the specific industries under Phase 1 were confined to sharing of the general knowledge about the industries and specific information on current and future demand and supply and planned investments in the East and Southeast Asian regions and to indicate a rough scenario of industrialization and investments in the specific industries due to time constraints.

## **5. The Stance toward the Controversial Issues in the Industrial Policies**

There were several controversial arguments on industrial policy in general and in regard to the Vietnam context at the time, such as the orientation of industrial policy (i.e., either horizontal vs. vertical), the policy stance towards international and regional economic integration, the infant industry argument, and the way to treat FDI. These arguments were actually made within the development cooperation agencies in Vietnam at the time. The following section describes how these critical issues were considered in the Ishikawa Project.

### **5.1. *Horizontal vs. vertical industrial policy***

According to Cohen (2009), two types of industrial policy can be defined: one is 'general business environment policies that have an indirect impact on industry – including macroeconomic and social policies, as well as capital equipment and national defense policies;' and the other is 'industrial policy which in the strict sense is a sectoral policy; it seeks to promote sectors where intervention should take place for reasons of national independence, technological autonomy, failure of private initiative, decline in traditional activities, and geographical or political balance' (Cohen 2009, 85). According to Lin and Monga (2013), the former can be labeled as 'horizontal,' and the latter can be labeled as 'vertical' industrial policy (Lin and Monga 2013, 21).

If we follow these categorizations, Vietnam apparently had a strong orientation towards vertical industrial policy. The Japanese team was neither positive nor negative toward industrial targeting. They simply accepted the following three facts although they were seriously concerned about the investment plans. First, historically speaking, almost all advanced industrialized countries had employed protection policy to foster heavy and chemical industries. Even if Vietnam attempted to do this in a similar fashion, that would not be so strange. Second, considering its population size, it was not realistic to imagine that Vietnam would not have any capital-intensive industries in the future and be required to continue the imports of such products from abroad in the long run. Third, the Vietnamese side was very interested in the selective industrial policy. It was likely that they would make investments in the capital-intensive industries even if the Japanese side were not supportive of their thoughts on the industrial targeting and the selected priority industries. The damage to the Vietnamese economy would however be more serious if those investments failed (JICA 1996b, 3).

From these viewpoints, the dichotomy arguments on horizontal vs. vertical industrial policies were avoided in the Ishikawa Project, and many resources were allocated to the discussion on industrial targeting based on requests from the Vietnamese side. Meanwhile, the horizontal perspective was not overlooked in the Project. The importance of the creation of the general business environment was well recognized and argued throughout the three phases. For example, the bottleneck factors of FDI attraction were analyzed including interviews with foreign investors.

The SMEs and support for indigenous industries were also argued under Phase 1 and 2 although those issues are not described in this chapter due to space limitations.

## ***5.2. International economic integration***

International and regional economic integration was considered essential for Vietnam's industrialization from the long-term perspective. At the same time, it was emphasized that Vietnam needed to bear in mind the pros and cons of its participation. Vietnam joined these integration frameworks as a late comer. Thus, there were more serious challenges Vietnam was required to overcome than the early joiner countries had faced in the past.

More specifically, first, the policy circumstances of industrialization for Vietnam were considerably different compared with those for the advanced industrializing ASEAN countries in the stage of their rapid economic growth from the 1960s to the 1980s. The feasible areas for industrialization policies were very limited for late industrializing countries such as Vietnam.

Second, when those advanced ASEAN countries had achieved their industrialization in the past, the orthodox policy sequence was the adoption of an import substitution industrialization (ISI) strategy at first, then a shift to an export-oriented industrialization strategy. However, when Vietnam started the industrialization process, the international economic integration framework was not so generous as to accept the adoption of an ISI strategy by the late comers any longer. Moreover, it was not generous about the adoption of an export-oriented industrialization strategy as well (JICA 1998a, 10-11).

Theoretically, Vietnam had three options for participation in regional economic integration. The first option was that Vietnam would simply follow the tariff reduction schedule under AFTA. The second option was Vietnam would explore space for its policy actions and promote infant industries as much as possible in a coherent manner within the GATT rules. The third option was Vietnam would adopt a hybrid approach of the first and second options. The third option was considered realistic under the Ishikawa Project. From this standpoint, various lectures were delivered step by step by the Japanese team from their general knowledge

of AFTA, APEC, and WTO relating to the advantages and disadvantages of Vietnam's participation in those framework, various arguments on the policies for industrialization, and possible development scenarios for the specific industries in accordance with the AFTA tariff reduction schedule (JICA 1998a, 8). In Phase 3, the possible response to the strong pressure of globalization was classified into the five-fold in one chapter of the final report: successful integration, gradual integration with ownership, big ban integration, reversal, and inconsistency and delay. By so doing this, Vietnam was encouraged to better prepare for international integration (JICA 2001).

### ***5.3. Infant industry argument***

The infant industry argument was also a crucial issue in Vietnam's context of economic integration. This issue was argued mainly in Phase 2. Under the CEPT framework, each member country of ASEAN was requested to categorize trade items into a three-fold list; the Inclusion List (IL) with a tariff rate of zero to five per cent, the Temporal Exclusion List (TEL) and the Exclusion List (EL). Then each country was required to reduce the number of the items in EL and shift them to IL in accordance with the tariff reduction schedule. In the case of Vietnam, the number of the items in IL was 857 and accounted for 39.1 per cent. The number in the TEL was 1,189, accounting for 54.2 per cent.

A critical issue was how rapidly Vietnam could complete this conversion from TEL to IL. If the trade sector were liberalized widely in a short period of time, little space would be left for possible policy actions in relation to the future development of infant industries which had not yet emerged at the time. This implied that Vietnam would need to continue the outsourcing typical of manufacturing in the garment and textile industries in the long run. From these viewpoints, it was considered that rapid trade liberalization without any long-term scenario of industrialization in general and for the specific industries should be avoided. Such liberalization would unnecessarily prevent the potential of Vietnam's industrialization being realized.

However, this does not mean that active industrial policies for the infant industries in an unlimited manner were recommended under the Ishikawa Project. There was a concern that those protection policies would regress Vietnam industrialization policies considerably against the movement

toward free trade. It was widely recognized that the disciplines brought by a free trade regime needed to be functional to improve the efficiency of Vietnam's industries.

Meanwhile, the existing FDIs in Vietnam were attracted to its domestic market protected under ISI. The rapid trade liberalization based on the desk theories would also have damaged their investment appetites in Vietnam seriously. From this viewpoint as well, the long-term scenario of industrialization needed to be designed based on the reality of the Vietnam's industrial sector (JICA 1998b, 49-50, 55).

## **6. The Main Characteristics of the Style of the Ishikawa Project**

The Ishikawa Project can be characterized in three ways: (i) adoption of the Joint Research style; (ii) thorough understanding of the internal situation and maximum respect for the will of the Vietnamese side; and (iii) a finely tuned response to enquiries from the Vietnamese side.

### ***6.1. Adoption of the Joint Research style***

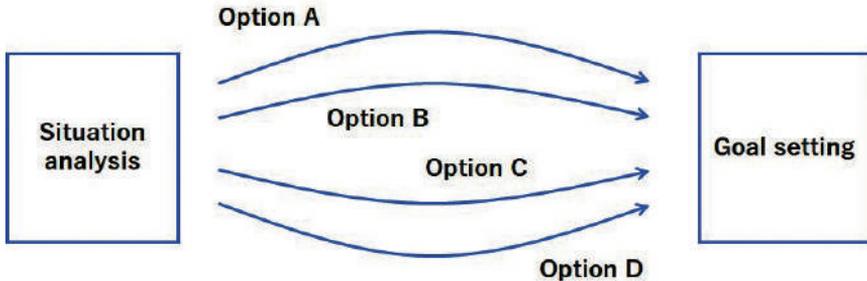
The Joint Research style was adopted in the entire Ishikawa Project. Under this style, the Vietnamese policymakers and the Japanese team worked together. On the Japanese side, the prominent academics of economics led by Ishikawa and experts with much practical experience were engaged in the Project, and on the Vietnamese side the policymakers responsible for drafting FYP directly participated in the Project. This 'Joint' Research was characterized by several unique relationships. This uniqueness was practiced in the industrialization issues as well.

First, a series of tasks were completed jointly; for example, how the current situations were analyzed, whether or not the goals to be set were relevant, what the alternative goals were if the goals to be set were not relevant, and how the set goals could be achieved. On industrialization, interviews with the domestic and foreign investors were conducted jointly.

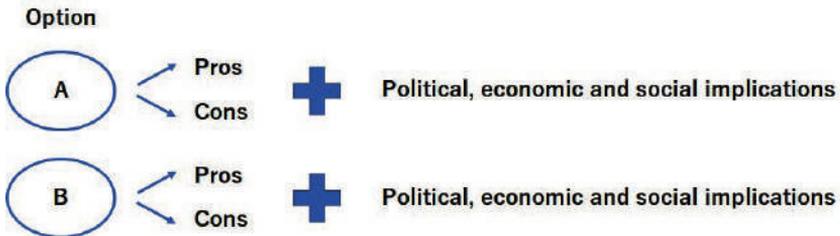
Second, the policy option approach was adopted. Both sides were engaged jointly in drawing up the future scenario of industrialization, following several steps. At first, various possible options of the paths were identified (Figure 7.1 (a)). Next, the pros and cons and political, economic,

and social implications of each option were examined. Finally, the final decision making was left to the Vietnamese side in selecting the policy options (Figure 7.1 (b)).

**(a) Joint work of the situation analysis, goal setting and identification of the available options:**



**(b) Examination of the pros and cons and implications by each available option:**



Source: Author.

**Figure 7.1. The Images of Options Approach**

Take the example of the scenario development of the steel industry in Phase 2. At first, a situation analysis of Vietnam’s steel industry at the time was conducted. Then, the nature and problems of the blast furnace mills were studied, referring to current and future demand and planned investments in neighboring countries. Last, several options for the possible investments were carefully examined, such as the options for blast furnace mills, direct reduced iron (DRI) production plants, new establishment of electric furnace mills with imports of scrap iron, and the new establishment of simple rolling mills with imports of iron billets.

## **6.2. *Thoroughly understanding Vietnam's internal situation and respecting the will of the Vietnamese side at maximum***

The internal situation surrounding the Vietnamese policymakers was accepted carefully by the Japanese side with sympathy. The Vietnamese policymakers had various internal issues such as the directions rooted in the way of economic management under communism, and the enthusiasm for industrialization and its related internal pressures on the policymakers within their ruling system. Moreover, they had challenges from the development perspective. Vietnam was still a country with low-income economy status. They needed to explore paths for long-term development in the complicated circumstances surrounding development and economic transition.

In this situation, the Japanese team respected the will of the Vietnamese political leadership and policymakers thoroughly, i.e., what agenda they wanted to set, what issues they wanted to argue concretely, and what they wanted to learn. Sometimes, there were cases where the Japanese team could not always support them in its heart. However, even those agendas were accepted by the Japanese team unless in extreme circumstances. These are exemplified as the North Wind and the Sun of the Aesop's Fables later in this chapter. Take the example of industry targeting and large-scale investments. Stereotyped and dichotomic arguments were avoided in the Project as stated already. The avoidance of dichotomic arguments was realistically a very natural answer. The reality of state building and industrial modernization was different from the desk thoughts devised by those who were not primarily responsible for policymaking and decision-making but could relax in a well-equipped office room. It was not realistic to consider as common sense that Vietnam should continue the import of manufactured products in the long run. Ishikawa said:

The approach adopted by the World Bank is theoretical approach which is drawn based on the economic theories developed from the experiences in the countries with well-developed market mechanisms. The Japanese team was sceptical about the simple application of those theories. It is essential to study and understand the situation of Vietnam at first. In this sense, this can be named the empirical approach. (JICA 2002, 65)

One Japanese team member said:

Protection policies for the capital-intensive industries were undertaken by any country including the advanced countries in the past. As a result, those industries are now established. However, the initial capital investment would have not been made without the government supports. Certainly, there existed many failure cases in those investments. A critical issue is the appropriateness of the development scenario of industrialization which would minimize the protection measures and the viability of the planned projects. If those protection measures were not implemented properly in a sound atmosphere in the society, the corruption would be occurred, and the protection measures would be continued un-necessarily in the long run. But those disadvantages should be considered separately. It is very natural for Vietnam with the large population size to consider not only the promotion of the export-oriented industries but also development of the capital-intensive and infant industries in accordance with its long-term development scenario. From this viewpoint, it is essential to avoid dogmatic dichotomic arguments driving Vietnam into the corner intentionally and to deal with these controversial issues in a realistic manner. (JICA 2002, 93)

The Japanese team emphasized the consideration and analysis of things in a neutral manner from the standpoint of the Vietnamese government. The Japanese team tried to respond to Vietnam's expectations sincerely with this spirit. During the Project period, various interviews with the Japanese MNCs were conducted in Vietnam and in the neighboring countries to advance understanding of the current situation and to explore the future direction of Vietnam's industrialization. Theoretically, there was a possibility that the Japanese team felt the dilemma of how to strike a balance between Vietnam's industrialization and Japanese bilateral economic interests. However, even in that case, a neutral position was kept throughout the Project. It was considered that the Ishikawa Project was an intellectual support under the technical cooperation program; it was neither a bilateral negotiation on trade and investment nor a lending program such as the conditionalities imposed by IFIs. Therefore, policy

advice needed to be made thoroughly from Vietnam's standpoint (JICA 2002, 94-95).

### ***6.3. A finely tuned response to enquiries from the Vietnamese side***

The Japanese team tried to respond to Vietnam's frequent enquiries through many rounds of communication such as visits, emails, and facsimiles, each time those were made. The Vietnamese policymakers were requested to answer various questions posed by the Politburos of the Central Community Party and other political leaderships (JICA 2002, 87, 90). They also faced some conflicting arguments and challenges within the country and from bilateral and multilateral donors. They needed to respond to these and sought timely suggestions from the Japanese team on how to deal with those things.

## **7. Achievements of the Ishikawa Project**

The way of confirmation of the impact of policy support can be very controversial. Donors of policy support are usually satisfied if the achievements made by the policy support could be observed in a tangible manner, for example, clear evidence in the final version of the national and sectoral development plan. However, in general, it is rather difficult to achieve this. An exception is policy support within the conditionalities or the policy matrixes under the financial instruments, such as the structural adjustment lending and development policy operations (DPOs). In this case, footprints are visible in the form of reformed policies and changes in the institutional framework. However, these tangible footprints will not always bring about sustainable results in the medium and long run because of the weak motivation of the recipient government toward reform. Policy reform cannot be purchased by money. In this sense, a clearer observation of policy support cannot be said to be a perfect answer.

On the other hand, in the case of policy support under technical cooperation without financial instruments, visible observations are rather difficult. There is no instrument for confirmation unless it is accompanied with a dialogue mechanism. Moreover, the situation is usually more complicated. Various government officials are involved in the drafting. Supposedly, some of them have experience of visiting abroad for academic studies and study tours. Also, support must be provided by various donors including

the IMF, the World Bank, the Asian Development Bank, UN agencies, and bilateral donors in the drafting process. Inevitably, the final version of the planning document becomes a mixed product of those inputs.

Returning to the Ishikawa Project, the situation was same. When FYPs were drafted by the Vietnamese government, many government officials were involved. And several Multilaterals and Bilaterals provided suggestions. Visible observation was not easy. One of the Japanese academic group members said, 'the essence of the intellectual assistance under technical cooperation is to provide ideas on what the desired policies look like to the Vietnamese government. Whether they adopt the presented policy ideas belongs to their sovereignty matter' (JICA 2002, 84). This saying is so true.

However, several achievements of the Ishikawa Project can be observed in relation to the entire project and the industrialization issue, respectively. On the entire Project, the main achievements were the intellectual contribution to the draft FYP, especially FYP6 under Phase 1. The policy suggestions to the Vietnamese government included that the target of the economic growth rate needed to be lowered; the role of the agriculture and rural development needed to be emphasized more; domestic savings needed to be raised; and both the modern industrial sector and the SME and indigenous industrial sector needed to be developed. The footprints of these suggestion can be observed in the final version of FYP6.

In addition, the inputs by the Joint Research seemed to have two effects for the Vietnamese policymakers. One was the effect on the image formulation of the roadmap of their economic transition process. The reform packages proposed by the IMF and the World Bank tended to focus on macroeconomic stabilization and structural adjustment excessively in the short- and medium-term. The way of thinking on the development of the market economy and the long-term scenario proposed by the Japanese team was missed in the IFIs thoughts. By contrast, the situation of Vietnam, which at that time was a low-income country in the very early stages of the development of a market economy, was fully understood, and the long-term development perspective was emphasized by the Ishikawa Project. The other one was the demonstration effect on policy development. One direction of policy development based on the analyses of micro-level studies on the ground in the Ishikawa Project was shown, whereas the structural adjustment programs seemed to be applied to

Vietnam by the IFIs in a prescriptive manner based on macro data and a pre-existing template package (Ishikawa and Hara 1999, 4-5). This was the process and the time-consuming work. That is why it was unique.

On the industrialization issue, it is also not easy to observe tangible footprints. However, several points can be raised. First, the scenario of industrialization was presented prior to Vietnam's serious start of industrialization. Vietnam was advised to follow a similar path of industrialization as in East and Southeast Asia; that is, low-tech labor-intensive industries would be nurtured and would develop as the leading export industries with the support of the government in the first stage and be replaced by high-tech labor-intensive industries afterwards in the second stage. FDI would play an important role in those processes. This scenario was remarkably simple. It would become a good suggestion to remind Vietnamese policymakers in the transition process of the orthodox path of industrialization. Also, the scenario-oriented approach would contribute to the preparations for international and regional economic integration, especially AFTA. That is, what Vietnam needed to do by 2006 and what Vietnam needed to do after 2006 in accordance with the agreed tariff reduction schedule of the CEPT.

Second, the learning effects for the Vietnamese policymakers would be great. When the Ishikawa Project was started in 1995, the development of a modern industrial sector was in the very early stages. Inevitably, the Vietnamese government did not have enough knowledge and experience of industrialization in general and the specific industries in particular. In this situation ambitious industrial targets were about to be set in the initial draft FYP6. Typically, the establishment of capital-intensive industries was placed as one of the top priorities without any consideration of the risks in large-scale investments. Under the Ishikawa Project, the three-typed general knowledge was enhanced among Vietnamese policymakers: (i) industrialization in general; (ii) the specific industries; and (iii) international and regional economic integration.

As for industrialization in general, various models were introduced such as the Lewis model and Feldman model as described earlier in this chapter. In addition, the experiences of industrialization of the East and Southeast Asian countries were introduced. Sharing this knowledge would support the Vietnamese policymakers to create an image of the long-term path of industrialization.

On the specific industries the basic knowledge on these was presented by the Japanese team, such as the types of products, the structure (including cost structures and profit margins), the success and failure experiences of investment in East and Southeast Asia including Japan, the current and future demand and supply (including the planned investment projects in neighboring countries), and the views of the foreign investors including the investment appetites in Vietnam and the neighboring countries in each industry in detail, on the five capital-intensive industries and export-oriented industries. Box 7.1 illustrates this knowledge sharing and the outlook for development of the specific industries in Phase 1.

This information is discussed to show how the industrial studies and related knowledge sharing were done very concretely and intensively from Vietnam's standpoint to achieve better policymaking and learning. These studies and practices were continued in a more elaborated manner as the Project progressed. This knowledge sharing supported Vietnam not only to build a better understanding of industries but also to come up with a clear and realistic blueprint for the development of the priority industries.

**Box 7.1. Knowledge Sharing and the Outlook for the Development of Specific Industries: The Case of Phase 1**

*Steel industry*

Vietnam was interested in the steel industry, especially in the establishment of blast furnaces, in 2000. The initial capital investment for the establishment of these plant was huge. A long period would be required for their preparation. Unless the plant could be operated without international competition, protection policies would also be required, and these would put burdens on the state budget and increase prices to consumers. The operational risk would be higher due to the increased exposure to price volatility in the international markets if the domestic market was not developed on a big enough scale. The iron and steel industry in ASEAN countries is mainly characterized by electric furnaces and rolling mills for domestic demand. The existing capital investment plans concentrated on the new development and expansion of medium-scale electric furnaces (up to one million tons annual capacity) and rolling mills in the region. The domestic reserves of iron ore could not be regarded as an

advantage from the experience of Japan and South Korea, which had successfully developed steel industries without those endowments. And if investment in the establishment of integrated blast furnace plants were made at this time, it would fail as a result of high costs because domestic demand had not yet reached the appropriate volumes and economies of scale would not be realized. Therefore, the investment needed to be made based on a carefully designed masterplan.

#### Oil refinery industry

Inherently, the oil refinery industry is characterized by thin profit margins. It needs to be operated in an integrated manner from the upstream to the downstream. If Vietnam were interested in the establishment of an export-oriented oil refinery industry, the location of plants close to the final source of demand is preferred to a location close to the oil fields as in the East and Southeast Asian regions. The Singaporean oil refinery industry is too strong for other countries to compete with in terms of cost. The consumption patterns and quality standards would depend on the individual countries. Thus, the location factor is important. Vietnam has a plan for the establishment of oil refinery plant through joint ventures with MNCs, but commercial viability needs to be secured. Thus, the feasibility of the plant would need to be examined carefully. The collaboration with FDI needed to be explored.

#### Petrochemical industry

In ASEAN countries, the investment in ethylene centers had been started by SOEs by the late 1980s. Upstream investments such as ethylene centers are inherently capital intensive and require huge investment. They tend to be affected by price volatility in the international market. Meanwhile, the creation of employment opportunities cannot be expected despite the huge amounts of investment. Thus, the timing of the investment would be crucial even though the petrochemical industry is important as a basic material industry. From the experiences of the neighboring ASEAN countries, at first, the development of oil refinery capacity needs to be prioritized prior to the development of a petrochemical industry. Then, the development of the downstream industries and its markets such as

resin processing should be considered next, followed finally by the development of the upstream investments such as an ethylene center. FDI needs to be utilized. However, even if Vietnam, a later comer in this industry tried to adopt the same path as the ASEAN countries, it would not always be able to follow this. Investment for increasing production capacity is now planned in the region. As a result, cost competitiveness would become a more crucial decisive factor for the survival of Vietnam's petrochemical industry than before.

#### Urea fertilizer industry

The urea fertilizer industry is important from the perspectives of agricultural policy and the use of the natural gas exploited in Vietnam. On the other hand, the urea fertilizer industry is another very capital-intensive industry. The profit margin consists of the raw materials, the capital investment in plant construction, and the level of utilization of the production capacity. Urea fertilizer is a typical international commodity, and the trade price would be affected by the price volatility of raw materials such as naphtha and natural gas. In addition, excess supply from the former Soviet Union countries could be expected. There was a possibility that the international market would fluctuate a lot in the next five years. Therefore, the investment needed to be examined carefully from the viewpoint of the forecast of demand and supply in the international markets and the degree of cost competitiveness in relation to international price volatility.

#### Cement industry

The cement industry in Vietnam has two advantages. First, it is basically indigenous due to the high transportation (shipping) costs incurred in international trade. Second, Vietnam is favored with better initial conditions of the endowments of limestone and the rapid increase in domestic construction demand. The amount necessary for initial capital investment is less than in the steel and petrochemical industries. However, the industry is characterized by machinery-driven undertakings. A lengthy period is required before they began to show a return on investment. In the case of Vietnam, the capital for the investment would need to rely on FDI for the moment under the state budget constraint. Thus, how FDI providers

see the potential of the Vietnam's market expansion including the physical infrastructure development and its business environment was crucial. Furthermore, when the investment plan was designed, not only the forecast of the demand and supply in the entire country but also the regions in Vietnam needed to be considered. The market outlook is usually varied depending on the region, and the operation of the cement industry would be affected by demand and supply in each region.

From the viewpoint of the Japanese team, in fact, only a few target industries and projects with the strong preference of the Vietnamese side were considered realistic in Vietnam's situation at the time, even if the government intervened by taking protection measures. Thus, when workshops were organized in Vietnam and Tokyo, the presentation materials were prepared carefully and the important points were explained repeatedly by the Japanese team, bearing in mind the facilitation of the learning process of the Vietnamese policymakers. When the Vietnamese government should not made investments and how any investments should be made and under what pre-conditions was also suggested. The repeated explanations were essential so that the Vietnamese policymakers could not only deepen their learning but also formulate a long-term industrialization vision.

On international and regional economic integration, the Japanese team was concerned whether the Vietnamese policymakers negotiated with WTO on its accession with enough understanding of the WTO (JICA 2002, 91). Therefore, the general knowledge on international and regional economic integration in such organizations as AFTA, APEC, and WTO was provided to the Vietnamese policymakers, and included more specifically what kinds of the commitments Vietnam was requested to fulfil under each framework and what the advantage and disadvantage of Vietnam's participation in those frameworks would be. For example, topics on the trade creation effect vs. the trade diversion effect from the static analysis viewpoint were covered. The promotion of industries vs. exposure to competition from the dynamic analysis viewpoint (including an infant industry argument, dynamics of the externality, and the discipline of free trade) was also considered. Furthermore, arguments on infant industry protection were deepened, for example through lectures

by the Japanese team on famous counter arguments against the temporal protection of infant industries such as the Mill-Bastable Criterion, the existence of market failures and government failures; and the criteria for selecting priority industries such as the productivity-growth criterion, the income elasticity criterion, low set-up costs, and low import requirements (JICA 1996b, 109-18).

To this end, various input papers were produced by the Japanese academic group for learning purposes as below (Table 7.2). The experience of various countries such as Japan, China, and the ASEAN neighbors were examined in a comparative way as much as possible so that Vietnam could understand those options more deeply and design a realistic long-term scenario for its industrialization.

**Table 7.2. List of the Input Papers on Industrialization**

Phase	Intellectual Inputs
Phase 1	<ul style="list-style-type: none"> <li>• A paper on the new external economic environment of Vietnam: the commitment to the free trade and necessity of industrial policy (by Kenichi Ohno, August 1995)</li> <li>• Analysis of Revealed Comparative Advantage (RCA) of Vietnam's industries</li> <li>• The Experiences of Japan and China relating to the issues of Vietnam's new Five-Year Plan (by Shigeru Ishikawa, January 1996)</li> <li>• Comments on the major industries (Steel, oil refinery, petrochemical, cement, urea fertilizer)</li> </ul>
Phase 2	<ul style="list-style-type: none"> <li>• The policy options and its implications for development of the capital-intensive and infant industries in Vietnam (by Daiwa Research Institute). *The automobile and its parts industries, steel, oil refinery, petrochemical urea fertilizer, and cement industries</li> </ul>
Phase 3	<ul style="list-style-type: none"> <li>• The significance and critical issues around Vietnam's WTO accession</li> </ul>

Source: Author.

The joint research in itself was an effective vehicle equipped with an instrument for facilitating the learning process. Using these processes, the learning of the Vietnamese policymakers was carefully ensured. These learning effects were very important. One member of the Japanese team said:

Vietnam had a strong preference for industrial targeting to the capital-intensive industrial projects simply because those industries were regarded as a symbol of industrialization. However, in fact, Vietnamese policymakers seemed to be

muddling through the planning work of industrialization without carefully designed plans in the Phase era. At one time, they confronted the withdrawal of a MNC from the investment in an oil refinery plant and were in trouble with what to deal with the pipelines of the large-scale investment. Against this situation, we considered it inappropriate to draw a simple conclusion of whether Vietnam should make investments or not. The knowledge and actual experiences necessary for planning and implementation of large-scale investments were not accumulated among the Vietnamese policymakers at the time. Thus, various opportunities of interviews with domestic and foreign investors were arranged for them. Following those processes, the general knowledge level of industrialization and the specific industries were raised among the Vietnamese side. Finally, the recognition gap on the large-scale investment plans of capital-intensive industries was gradually reduced in the Phase 2 era. (JICA 2002, 88-89, 95)

This knowledge sharing contributed to Vietnam's nurturing the development scenario of industrialization from a more holistic perspective. It is rather difficult to show evidence on the learning effect. However, this effect was testified by a Japanese member directly involved in the Project, and the implementation of too-ambitious investment projects was avoided.

## **8. Sharing Experiences from the Ishikawa Project for Future Policy Support**

The Ishikawa Project was an important experience for the various policy support projects implemented by JICA afterwards, such as the subsequent National Economic University (NEU)-JICA Joint Research Project in Vietnam and those in other countries. That experience is referable and applicable not only for JICA but also for the donors providing policy support at present and in the future when they design and implement support on the ground. At the same time, those experiences are useful for the (prospective) recipient developing countries when they receive assistance now or plan to receive policy support from donors in the future, for example, on what they seek in donor policy support, what kinds of spirit and attitudes are required, what kinds of approaches and styles are

suitable in each country's context, and how the institutional frameworks need to be set up. In this section the key experiences are summarized for donors and the recipient governments, respectively. Those from the Ishikawa Project as a whole were not confined to these points.

### ***8.1. Sharing experiences for the donors and the recipient governments***

Four experiences can be emphasized. First, the issue of 'inevitability' needs to be solved on both the recipient and donor sides. In general, there are no reasons why the recipient government needs to be intervened in domestic matters such as policymaking by the foreign countries and expatriates, or to listen to and accept the recommendations of the foreign countries. In other words, it can be called legitimacy or justification that the recipient governments become ready to accept intervention of foreign countries into their domestic policy making. On the other hand, from the standpoint of donors, similarly, these need reasons why they are required to allocate their resources and be involved in the policymaking of the foreign government. Policy support cannot be implemented without the presence of these two actors. The recipient countries aspect is especially crucial because in general to establish this relationship, the recipient government needs to feel comfortable with receiving suggestions and recommendations from external actors.

In the case of the Ishikawa Project, the Vietnamese government sought third-party opinions on policy and asked Japan to play such a role while they received the policy reform package from the IMF and the World Bank. From the Japanese standpoint, Japan (JICA) had been willing to assist Vietnam's economic transition after the Vietnam Country Assistance Study from 1994 to 1995, and the visit of Do Muoi to Japan and were officially requested to support them directly. Therefore, they were ready to support Vietnam naturally upon the official request.

Second, building trust between the two sides is essential in policy support. However, trust building in general terms is not enough. The type of trust building is very crucial in the context of policy support. Generally speaking, when donor assistance is started, the conclusion of the agreement between the recipient and the donor country governments is a 'must' pre-condition. Based on this, trust is built at the government level. Another important element for effective policy support is that trust

also needs to be built at the personal level between the higher level of political leadership and the leader of the donor team on top of the pre-conditions of the government level trust building.

From this viewpoint, many people might consider that policy support should not be implemented if it relies on a personal relationship. But in reality, the person-to-person relationship between the recipient and the donor team exists and needs to be another 'must' pre-condition. In the Ishikawa Project, such a personal relationship between Do Muoi and Ishikawa existed. For example, several meetings between Do Muoi and Ishikawa were arranged in Hanoi during Phases 1 and 2. In September 1995 after the start of the Project, a lecture on the Report of JICA's Country Assistance Study to Vietnam was delivered by Ishikawa to Do Muoi and a lecture was delivered to the Politburo of the Communist Party of Vietnam respectively in Hanoi. This relationship was taken over to the successor of Do Muoi. When Ishikawa visited Vietnam in 1998, meetings were held with Le Kha Phieu, the Chairman of the Central Community Party, the successor of Do Muoi, Sang, the Vice-President of Vietnam, and Trần Xuân Gi, the Minister of Planning and Investment, respectively. Through those face-to-face meetings, the Japanese team could obtain important opportunities to listen to the voices of the top political leaders directly, feel the latest atmosphere and share the Japanese views on Vietnam's industrialization with them.

Third, both sides need to have sincere attitudes in mobilizing comparative advantage fully and assisting each other. To this end, the Japanese team made its best efforts to have the same eyes as their Vietnamese counterparts in the Ishikawa Project. By so doing, the output of the Project could be maximized (JICA 2002, 72-73).

Fourth, transparency of the process and outputs of the policy supports needs to be secured as much as possible. Certainly, there is the political sensitivity in the policy support. As a result, the recipient government would be reluctant to disclose the process and the suggestions presented by the specific donors to other donors.

In the case of the Ishikawa Project, to be honest, the Vietnamese government was not always positive about requests of disclosure from the Japanese side and the international organizations by the midpoint of Phase 2. The information sharing of the process and the inputs to the

Vietnamese side were not enough in relation to other policy supports by those international organizations, although Vietnam's stance on the disclosures was adjusted gradually in the later stages. Inevitably, the exchange of views was not made sufficiently strongly with the international organizations. Misunderstanding sometimes occurred among the international organizations about the Japanese stance on the controversial issues of industrialization. One Japanese academic group member said:

The policy options on the large-scale investment plants in the five capital-intensive industries made clear the fiscal burden and the size of the risks for the Vietnamese side and the pre-conditions that needed to be fulfilled prior to the investment. Furthermore, those proposals were not implicitly positive substantively. However, criticism was raised by an international organization at one time. It insisted the policy options produced by the Ishikawa Project would be utilized by the protectionists in the Vietnamese government and would assist their taking protection measures unnecessarily although they understood the logic of the Japanese side. This shows the sensitivity of this issue. (JICA 2002, 92)

As a result, frustration about the Project accumulated among the international organizations. To resolve this situation, the representatives of the international organizations were invited to the workshops in Hanoi and Tokyo from the midst point of Phase 2. Furthermore, the Japanese team came to exchange views with them almost every time they visited Vietnam. By repeating these efforts, a common understanding between the Japanese side and the international organizations was built gradually on the necessity of a long-term scenario for Vietnam's industrialization as well as the transition speed to a market economy and the basic direction of the country's industrial and trade policy. These processes contributed to filling the recognition gap not only between the Japanese team and the international organizations but also between the Vietnamese government and the international organizations.

## **8.2. Sharing experiences with the donors**

Five experiences can be emphasized for the donors. First, it is essential

to fully understand the situation surrounding the counterparts of the recipient. Every country has its own internal issues. The way to set agendas is important at first. It is essential to respond sincerely to what the recipient side really wants, thereby keeping the recipient's motivation and their commitment to the design and implementation of reforms under the policy support. Those things cannot be purchased by money as already argued. The policy support for industrialization is inevitably accompanied by stereotyped arguments on whether the state should intervene in the industrialization process and what the industrial policy looks like, either horizontal or vertical. How donors deal with those unpopular policy issues proposed by the recipient governments can be a problem. Donors need to think realistically. The recipient government will adopt unpopular policy and make investment decisions, ignoring the donors' objections as far as they believed in the necessity for those policies. As a result, the recipient government will fail to implement them and waste their public money in the worst-case scenario. That situation must be miserable.

This can be exemplified by the North Wind and the Sun part of Aesop's Fables. If we followed the North Wind approach, the donor will push its own thought in accordance with its own beliefs regardless of the preferences of the recipient. If we follow the Sun approach, the donor will accept the thoughts of the recipient government once at first even if they cannot share those thoughts; then follow the process of the joint work in policy support with the recipient counterpart officials; and let the recipient policymakers have a better understanding and become aware of and make corrections in their views and policy orientations in a natural manner, instead of pushing their own brief to the recipient government and raising their objections. In the case of the Ishikawa Project, the role of the Project was the Sun in the North Wind and the Sun of the Aesop's Fables on the arguments against the vertical industrial policy.

Second, how the donor wants to observe the impacts of the policy support is critical. Of course, the answer on this question can vary depending on each case, and there is no single answer. However, in general, donors tend to expect tangible outputs from policy supports, and desire to easily find clear evidence to show which policy recommendations are reflected in which parts of the policy documents finally and how their policy orientation and actions are changed based on which policy recommendations are made from donors. If we follow this standpoint,

policy support will be judged less influential unless tangible outputs are confirmed on a documented basis. In the case of the Ishikawa Project, those arguments take place in Japan even at present. However, there are few governments that are willing to copy and paste the knowledge provided by foreign agencies and expatriates simply to their key policy documents such as FYP, and to acknowledge the facts of this copy and paste officially as far as their sense of state sovereignty is strong enough. Also, the complicated nature of the mixed product in the drafting process exists as described already. The learning effect is more important rather than the superficial tangible outputs, depending on the types of policy support. This stance of the donor will contribute to the trust building between the two sides.

Donors are also eager to confirm the reputation of the policy support through interviews with various stakeholders, for example, with a wide range of the key ministries of the recipient. If those interviews are conducted during the project, those officials would be aware of the support directly or indirectly. However, if the interviews were conducted one or more than one decade later after the completion of the policy support, memories of the support will be diluted along with the change in the generations of the key policymakers. Good or bad, that diluted situation will be very natural. Those interviews after many decades later cannot be said to be fair for the proper judgement of the value of the policy support.

Third, the approach in making policy options or policy spaces needs to be explored. The way of presenting the policy ideas should not be prescriptive. Ideally, whether a wide range of policy spaces can be presented is important in the policy support area although pursuing the number of policy spaces should not become the objective. For every country regardless of whether they are developed or developing countries, it is very risky to accept and carry out single policy recommendations that no one knows if the recommended policies will fit in the country's context and be effective. This is an issue relating to the donor's good sense that is directly linked with the donor's stance over policy support. Ideally, the donor is expected to present multiple policy options to the recipient country's policymakers and examine the pros and cons and the various implications (e.g., political, economic, and social) of each option carefully together with them and leave space for the final decision making by the recipient.

Fourth, the main actor on the donor side in policy support matters, in particular in the case of policy support under technical cooperation. One way is the effective combination of academics and practitioners with much experience in the relevant fields. The reason for academics is that it is important for the recipient government to be able to ask various things from A to Z very easily almost without hesitation. In this sense, university professors (including associate professors) tend to be the right person. They are ready to lecture and their counterparts are ready to listen and ask in a natural atmosphere about the author's experiences. In addition, practitioners need to be combined. Their on-the-ground knowledge and direct experiences and feelings on policy making and implementation are valuable. Development consultants can also be useful although the costing implications of their policy support need to be considered carefully. Finally, the personal character of those actors must be ultimately important, i.e. whether they are ready to do something for others from the recipient standpoint, and not be prescriptive.

Fifth, the style of the output reports is very important in policy support from the viewpoint of direct and indirect policy impacts. The outputs can be utilized by the political leaders and policymakers reading them. In some cases, a huge amount of material may be produced by donors in support of their policies. However, many volumes of these reports do not always guarantee a better understanding of the recipient policymakers on what the donor wants to tell, and better impacts of the policy supports proportionally, even if there are good quality reports. The extremely busy political leadership and policymakers cannot read them simply because the reports are bulky and there is no time.

The Ishikawa Project should accept criticism sincerely on this particular matter. It produced a large number of reports in each phase from 1 to 3. Those were quality reports. However, they were excessively bulky. The output report of each phase consisted of many volumes, and the output report on each topic under each phase consisted of too many chapters.

Sometimes, it was rather difficult for outside people who were not directly involved in the Ishikawa Project, to distinguish which volume the synthesis report was and which ones the working papers were. Unfortunately, the languages were in Japanese and English only. The Vietnamese translation was categorized as part of the responsibilities of the Ministry of Planning and Investment (MPI). As a result, some reports

were translated into Vietnamese, but others were not. To avoid those situations, a quality flagship report needed to be prepared and delivered effectively to Vietnam's political leadership, the key policymakers, and the research institutes so that they could have read it and understood the key messages easily. One of the typical skeptical comments on the effectiveness of the Ishikawa Project was closely linked to the huge volumes of the reports produced and the languages they were available in.

### ***8.3. Sharing experiences for the recipient governments***

For the prospective recipient governments of the policy support, the demonstration of national ownership and leadership by the government is necessary as a matter of course. This is widely accepted in the development community already. Thus, we do not touch upon those issues here. Instead, three points are emphasized based on the experience of the Ishikawa Project.

First, it is extremely important for the recipient government to set up an effective institutional framework to receive the policy support. The appointment of a responsible official who is ready to be engaged actively in policy support is a key. The donor side needs to organize a team consisting of qualified members from academics and practitioners. Unless the recipient government appoints a suitable official in their counterpart team, policy support is not implemented effectively.

In the case of the Ishikawa Project, MPI played a central role in the Project because it was primarily responsible for the drafting of FYPs and the Ten-Year Strategy. In that sense, it can be said the MPI was the right ministry for the project on the Vietnamese side. However, there were spaces for further improvement in terms of who was expected to join the counterpart group working with the Japanese team. In addition to the MPI, policymakers from the line ministries and research institutions were expected to be more involved. MPI assigned the directors of the External Relations Department and the thematic Departments in the relevant fields of the Project. However, the line ministries were involved to a limited extent although they, as well as developing sectoral strategies in line with the FYP and the Ten-Year Strategy, were responsible for its implementation, and had been accumulating information and knowledge on the ground at the sectoral level. The Japanese team felt frustrated because they could

not obtain the information necessary for conducting the situation analysis and coming up with policy suggestions directly from the relevant line ministries although this coordination was improved to some extent in the later stages of the project.

Second, it is essential to design the composition of the member team conducting research jointly with the donors' research team carefully if policy support will follow the Joint Research style. In the case of the Ishikawa Project, in order to make functional the element of 'joint' in the Joint Research, the Vietnamese counterparts of the researchers needed to have a strong background in research activities such as analysis and writing following the academic style. The Ishikawa Project expected the government policymakers of MPI to play such a role. However, this expectation for the policymakers to do so was not always realistic when we consider their comparative advantages and disadvantages. There were quite a few officials in Vietnam at the time who could have contributed to those aspects but were not included.

Probably, the role of the government policymakers should have been played differently from the way the Project had expected, based on their comparative advantage. For example, the government policymakers had their own holistic views and had contributed to the Project in different areas other than the joint research activities based on the academic style. This problem would have happened even if the involvement of the line ministries had been increased if the members from the line ministries did not have a strong academic research background. To solve this problem, it is necessary to combine government policymakers and researchers from the research institutes and universities, and specify the different roles need to be given to each, thereby making sure that they complement each other.

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## Ethiopia-Japan Industrial Policy Dialogue: Learning Eastern Methods through Intensive Discussion and Concrete Cooperation

Kenichi Ohno and Izumi Ohno

### 1. Introduction

With a per capita income of 856 US dollars as of 2019,<sup>1</sup> Ethiopia remains a low-income country with a weak private sector, imperfect policy, and poor business conditions. Nevertheless, it embraces high aspirations for national development, and has in the last two decades pursued a development strategy quite unique in Africa. Prime Minister Meles Zenawi (in power 1991-2012) in his later years and Prime Minister Hailemariam Desalegn (in power 2012-18) adopted a developmental state model that actively guided and selectively promoted private industrial activities. For this purpose, the Ethiopian government eagerly sought policy experiences and lessons from East Asia, while rejecting the neoliberal doctrine of the World Bank and the International Monetary Fund (IMF). Korea first and Japan later were consulted in formulating industrial strategies and concrete policy actions including *Kaizen* and export promotion. Meanwhile, rapid construction of power and transport infrastructure progressed, often with Chinese assistance as well as economic cooperation of other bilateral and multilateral partners. From around 2008, foreign investments in light manufacturing began to pour into Ethiopia, to which the government responded by building a large number of state-owned industrial parks as their receivers. As a result, Ethiopia has emerged as a dynamic latecomer economy featuring a development philosophy, policy effort, and growth performance which resemble those of East Asia's past and present latecomers rather than its African peers.

Despite these achievements, Ethiopia's economic transformation has been slow. Targeted and subsidized manufacturing subsectors such as

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<sup>1</sup> Gross national income (GNI) per capita, measured by the World Bank Atlas method (World Development Indicators database).

garment, leather, and food processing remain small and stagnant. The manufacturing sector remains small and its share of GDP fluctuates at 4-6 per cent. Active promotion of these key subsectors did not produce a visible increase in manufactured exports. Exports continue to be dominated by primary commodities such as coffee, sesame, oil seeds, chat, and gold. The overall export trend is flat, and the balance of payments is perpetually in huge deficit. These disappointing results are contrary to the experiences of high-performing economies in East Asia, where rapid rises in manufacturing output and export were attained. This lack of industrial performance constitutes a serious challenge for Ethiopia as it aims to reach lower middle income by 2025.

This chapter assesses the evolution of Ethiopia's policy learning from the East, considering both its positive and negative aspects, from the perspective of one of its policy dialogue partners, the National Graduate Institute for Policy Studies (GRIPS) Development Forum. The GRIPS Development Forum is a Tokyo-based research unit which has conducted Ethiopia-Japan industrial policy dialogue continuously and intensively since 2008 in close cooperation with the Japan International Cooperation Agency (JICA). Special attention is given to the seriousness of national leaders to learn from Japan and East Asia, and the approach taken by the Japanese side which was interactive, hands-on, and pragmatic.

The remainder of this chapter is organized as follows. Section 2 reviews the history of Ethiopia's industrial policy. Section 3 explains the features of Japan's policy dialogue with developing nations and the particular modality adopted in the Ethiopian case. Section 4 discusses how the policy agenda evolved from the first phase to the third phase of bilateral policy dialogue under the governments of Prime Minister Meles and Prime Minister Hailemariam. Section 5 considers the industrial cooperation of development partners in Ethiopia other than Japan. Section 6 deliberates on the policy style and economic prioritization of the current government of Abiy Ahmed. Section 7 describes the historical flying geese pattern of development in East Asia and implications for Ethiopia in the absence of such a regional network in Africa. Finally, in Section 8, remaining challenges to Ethiopia's industrialization are enumerated from the East Asian perspective.

## 2. History of Ethiopian Industrial Policy

Ethiopia's industrial policy has evolved dynamically in the last three decades as policy goals and economic landscape continually changed. Under the government of the Ethiopian People's Revolutionary Democratic Front (EPRDF) which came to power in 1991, the weight of policy attention shifted gradually from building a new nation to promoting economic development and transformation.

In 1991, when the oppressive Mengistu government was toppled by military force, the first task of the interim government was building a new nation amidst the social and economic damage caused by the previous regime. This included restoring peace and stability, creating a federal state, drafting a new constitution, resuscitating the suppressed private sector, and re-connecting with the outside world for aid and support. The Ethiopian-Eritrean War (1998-2000) and continuous food shortage also nagged Ethiopian leaders. But even in this early period, the government drafted in 1994 a document entitled 'An Economic Development Strategy for Ethiopia,' which proposed Agricultural Development Led Industrialization (ADLI) (FDRE 1994). This was a strategy to create active interaction between agriculture and industry, with the weight of the latter increasing over time. However, in reality, ADLI was not adopted as a key policy strategy in the first decade of the new government. Politics, war, hunger, and other urgent priorities superseded.

According to Prime Minister Meles, it was around 2002-03 that the Ethiopian government judged that the issues related to national survival were largely under control, and time had come to turn seriously to economic development. A series of strategic documents were drafted including the Ethiopian Industrial Development Strategy, the Urban Development Strategy, and the Rural Development Policies, Strategies and Instruments. Among these, the Ethiopian Industrial Development Strategy emphasized (i) the leading role of the private sector; (ii) ADLI, (iii) export orientation; (iv) prioritization of labor-intensive sectors; (v) balance between local and foreign direct investment (FDI) firms; (vi) strong state guidance; and (vii) all-nation mobilization (FDRE 2002).<sup>2</sup>

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<sup>2</sup> These were the seven policy pillars in the Ethiopian Industrial Development Strategy. In our bilateral policy dialogue, Prime Minister Meles confided that he personally 'had a hand' in drafting this and other documents.

Prime Minister Meles proved to be an avid learner and practitioner of industrial policy. From around 2003, Ethiopia began to learn about East Asia's developmental experiences. Learning was done through books and articles as well as by sending young officials to the Korea Development Institute (KDI) School in Seoul.<sup>3</sup> Taiwan was another model for Ethiopia but direct access was difficult. Prime Minister Meles himself often made speeches on development models, and participated in international conferences and research projects on industrial policy including the Democratic Developmental State in Africa project hosted by the Center for Policy Studies in Johannesburg, and the African Task Force of the Initiative for Policy Dialogue organized by Professor Joseph Stiglitz of Columbia University and supported by JICA. Prime Minister Meles generously spent his time with foreign researchers who helped to deepen his industrial knowledge. He read their books and papers, and exchanged letters and emails with them. Besides Joseph Stiglitz, his list of foreign advisors included Mushtaq Khan (University of London), Dani Rodrik (Harvard University), and the present authors of GRIPS, among others.

As a result of initial learning, the monthly National Export Steering Committee was established in 2003 and began to be used actively to monitor progress in export promotion (Oqubay 2015). This was a mechanism copied (in a modified form) from Korea in the late 1960s to the 1970s under President Park Chung-hee. Separately, support functions for specific sectors such as textile, leather, metals, and horticulture were established as directorates of the Ministry of Trade and Industry and other ministries, which were later upgraded to Institutes. These key sectors received considerable policy attention, budget allocation, and donor support.<sup>4</sup> Productivity tools that were not exclusively East Asian such as balanced score cards, business process re-engineering, benchmarking, and institutional twinning were also introduced, often with donor support.

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<sup>3</sup> Prime Minister Meles instructed officials dispatched to the KDI School to copy all materials provided and send to the Office of the Prime Minister for his perusal. However, Prime Minister Meles later acknowledged that Korea after the 1997-98 financial crisis no longer embraced the developmental state model which he wanted to study, and instead turned to neoclassical policy formulation (policy dialogue, October 14, 2008).

<sup>4</sup> Even before industrial policy dialogue with Japan began in 2008, the Netherlands was helping Ethiopia to foster floriculture, which grew to be a successful export industry (Oqubay 2015). The UNIDO and Italy assisted the drafting of *A Strategic Action Plan for the Development of the Ethiopian Leather and Leather Products Industry* in two volumes in 2005, which to Japanese experts was too detailed and plan-oriented. China supported the drafting of a master plan for the textile and garment sector. Neither of these documents was actually put into practice.

None of these, however, had a lasting impact on growth performance or industrial transformation.

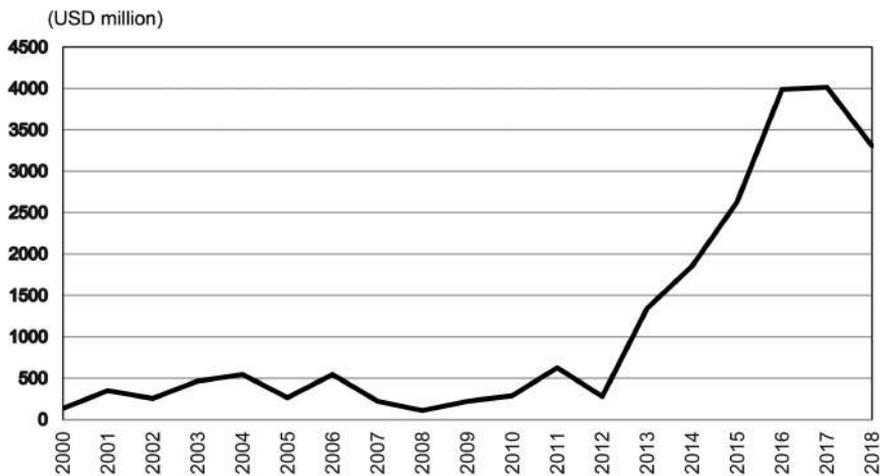
Although the idea of ADLI was mentioned in the first and second national development plans of the 1990s, it was the Sustainable Development and Poverty Reduction Program (SDPRP) 2002/03-2004/05 that tried to concretize the ADLI strategy by introducing agricultural extension services and staff training, farmer training, water harvesting and irrigation, marketing, peasant cooperatives, and micro finance. However, farm productivity failed to improve and output was heavily dependent on the amount of rainfall. Policy makers realized that targeting only smallholder farmers in rural areas was insufficient. In the subsequent Plan for Accelerated and Sustained Development to End Poverty (PASDEP) 2005/06-2009/10, the policy scope was considerably enlarged to cover industry, the urban sector, private sector development, and commercialization of large farms. Encouraging results were obtained in the first few years, but growth slowed down subsequently while inflation and foreign currency shortage worsened in the latter years of the PASDEP period. Even though overall growth remained relatively high, industrial and agricultural transformation did not happen.

In 2008, industrial policy dialogue with Japan was started and, in 2009, JICA began to cooperate in *Kaizen*, a Japanese method to improve workplace efficiency. At the same time, through Ethiopia's energetic top sales effort and investment promotion, labor-intensive manufacturing FDI began to arrive in Ethiopia from emerging economies. This investment wave was spearheaded by Turkey, India, and China, followed by investors from the United States (US), the European Union (EU), Taiwan, Korea, Indonesia, Sri Lanka, and Bangladesh. The arrival of Ayka, a large-scale integrated knitted apparel manufacturer from Turkey, in 2009 was the game-changer, prompting many other Turkish apparel firms to invest in Ethiopia.<sup>5</sup> Foreign manufacturers were attracted mainly by Ethiopia's low-cost labor, privileged access to EU and US markets, and the government's

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<sup>5</sup> It should be added that many of these Turkish apparel projects were bankrupted within a decade and are currently in the custody of the Development Bank of Ethiopia, their main lender. For Turkey, which faced rising wages at home, Ethiopia was the first major destination for external investment. The Ethiopian government offered generous policy loans to Turkish firms, the amounts of which were excessive relative to their business prospects. This led to over-investment and eventual loan default. Turkey was thus unable to become a 'flying goose' in Africa. Such collective failure did not occur in the case of Indian or Chinese investors.

industrial support and commitment even though the general investment climate remained far from satisfactory. Ethiopia thus emerged as one of the favored destinations for light manufacturing. FDI inflows to Ethiopia increased sharply during 2009-17 from 109 million US dollars to 4,017 million US dollars (Figure 8.1). But the volume of FDI inflows is still small compared with the massive and continued FDI inflow into East Asian economies.<sup>6</sup>



Source: Authors' compilation using the UNCTAD statistics. The Japanese policy dialogue team has been unable to construct a consistent FDI time-series from the national data even after many inquiries and interviews.

**Figure 8.1. FDI Inflows to Ethiopia**

To seize this historical opportunity, the government introduced a number of new policy initiatives. The country's investment proclamation and regulation were revised. FDI administration was centralized and strengthened at the Ethiopian Investment Commission (EIC), which was placed directly under the Prime Minister. Many government-owned industrial parks and their managing authority—the Industrial Park Development Corporation (IPDC)—were created, and zero liquid discharge technology and one-stop services for investors were adopted at these industrial parks. The state-run Hawassa Industrial Park has

<sup>6</sup> Ethiopia's FDI inflow is on the order of a few billion dollars per year (implementation basis) while FDI inflows into Southeast Asian nations such as Thailand, Indonesia, and Vietnam are on the order of tens of billions of dollars on approval basis, of which roughly half materializes in actual implementation.

become Ethiopia's flagship industrial estate whose successes and lessons are to be replicated in a dozen-or-so proposed state-run industrial parks (Oqubay 2015). Other parks for agro-processing and for small and medium enterprises (SMEs) are also under construction, and large national projects of an integrated steel mill and petrochemical complex are being contemplated. The quality and productivity of industrial workers have become critical issues. Meanwhile, the private construction boom continues and aggressive public investment programs have built hydraulic power plants, express ways, railroads, highways, and so forth, often with support of China and other donors.

Backed by these achievements, by around 2010 the main thrust of development planning shifted from poverty reduction to industrial catchup and transformation. The five-year plan document was renamed the Growth and Transformation Plan (GTP) 2010/11-2014/15 (FDRE 2010). In the following GTP II 2015/16-2019/20, a vision for 'becoming a leading nation in light manufacturing in Africa in particular and in manufacturing in general' was inserted (FDRE 2016). At the same time, heavy industries and import substitution sectors with large expected domestic demand would also be promoted. By now, Ethiopia's industrial policy issues have come to closely resemble those of FDI-led industrializing economies in Southeast Asia.

### **3. Systematic Learning from Japan and East Asia**

As explained in Chapter 1, since the 1980s Japan has been providing development policy support to a dozen partner countries. The objective and nature of development policy support range from policy advice on medium- and long-term development strategies to action-oriented emergency advice in response to economic crises, differing according to the prevailing situations within partner countries. Despite differences, this support often includes a component of policy dialogue with national leaders and key policymakers. Ethiopia-Japan industrial policy dialogue is a typical example where intensive bilateral dialogue has been conducted for more than ten years.

Here, we define policy dialogue as custom-made intellectual cooperation between a developing country and an advanced country, held regularly over a few to several years with an open, evolving, and action-oriented agenda for promoting the economic development of the former. It is a

flexible consultative mechanism Japan often employs in East Asia and elsewhere,<sup>7</sup> but Ethiopia is the first country in Africa where Japan has applied such a mechanism (Ohno and Ohno 2019). The coverage of policy support varies depending on the needs and requests from partner countries. While Ethiopia-Japan policy dialogue focuses on industrial development, the Okita Report in Argentina (Chapter 6) and the Ishikawa Project in Vietnam (Chapter 7) dealt with broader topics in economic development including the macroeconomy and agriculture.<sup>8</sup>

The Japanese development policy support in general and its policy dialogue in particular are deeply rooted in Japan's past experience as a latecomer nation as well as the history of its development cooperation (Ohno and Ohno 1998; Ohno 2013). Japan's policy dialogue is unique in several aspects. First, it aims to strengthen the state's role and policy capacity in industrialization rather than reduce the scope of government intervention. Second, there is no predetermined format or agenda. Policy consultation and knowledge sharing are tailor-made to each country through a highly interactive process. Policy dialogue usually starts with a national leader of a developing country requesting that Japan discuss developmental strategies generally or share and transfer particular experiences of East Asian development. This differs from standard technical assistance projects with narrowly and meticulously prescribed terms of reference. It is also unlike many seminars and study visits sponsored by advanced countries to show off their achievements as models. Third, Japan is willing to explain the experience of any country in the world, not just Japan's own experience, that fits the reality of the learning country, and even organizes visits to these countries. Japanese policies and institutions are often highly complex or too advanced to digest for beginner countries.

The term policy dialogue is not new in the international aid community, and many donors and international organizations claim to have been engaged in policy dialogues with developing countries. But 'traditional'

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<sup>7</sup> Japanese development policy support started with Argentina in 1985, using various modalities regarding theme, scale, participants, duration, and frequency (see Chapter 1: Overview). In countries such as Vietnam, Indonesia, Laos, and Myanmar, the Japanese government mobilized a large number of academics, businesses, and aid consultants to identify and analyze key issues and offer policy advice.

<sup>8</sup> The formal titles of the Okita Report and the Ishikawa Project are, respectively, *The Study on Economic Development of Argentine Republic* (JICA 1987) and *The Study on Economic Development Policy in the Transition toward a Market-Oriented Economy in Viet Nam* (JICA 1996, 1998, 2001).

policy dialogues tend to cover topics that are less industrial and more focused on macroeconomic, legal, social, or governance issues. When industrial issues are taken up, they are usually cross-sectoral problems such as Information and Communication Technology (ICT), globalization, green growth, and enterprise reform rather than sector-specific targeting and promotion.<sup>9</sup> Korea, with its Knowledge Sharing Program (KSP), also offers large-scale policy cooperation to developing countries, but its topic coverage is broader and its approach is more schematized and standardized than Japan's (Ohno 2016).

As noted above, Ethiopia began to learn seriously from the East, especially Korea, around 2003. Subsequently, two events in 2008 caught the attention of Prime Minister Meles, who then decided to begin Ethiopia's learning from Japan.

In May 2008, Japan hosted the Fourth Tokyo International Conference on African Development (TICAD IV) in Yokohama, which forty African heads of state, including Prime Minister Meles, attended. This conference expanded the scope of Japanese cooperation in Africa from official support to private business partnership. Separately, on July 10-11, 2008, Professor Joseph Stiglitz of Columbia University organized the third Africa Task Force meeting of the Initiative for Policy Dialogue, which was financially supported by JICA, in Addis Ababa. Prime Minister Meles attended most sessions. The present authors explained the concept of Dynamic Capacity Development and the typical East Asian way of learning-by-doing (Ohno and Ohno 2012). The GRIPS team also offered to the prime minister an edited book on East Asian lessons for African growth.<sup>10</sup> In the following week, Prime Minister Meles officially requested to the Japanese government two-part bilateral industrial cooperation consisting of a quality and productivity (*Kaizen*) project, just as JICA provided in Tunisia, and regular policy discussion with GRIPS. Prime Minister Meles

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<sup>9</sup> One exception is Germany. Like the Japanese, Germans are interested in industrial cooperation although focal issues are not the same between the two. German cooperation usually highlights industrial TVET, engineering education, activation of business associations, and so on.

<sup>10</sup> The offered book was a collection of ten papers by economists and officials in Japan, the United Kingdom, Malaysia, and Uganda (GRIPS Development Forum 2008). Chapter 7 of this book compared how Japan and the EU approached the problem of quality and productivity in Tunisia, and explained how JICA implemented *Kaizen* in that country (Kikuchi 2008). This book was later re-issued commercially as Ohno and Ohno (2013) with additions and updates.

explained that TICAD IV and discussion with GRIPS researchers had convinced him that the time was ripe for direct intellectual exchange with Japan, the country that led the East Asian miracle (policy dialogue, October 14, 2008). In 2009, Japanese industrial cooperation with the two requested components was officially launched.

JICA's *Kaizen* cooperation in Ethiopia followed standard procedure and method offered to any other country (GRIPS Development Forum 2009; JICA and GRIPS Development Forum 2011a). *Kaizen* is a Japanese word for improvement, which means continuous improvement in quality and productivity with the participation of an entire company to establish a spontaneous and permanent process of eliminating *muda* (any thing or action that adds no value, often translated as waste). As of early 2021, both *Kaizen* and the industrial policy dialogue are in the third phase.

Regarding industrial policy dialogue, Ethiopian participants were many and multi-layered, including top leaders. On the Japanese side, GRIPS led the bilateral dialogue that was joined by Japanese ministries and agencies including the Ministry of Foreign Affairs, the Ministry of Economy, Trade and Industry (METI), the Japan External Trade Organization (JETRO), and JICA. Intensive policy dialogue at the high level was held four times a year, supplemented by a large number of research projects, additional mutual visits, exchange of policy letters, and research missions to third countries in Asia and Africa (GRIPS Development Forum 2016ab). Prime Minister Meles (from 2008 to 2012) and Prime Minister Hailemariam (from 2012 to 2017) participated in high-level discussions with zest and seriousness. Eighteen such sessions lasting one to two hours were arranged with them.<sup>11</sup> Separately, 19th High Level Forums with ministers, state ministers, officials, and experts were held regularly in Addis Ababa. Besides this, there were numerous visits to offices, factories, and project sites; discussions with international organizations and other bilateral donors; regional trips inside Ethiopia and Japan; and invited lectures at ministries and universities. Additionally, 19 policy research visits to third countries in Asia and Africa were organized (not counting mutual visits between Ethiopia and Japan).

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<sup>11</sup> There were eight face-to-face meetings with Prime Minister Meles Zenawi, and twelve such sessions with Prime Minister Hailemariam Desalegn, two of which were held when he was Deputy Prime Minister.

Table 8.1 illustrates the topics deliberated at High Level Forums from 2009 to 2017. These Forums were used not only to convey requested knowledge to Ethiopian policymakers but also to test and propose new policy areas that were missing but considered necessary in the context of Ethiopian policy evolution. Some topics were directly suggested by top leaders and senior policymakers such as Prime Ministers, Chief Economic Advisors to the Prime Minister, Ministers and/or State Ministers of Industry, while others emerged at the operational-level discussions. After each policy dialogue mission, both Japanese and Ethiopian sides exchanged views on topics for subsequent policy dialogues, particularly with Neway Gebreab who served as Chief Economic Advisor to the Prime Minister at the Prime Minister's Office and Minister and State Ministers of Industry. Especially, Neway chaired the High Level Forums during phases 1 and 2 and was deeply involved in agenda setting.<sup>12</sup> The JICA Ethiopia Office, in consultation with the Japanese Embassy in Ethiopia, has assumed a coordinating role in this process. Overall, this bilateral policy dialogue provided intellectual inputs to the formulation and implementation of the government's five-year development strategies such as PASDEP, GTP, and GTP II in the areas related to industrial development. Within a broad framework, flexibility was exercised to respond to evolving policy priorities of the Ethiopian government.

As is clear from this table, sharing of policy knowledge was mutual rather than unilateral from Japan to Ethiopia. Moreover, discussions were not confined to the experiences of Japan or countries that Japan assisted to develop. A large number of concrete cases were drawn from Asia and Africa, and industrial officials and experts from Malaysia, Thailand, and Vietnam were invited to present their practices and research.

Dialogue modality changed in 2018 with the inauguration of Prime Minister Abiy who had a different working style from the previous two prime ministers (Section 6). Small-group discussions have frequently been held with the members of the Macroeconomic Team that supported Prime Minister Abiy, and many policy workshops and meetings were organized on concrete issues such as productivity and the automotive and apparel

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<sup>12</sup> Neway Gebreab was Chief Economic advisor to Prime Ministers Meles and Hailemariam, and also served as Executive Director of the Ethiopia Development Research Institute (EDRI), which is now merged with another institute to become the Policy Studies Institute (PSI). He regularly chaired High Level Forums and was the main counterpart of the Ethiopia-Japan industrial policy dialogue.

sectors, instead of direct talks with the prime minister as in the previous years.

**Table 8.1. Topics Discussed at High Level Forums (Ministerial Level)**

	<b>Presentations by Japan or Third Country</b>	<b>Presentations by Ethiopian Government</b>
<b>&lt;PHASE 1&gt;</b> Session 1 June 2009	(1) JICA's plan for policy dialogue (2) ADLI and future directions for industrial development	(1) Evaluation of current PASDEP focusing on industrial development and related sectors
Session 2 Sep. 2009	(1) Cross-cutting issues on industrial policy & East Asian policy menu (2) Organizational arrangements for industrial policy formulation (3) SME policies in Japan	(1) Comments and feedback by the Policy Dialogue Steering Committee on Japanese presentations
Session 3 Nov. 2009	(1) Designing industrial master plans: international comparison (2) Industrial policy direction of Ethiopia: suggestions for PASDEP II	(1) Concept for the industrial chapter of PASDEP II and the formulation plan
Session 4 Mar. 2010	(1) Basic metals and engineering industries: international comparison of policy framework & Ethiopia's case	(1) Draft of industry sector for PASDEP II (2) Overview, contents of PASDEP II draft of chemical subsector
Session 5 July 2010	(1) Result of basic metal and engineering industries firm-level study – parts conducted by MPDC and JICA	(1) Report of <i>Kaizen</i> training in Osaka (2) Report of <i>Kaizen</i> training in Chubu (3) Current status of <i>Kaizen</i> project and institutionalization of <i>Kaizen</i>
Session 6 Oct. 2010	(1) Singapore's experience with productivity development: internalization, scaling-up, and international cooperation	(1) Contents of industry sector in GTP (2) Singapore's productivity movement and lessons learned
Session 7 Jan. 2011	(1) The making of high priority development strategies: international comparison	(1) Organizational structure of MOI and linkage with other ministries
Session 8 May 2011	(1) Ethiopia's industrialization under GTP (2) Achievements of <i>Kaizen</i> Project (3) <i>Kaizen</i> movement in Asia & Africa (4) Taiwan: policy drive for innovation	(1) MSE development strategy of Ethiopia (2) <i>Kaizen</i> dissemination plan (3) Botswana's productivity movement and its Implication for Ethiopia
<b>&lt;PHASE 2&gt;</b> Session 1 Jan. 2012	(1) Export orientation: 3 policy directions (2) Export promotion: JICA's experience (3) Export promotion center in Egypt	(1) Export promotion of Ethiopia (2) Assessing Ethiopian investment and export policies

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	<b>Presentations by Japan or Third Country</b>	<b>Presentations by Ethiopian Government</b>
Session 2 Aug. 2012	(1) Results of champion product seminar (2) Export promotion of Malaysia (3) Economic diplomacy in Thailand	(1) Performance of export promotion in Ethiopia (2) Export promotion by foreign mission
Session 3 Jan. 2013	(1) Proactive FDI policy (2) FDI policy experience of Malaysia (3) JICA's assistance in Zambia etc.	(1) FDI inflow into Ethiopia
Session 4 July 2013	(1) JICA's PSD assistance in Indonesia (2) FDI-linked technology transfer	(1) Malaysia's strategic FDI policy (2) Revision of Investment Proclamation
Session 5 Feb. 2014	(1) International comparison of manufacturing performance (2) Handholding programs	(1) Sectoral institutes: roles & performance (2) <i>Kaizen</i> in GTP II and long-term vision
Session 6 Aug. 2014	(1) FDI-led industrialization in East Asia (2) FDI inflow into latecomer Asia	(1) Proposal for key ideas in GTP II (2) Current status of Ethiopian FDI
Session 7 Jan. 2015	(1) Modality & key points of Japanese-run industrial zones in Vietnam & Thailand (2) Industrial zones & foreign currency issues in Myanmar & India	(1) Productivity & competitiveness chapter, industry chapter & <i>Kaizen</i> in GTP II
Session 8 Oct. 2015	(1) Remaining industrial issues ahead (2) Industrial zone experience in Cambodia	(1) Discussion on GTP II draft (2) Ethiopian wage & labor productivity survey
<INTERIM> July 2016	(1) Japan's alignment to Industrial objectives of GTP II	(1) Macro issues related to GTP II (2) Industrial Policy of GTP II (3) Hawassa Industrial Park
<PHASE 3> Session 1 Feb. 2017	(1) Japan's industrial cooperation for GTP II (2) Asian experience of high growth & income polarization/equalization	(1) Anti-export bias & effects of export incentives (2) Youth Revolving Fund (3) Impact of urban job application assistance
Session 2 Nov. 2017	(1) Productivity in Ethiopia & Sri Lanka (2) Productivity issues in Vietnam	(1) Productivity of garment & metal sectors (2) Mini review of productivity studies & data

Source: Prepared and updated by the authors based on JICA and GRIPS Development Forum (2016).

Prominent features of Ethiopia-Japan industrial policy dialogue are as follows. First, many of the proposed policy actions were actually adopted, either partially or fully, by the Ethiopian government. Second, from the beginning, Ethiopian leaders wanted Japan to be direct and frank rather than polite and diplomatic, and discussion has always been held in this spirit. Third, the Japanese side often stressed quality over speed in policy making, an idea which Ethiopians did not accept. This different stance over policy speed was never resolved, and we now accept this tension as given. Fourth, topics were selected carefully and interactively to cover the burning issues of the day rather than setting many topics in advance. Fifth, Japanese resources and concrete industrial projects were mobilized to realize some—but not all—of the proposals made during dialogue sessions, so talk actually led to action instead of remaining just talk (next section). This makes both parties more serious and committed to the policy dialogue. Sixth, past East Asian experiences have increasingly become pertinent to Ethiopia as it focuses on skills, productivity, value creation, and attracting high-quality manufacturing FDI. Seventh, Japanese policy support has been conducted within a broader network of private and public actors from Japan and other advanced or emerging economies because, unlike in Southeast Asia, Japan is a small player in Africa and cannot achieve its cooperation purposes by bilateral efforts alone.

An essential element of Ethiopia-Japan industrial policy dialogue is seriousness and eagerness of national leaders to learn from the experience and advice from East Asia. The learning proceeded under strong country ownership—not by uncritically emulating foreign practices or fulfilling externally imposed conditionalities—and was followed by practical actions to promote localization. It is under this context that Ethiopia-Japan industrial policy dialogue began and evolved. To support the Ethiopian efforts for local learning, the bilateral industrial policy dialogue has emphasized combining policy advice with concrete industrial cooperation, as will be explained in the next section.

#### **4. Evolution of Dialogue Agenda**

The Ethiopia-Japan industrial policy dialogue has covered many topics (see Table 8.1). At any time, more than one issue were discussed at the high, middle, and operational levels. As circumstances surrounding Ethiopia and the attention of policy makers shifted, topics also evolved from basic learning from each other to implementation of concrete policy

ideas and tools. New topics are suggested either by Ethiopian request or Japanese recommendation. As mentioned above, many policy proposals were followed up with concrete bilateral industrial projects including *Kaizen*.<sup>13</sup> One cannot expect all policy suggestions to be accepted, but many ideas raised in the policy dialogue were seriously considered by Ethiopian authorities and shaped their policies.

In the first phase of industrial policy dialogue (2009-11), both sides deepened knowledge about each other. Ethiopians explained existing policies such as ADLI and PASDEP while the Japanese side explained how East Asia and the rest of Africa designed and implemented policies and how they made necessary institutional arrangements for policy coordination. Mr. Newai, Chief Economic Advisor at the Prime Minister's Office, was deeply interested in practical aspects of the formulation of a master plan, to which the Japanese side responded by offering an international comparison of industrial master plans with close attention on the methods of drafting and stakeholder consultation during several sessions of the High Level Forum. Prime Minister Meles additionally requested detailed information on many industrial subjects he wanted to investigate, and they were compiled and sent to him.<sup>14</sup>

As Japanese *Kaizen* cooperation started simultaneously with policy dialogue, much time was spent on how it should be localized and expanded in Ethiopia (Box 8.1). Separately, in response to another Ethiopian request, Japan and Germany conducted a joint survey on the current status of the Ethiopian metal and engineering industries. Advice was also given on the preparation of the five-year development plan (GTP I). Many ideas were offered, including quality and productivity targets, but the final document contained none of these. This was questioned by the Japanese side, and Ethiopian leaders subsequently promised that this would not

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<sup>13</sup> Apart from *Kaizen*, implemented proposals include (i) metal and engineering industry survey; (ii) export promotion by creating champion products with national brands; (iii) business climate survey; (iv) technical assistance on investment promotion; (v) support in business development service (BDS); (vi) drafting of the Ethiopia Productivity Report; and (vii) automotive policy support.

<sup>14</sup> Information packages prepared for Prime Minister Meles included Japanese technical education, rural life improvement movements in East Asia, steel industry, chemical industry, international comparison of industrial policy methods, and how Japan and Korea absorbed technology through foreign-aided industrial projects. Additionally, two *Kaizen*-related documents were produced (GRIPS Development Forum 2009; JICA and GRIPS Development Forum 2011b).

happen again. In April 2013, Prime Minister Hailemariam requested that the GRIPS team assist in the formulation of the next five-year plan (GTP II).

The second phase of industrial policy dialogue (2012-15) began with a proposal to enhance export promotion. This was to be done through the creation of culture-laden, high-quality champion products with new branding (Ethiopian Highland Leather). JICA's champion product project was launched, and Ethiopian private firms enthusiastically welcomed the idea. Japan's intention was to broaden the scope of Ethiopian policy making. *Kaizen* had become popular by then but it only dealt with supply-side efficiency while demand-side attention, especially customer orientation, was missing. Another important theme was improving FDI policy because manufacturing FDI was accelerating into Ethiopia. International experiences and JICA's standard cooperation in this area were reported. In 2013, a large Ethiopian delegation, headed by a State Minister of Industry and including a person who was later appointed as the Commissioner of the Ethiopian Investment Commission, was dispatched to Malaysia to learn FDI and export promotion methods. In Addis Ababa, related issues such as one stop investor service, SME handholding support, and FDI-local firm linkage creation were also studied. The Japanese team also advised on the proposed content of GTP II as requested by Prime Minister Hailemariam. Unlike the previous plan, many recommendations actually made it to the final document including the light manufacturing vision, *Kaizen* philosophy and targets, and an extensive use of the phrase 'quality, productivity and competitiveness'<sup>15</sup> throughout GTP II. A paper summarizing remaining industrial policy issues, as seen from the Japanese side, was drafted at the end of the second phase (JICA and GRIPS Development Forum 2016).

The third phase starting in 2017 turned to productivity and the attraction of Japanese FDI as core issues. The important link between labor productivity and wages and related Asian experiences had already been discussed in the second phase. Additionally, Ethiopia's past productivity tools—*Kaizen*, benchmarking, and twinning—were critically assessed; the manufacturing census database was checked, cleaned, and

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<sup>15</sup> Even though 'quality, productivity and competitiveness' (QPC) were highlighted in GTP II, the government admitted that it was not sure what these exactly meant or what policies were needed to achieve them. Japan was asked by the Ministry of Industry to become a lead donor on QPC promotion.

re-formulated into a panel dataset; and an apparel sector survey was conducted in Bole Lemi, Hawassa, and Mekelle. These works led to the joint drafting of the Ethiopia Productivity Report by the Policy Studies Institute (PSI), a government think tank recently created by merging two existing institutions, and the GRIPS Development Forum in 2020. This was Ethiopia's first such report applying standard scientific analyses to Ethiopian productivity such as TFP and two decompositions of labor productivity growth, which identified both achievements and challenges. Enhanced involvement of Ethiopian researchers in industrial policy dialogue as well as productivity research was another feature in the third phase.

The policy dialogue team also assisted Japanese investors interested in Ethiopia by offering policy information, organizing workshops to interact with relevant Ethiopian officials, and providing the Ethiopian side with concrete policy advice to bring and retain Japanese and other investors. This work was intended to help investors already seriously interested in coming to Ethiopia, not to nudge firms still undecided about investment. The support is not triggered unless there is a specific Japanese firm wanting such official assistance, and so far there have been two such cases in the automotive and apparel sector.<sup>16</sup> By mutual learning and adjustment, it is hoped that Ethiopia will recognize and prepare conditions conducive to high-quality FDI, and Japanese investors in turn will have deeper understanding of Ethiopia's policy and build a fruitful relation with the host country.

As mentioned earlier, the combination of policy dialogue with concrete follow-up actions, often through JICA's industrial cooperation projects, has been a key feature of this bilateral industrial policy dialogue. Based on its own catch-up experience, Japan attaches high importance to 'learning

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<sup>16</sup> The Japanese dialogue team organized a seminar on international comparison of apparel sector development at the Ministry of Industry chaired by the State Minister and presented by Itochu, Japan's top apparel trading firm, in August 2018. This led to the signing of a memorandum of understanding among the Ethiopian Investment Commission (EIC), the Ethiopian Textile Industry Development Institute (ETIDI), Itochu, and the Japanese government in August 2019 to cooperate for the quality and productivity improvement of the Ethiopian textile and garment industry. Japanese experts were dispatched to garment factories in Ethiopia, which was partly supported by the Japanese Ministry of Economy, Trade and Industry (METI). Itochu's motive was to secure a new apparel supply base to the Japanese market while contributing to the development of the host country (Ohno and Uesu 2020).

by doing' with concrete targets through a trial-and-error process. High Level Forums and other policy discussions were used to share policy knowledge from Asia, as well as to deliberate on actual problems that arose from implementing foreign methods in the Ethiopian context. This approach contributed to linking researchers with policymakers in achieving concrete results on the ground.

Thus, by the third phase, Ethiopia-Japan industrial policy dialogue grew to cover wide policy areas combining talk with official cooperation projects and business actions of Japanese firms. JICA now provides an array of industrial cooperation projects in Ethiopia including advanced *Kaizen*, industrial park management, investment promotion, export promotion, business development service (BDS), start-up business competition, and support for Japanese SMEs interested in Ethiopia. For the Japanese government, this is the broadest industrial cooperation menu in Africa, which is similar to typical Japanese industrial cooperation in latecomer economies in Southeast Asia. Time is ripe for Japan to re-arrange these many project components into an integrated whole with clear objectives, internal linkage, and alignment with Ethiopia's development plan.

Additional remarks on *Kaizen* are warranted. Japanese industrial cooperation in Ethiopia began with *Kaizen*, and policy dialogue initially discussed various practical aspects of *Kaizen* (Box 8.1). But as experience and knowledge accumulated, day-to-day management and troubleshooting were delegated first to JICA experts, then to the Ethiopian *Kaizen* Institute (EKI). Ethiopians can now not only manage their own *Kaizen* activities but also teach *Kaizen* to other Africans bilaterally and through the New Partnership for Africa's Development (NEPAD), which is a great achievement. Even so, policy concern on *Kaizen* of both Prime Minister Meles and Prime Minister Hailemariam remained considerable, and *Kaizen* was deliberated at almost each dialogue session with Prime Minister Hailemariam.

Among many issues, the most crucial was how *Kaizen* should be transformed from a superficial tool to be abandoned quickly to a deeply ingrained national spirit and philosophy so it would forever be practiced willingly and without external coercion or official instruction. Prime Minister Meles emphasized in the policy dialogue that *Kaizen* was not just a one-time breakthrough but an incremental societal movement involving all stakeholders including rural communities (Ohno 2018,

19). Similar views were expressed by Prime Minister Hailemariam who argued that *Kaizen* was a philosophy for societal transformation and not limited to the economic sphere (Ohno 2018, 20). Foreign techniques may be adopted formally and superficially but its underlying spirit is harder to learn. This we call the mindset problem. A national productivity movement recommended by Japan is a partial answer to this. Introduction of the Kaizen Month was one proposal accepted by Prime Minister Hailemariam, and September was designated as Ethiopia's *Kaizen* Month when *Kaizen*-related awards and events are organized (unlike in Japan or Singapore where November is the Productivity Month). A city-wide *Kaizen* movement, launched by Ethiopian initiative in 2016, is another important drive. But more needs to be done to solidify *Kaizen* in the minds of all Ethiopians.

**Box 8.1. *Kaizen*: Combining Policy Dialogue with Concrete Industrial Cooperation**

The combination of policy dialogue (talk) and JICA-supported concrete projects (action) has been a key feature of Japan-Ethiopia industrial policy dialogue with the intention to support 'learning by doing' through a hands-on approach. One example is linking JICA's *Kaizen* projects with policy discussion. In introducing and institutionalizing *Kaizen* in Ethiopia, in the first phase, there was close interaction among Ethiopian policymakers and practitioners, and the Japanese policy dialogue team and *Kaizen* consultants, as follows (Ohno 2018).

1) Understanding *Kaizen* in the Ethiopian context

In the initial stage of introducing *Kaizen*, basic information was provided to both Ethiopian policymakers and practitioners on the history of quality and productivity improvement in Japan, together with examples of JICA projects in other developing countries. This was done in various forms including information kits for Prime Minister Meles; open seminars inviting policymakers, practitioners, the private sector, etc.; a study tour to Singapore; and publication of reports and pamphlets. Because the Ethiopian government had already introduced other productivity tools such as benchmarking and business process re-engineering (BPR), active discussions took place on how *Kaizen* differed from these western instruments, and to what extent they were substitutes or complements. A question

was also raised whether *Kaizen* was applicable to Ethiopia, which had a different culture from Japan. The Japanese team explained that *Kaizen* had been successful in many societies with very different cultures from Japan's such as India and Latin America. To respond to these questions, the GRIPS Development Forum produced a booklet *Introducing KAIZEN in Africa* (GRIPS Development Forum 2009).

2) Sharing progress and bringing issues to policy attention:

The industrial policy dialogue provided opportunities for both Ethiopian and Japanese sides to examine JICA *Kaizen* projects from a policy perspective. Initially, the High Level Forum discussed the progress of *Kaizen* implementation in pilot companies and the results of counterpart training in Osaka and Chubu, Japan to which members of the *Kaizen* Unit and pilot companies were dispatched. Subsequently, the High Level Forum deliberated on a plan to institutionalize the government's *Kaizen* support as presented by Mr. Getahun Tadesse, then head of the *Kaizen* Unit of the Ministry of Trade and Industry who later was appointed as the first Director General of the Ethiopia *Kaizen* Institute. Implementation problems were discussed including the lack of incentives and a high attrition rate of Ethiopian *Kaizen* consultants as well as factory workers where *Kaizen* was introduced. In response, the government took remedial measures such as increases in *Kaizen* budget and salaries and benefits of *Kaizen* consultants, opportunities for advanced training, and academic degrees for *Kaizen* instructors.

3) Sharing international experiences of *Kaizen* institutionalization

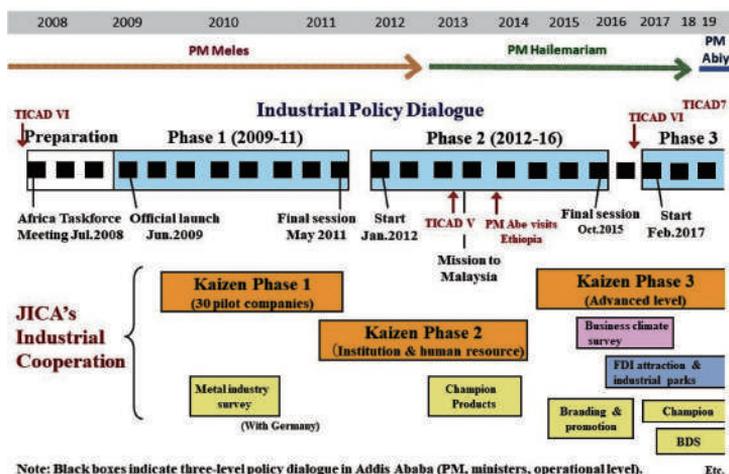
At High Level Forums and on other occasions, the Japanese team presented concrete cases of national productivity movements in various countries and diverse options for *Kaizen* promotion bodies. Ethiopian officials showed great interest in the Singaporean experience, where a government-led productivity movement was carried out in the 1980s under the strong leadership of Prime Minister Lee Kuan Yew. The Singaporean model was emulated, with local modifications, in establishing the Ethiopia *Kaizen* Institute in 2011.<sup>17</sup> The Japanese side compiled a study on *Kaizen* national movements

<sup>17</sup> For details, see also Volume II of this research project, *Promoting Quality and Productivity Improvement/Kaizen in Africa* (Jin and Ohno 2022). This report includes case studies of Singapore (Chapter 2) and Ethiopia (Chapters 3 and 4).

(JICA and GRIPS Development Forum 2011b) which contained information from Japan, Burkina Faso, and Botswana in addition to Singapore. Prime Minister Meles was greatly concerned about the weak private response to his industrial policy and sought ideas from Asia. The Japanese team recommended upgrading ongoing *Kaizen* efforts to a comprehensive national movement to transform the mindset of people and foster private sector dynamism.

Many international cases were studied as possible policy components, policy discussions were often followed up by concrete actions, and operational issues were brought up from the ground level to high policy attention. All this constituted practical hands-on support for policy learning. In the subsequent phases of industrial policy dialogue, a similar approach was taken in such areas as export promotion (creation of national brands and champion products), FDI promotion (industrial park management), and enterprise diagnosis and management consultancy (Business Development Services).

## Ethiopia-Japan Industrial Policy Dialogue and Industrial Cooperation



## 5. Development Partnerships for Industrial Cooperation

It is important to note that only a few donors in Ethiopia prioritized industrial promotion as of 2008 when Japan began to prepare the industrial

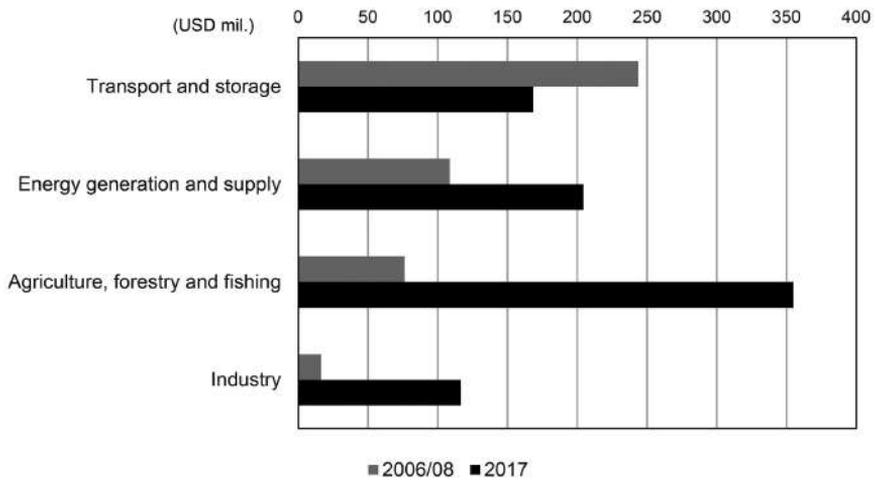
policy dialogue and *Kaizen* project. They were the United Nations Industrial Development Organization (UNIDO), the United States Agency for International Development (USAID), Italy, and Germany. This was partly because the focus of the global aid community was poverty reduction and governance at that time, but also because there were contested views among donors about the role of government in private sector development and the extent of donor engagement in industrial policy discussion with the host government. Some donors contended that support should focus on improving the business climate generally while others wanted to do more to develop certain sectors with high growth potential. During the first phase of industrial policy dialogue, the Japanese team met three times with a group of donors interested in private sector development (PSD) and also had numerous bilateral exchanges with individual donors, to explain that the purpose of Japan's industrial support in Ethiopia was to enhance the government's policy capability in supporting private sector development (JICA and GRIPS Development Forum 2011).<sup>18</sup>

Around 2010, there was a shift in global business trends which prodded development partners toward more active support for industrialization. Ethiopian development plans, GTP I and II, also stressed the need for industrial growth and economic transformation. This was a major departure from the previous plans (such as SDPRP and PASDEP) which primarily aimed at poverty reduction, and development partners came to recognize the need to re-align their cooperation to the priorities shown in GTP I and II. For these reasons, an increasing number of donors joined the support for industrial development, including the United Kingdom (UK), the EU, and Sweden. Development partners that had hitherto approached industrial promotion cautiously, such as the World Bank, greatly expanded the scope of their industrial support. Trade-related ODA to Ethiopia doubled between 2006-08 and 2017. Moreover, as Figure 8.2 illustrates, the composition of trade-related ODA to Ethiopia changed significantly during the same period toward industry, agriculture, and energy.

It is important to recognize that Ethiopia is learning from many nations, not only from Japan or East Asia. Officials, businesses, and

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<sup>18</sup> Two donor meetings were organized by the JICA Ethiopia Office (September 2009 and May 2011) and one meeting was organized by the Japanese Embassy in Ethiopia (July 2010).



Source: Ohno and Uesu (2020) (calculation based on Aid for Trade database, OECD-WTO).

**Figure 8.2. Major Components of Trade-related ODA to Ethiopia (disbursement basis)**

experts from the West and emerging economies are also mobilized to Ethiopian learning. Germany can teach vocational training and business associations, Italy teaches leather and fashion, France brought wine to the Rift Valley, the Netherlands has assisted with floriculture, the USAID can help Ethiopians to reach the American market, and the UK and the EU have relatively large budgets for industry-related projects and research. India helps Ethiopia’s sectoral institutes such as leather, textile, and metals and engineering through a twinning arrangement, while Sri Lankan apparel experts know how to achieve quality and ethical standards simultaneously. International organizations also support Ethiopia in the areas of their expertise. The World Bank, which previously promoted private sector capacity building through a matching fund, now offers a broader range of support to Ethiopia including state-owned enterprise (SOE) reforms, industrial parks, women entrepreneurs, and job creation for refugees (in cooperation with the UK and the EU). The International Labor Organization (ILO) is actively engaged in projects related to Decent Work in partnership with European donors and FDI firms. The UNIDO has designated Ethiopia as a model partner country for inclusive and sustainable industrial development.

Three things can be said about this situation. First, while virtually all bilateral donors now engage in industrial support unlike in years past,

most newcomers have little concrete knowledge of industrial sectors on the ground and rely heavily on NPOs, businesses, and matching funds for project implementation. This is not the case with JICA or German Corporation for International Cooperation (GIZ) which have extensive hands-on industrial promotion experience around the globe. Second, as exemplified by *Kaizen*, Japanese industrial advice is often unique and different as it stresses (some say excessively) quality, productivity, and on-time delivery while European buyers and donors are more worried about labor and environmental conditions at factories than perfect stitching and packaging of the product. This partly reflects the nature of Western and Japanese markets where the former emphasizes strict compliance with social and environmental standards. Such features are evident in the recently expanding development partnerships for sustainable apparel and textile global value chains in Ethiopia (see Ohno and Uesu 2020 for the details). Ethiopia needs to understand this dual requirement by foreign buyers, and hopefully learn both. Third, industrial strategies in East Asia are not one; policies across countries and over time in the region have both commonalities and differences. Japan does not represent all of East Asia, and it only practices and teaches models derived from its own history and social structure. Even so, the Japanese catch-up model should be enlightening to all latecomers as it was the first non-Western model to succeed in full-scale industrialization and has also been applied to many other countries. Furthermore, over the past 60 years of ODA and industrial cooperation, Japan has built extensive human and organizational networks with Asian partners. By partnering with advanced East Asian economies that were aid recipients in the recent past, Japan can offer intellectual support and engage actively in policy dialogue with latecomer Asian countries as well as developing countries in Africa.

## **6. Development Policy of Prime Minister Abiy Ahmed<sup>19</sup>**

Since 2015, Ethiopia faced increasingly violent anti-government protests which forced the government to declare a state of emergency. Prime Minister Hailemariam announced his resignation in February 2018 and was succeeded by Abiy Ahmed in April 2018. Soon after assuming power, Prime Minister Abiy surprised the nation by making peace with Eritrea, for which he received the Nobel Peace Prize, and starting to reform state monopolies through privatization and/or increased competition.

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<sup>19</sup> This section was written based on the information upto October 2020.

He also urged national unity, talked with dissent groups, and released political prisoners. However, domestic unrest did not subside even under his leadership and culminated in a military confrontation in Tigray. Externally, Prime Minister Abiy enhanced diplomatic and economic relations with neighboring countries, the Middle East, the West, international organizations, and Ethiopian diaspora. Tree planting and beautifying Addis Ababa were also initiated by the current government. In 2020, Ethiopian Airlines was mobilized to deliver medical supplies from China to COVID-19 affected African countries.

Meanwhile, the development strategy of the Abiy administration was slower to emerge. This was partly due to mounting issues in domestic politics and partly due to his working style. Unlike the two previous prime ministers, and more like other heads of state, Prime Minister Abiy does not directly manage economic policies himself, but delegates them to the Macroeconomic Team, a group of selected officials from the Office of the Prime Minister and various economic ministries and agencies. Their ideas and proposals are submitted to him for deliberation and approval.

This is not to say that his government has not initiated any economic actions. On the contrary, it has already launched bold state monopoly reform mentioned above, with technical and financial backing of the World Bank and a few bilateral donors. The World Bank and the International Finance Corporation (IFC) also assist Ethiopia to improve its Ease of Doing Business ranking. Another problem that the government is tackling is the severe and chronic shortage of foreign currency. Ethiopia negotiated with China for debt relief and requested other donors for financial support. The above-mentioned World Bank program also contributes to narrow Ethiopia's payments gap.<sup>20</sup> Ethiopia also agreed with the IMF on a three-year program of 2.9 billion US dollars. Besides these, Ethiopia seriously resumed accession negotiation with the World Trade Organization. However, these are macroeconomic or structural policies that affect all sectors, not targeted promotion of key real-sector activities.

In the spring of 2019, Prime Minister Abiy and his Macroeconomic Team drafted a one-page policy matrix entitled 'A New Horizon of Hope.' This

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<sup>20</sup> To be fair, all these efforts regarding SOE reform, World Bank ranking, and debt relief were started by Prime Minister Hailemariam. Prime Minister Abiy inherited them with vigor and activism.

was followed by a longer document, Homegrown Economic Reform Agenda (HERA), in September 2019. The content of the latter only partly overlaps with the former. HERA defines actions that must be executed in the next three years (2020-22), preparing the way for the Ten Year Perspective Plan (to be finalized in 2021) and the Five Year Development Plan (to be prepared subsequently). After reviewing the current situation of Ethiopia,<sup>21</sup> HERA presents three policy pillars (which are called ‘reforms’) consisting of macroeconomic stability, structural reforms, and sector-specific promotion. According to a senior advisor to the prime minister, macroeconomic stability means implementing the IMF and World Bank programs to overcome economic challenges at hand. Structural reforms mean breaking state monopolies in telecom, power, logistics, etc. through competition or privatization. Sector-specific promotion means productivity enhancement in five targeted sectors: agriculture, manufacturing, mining, tourism, and ICT. The senior advisor noted that the first two had already been initiated in the first year of the Abiy government, but productivity enhancement was a long-term objective that must be continued into the Ten Year Perspective Plan. He added that this was an area that required additional international knowledge and technical support (interview at the Office of the Prime Minister, February 21, 2020).

The three policy pillars of HERA are highly standard and should be regarded as an appropriate policy framework. The key question is not the framework itself but what concrete ingredients will go into these pillars and whether they will be implemented effectively to produce results. Among the three pillars, macroeconomic stability is a common goal for all nations and its success depends very much on the technical competence of fiscal and monetary authorities. SOE reforms are also greatly needed in Ethiopia, provided that they will be handled in a proper manner and speed. Both are already being assisted by the IMF and the World Bank. By contrast, as the senior advisor admits, how to promote real-sector activities—desirability, feasibility, and proper method of promotion—has been a subject of long, heated global debate since the late 1980s.

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<sup>21</sup> The situation analysis of HERA touches on past achievements such as high growth and poverty reduction, then turns to the remaining problems. They include growth heavily dependent on public investment, excessive expansion of construction and services, performance indicators much lower than the average of lower middle-income countries, lack of industrial transformation (especially weak manufacturing), many impediments to productivity increase, inflation, external debt, and crowding-out of private investment.

On the one hand, there is the Washington Consensus that views liberalization, privatization, global integration, and a good business climate as crucial preconditions for growth, and opposes targeted industrial promotion because governments are generally regarded as technically incompetent and prone to political pressure (Krueger 1997). On the other hand, there is the typical East Asian approach that combines private dynamism and official intervention to promote selected sectors, orchestrated by a wise or learning government. According to this view, the speed of economic liberalization must be decided by how fast domestic competitiveness improves. The first regards government as a fair and detached referee of an economic football match while the latter expects it to be a passionate and competent coach for star players.

Prime Minister Meles rejected the Washington Consensus and embraced the Eastern way (Zenawi 2012), and Japanese industrial cooperation assisted his policy learning. One problem with his approach was that the priority sectors such as garment, leather, food processing, etc. did not emerge strongly despite much official support they received. Another problem was that Prime Minister Meles not only denied immediate economic liberalization but also refused to even set a long-term liberalization schedule. Ethiopia does not need a big-bang liberalization now, but it should have a plan to deregulate, privatize, and globally integrate its economy in proper pace and steps in a way consistent with the rise of its industrial competitiveness.

The framework of HERA, as currently presented, is general enough to harbor various approaches in industrial promotion. It also has the potential of generating a strategy more balanced than the Washington Consensus or the Meles way, by merging selective industrial promotion with the steady liberalization of the domestic economy under a government that engages in serious policy learning. At this moment, how the Ethiopian government will proceed is not clear as the targeted five sectors are very broad and still without implementation details. Moreover, political and ethnic stability is imperative in executing economic strategies. Things should become clearer as concrete policy measures in the Ten Year Perspective Plan begin

to be introduced.<sup>22</sup>

## 7. Ethiopia and East Asia's Flying Geese

East Asia is unique because it has attained economic development through the very existence of the East Asian region as a powerful arena for policy learning, business cooperation, and fierce competition among its member countries, and not by the effort of each country alone. One by one, countries in different development stages accelerated growth by participating in the dynamic production network created by the region's multinational corporations. Linked by trade, investment, and human exchange, and assisted by economic integration and cooperation, a regional division of labor with clear order and structure emerged. Industrialization proceeded through geographic diffusion on the one hand and structural deepening within each country on the other. This multifaceted supply-side phenomenon is called the flying geese pattern of economic development, by which East Asia has become the factory of the world. No other developing region has attained a similar collective growth mechanism.

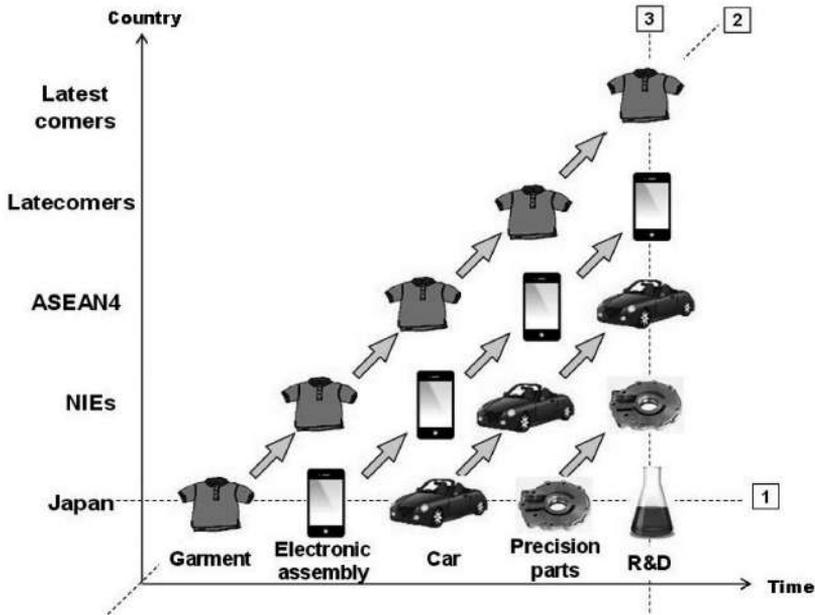
For any economy in East Asia, development means jumping into this regional network and becoming one crucial link in it, receiving competitive pressure as well as models and cooperation from others, and upgrading industrial capabilities along the technological ladder. Over time, industries have been passed from advanced countries to less advanced ones through FDI, so all latecomers crave to absorb as much manufacturing FDI as possible.

Figure 8.3 illustrates industry passing within East Asia's flying geese formation. If we fix a country (say, Japan), we can observe the transition of main activities along the time axis (direction 1). If we fix a product (say, garment), we can diagonally trace shifting production sites across countries (direction 2). If we fix a time (say, now), geographic distribution of activities within East Asia can be explained (direction 3). While

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<sup>22</sup> According to sources close to the prime minister, Abiy will inherit the development strategy of Prime Ministers Meles and Hailemariam but details must be adjusted as situations change. He remarked that he could not adopt the approach of the past two prime ministers in directly managing economic issues and talking to producers and investors. He also stated to the Parliament that the automotive industry was an important sector for promotion.

reality is a little more complex than this, this picture can give an initial approximation on how regional industrialization has proceeded with order and structure in East Asia.



Source: Prepared by the authors based on JICA and GRIPS Development Forum (2016).

**Figure 8.3. Structural Transformation in East Asia**

As mentioned earlier, Ethiopia began to attract light manufacturing FDI from emerging economies starting around 2008. Rising wages in source countries exert pressure to find alternative locations for labor-intensive production, and Ethiopia was chosen as one of them. Ethiopia receives investments not only from East Asia but also from India, Turkey, EU, US, Middle East, and so on. This can be interpreted as Ethiopia becoming the latest member of the (enlarged) flying geese pattern. Although neither Ethiopia nor source countries are physically confined to East Asia, the mechanism of industry passing via technology upgrading and wage pressure, clear order and structure, and FDI as the means of geographical diffusion are basically the same as the original East Asian model. Thus, Ethiopia has entered an era in which the past and current growth experiences of East Asia—both successes to emulate and failures to avoid—are highly relevant to its policy formulation. There is no other country in Africa to which this statement more aptly applies.

## 8. Remaining Challenges

Apart from political and macroeconomic stability, which are prerequisite for growth, there are four challenges Ethiopia must face to preserve and accelerate its growth momentum. These challenges were identified during our bilateral industrial policy dialogue over a decade.

First, Ethiopia began development from a very low level socially and economically. Despite recent high growth, Ethiopia is still a low-income country on a long journey to full industrialization. The private sector is weak, and industrial policy is unsophisticated by the East Asian standard even with the serious learning by national leaders. Many common weaknesses of countries in an early stage of development are visible, including the lack of labor skill and discipline, low productivity, and stagnant output and trivial export of manufactured products. The business climate is unfavorable, ranking 159th among 190 economies in the World Bank Doing Business ranking in 2020. National aspiration for economic development is high but current achievement is limited. This hard fact must be acknowledged, and policy must be drafted in a pragmatic way to overcome this reality. Leapfrogging to the technology frontline is difficult unless human resource and institutional foundations are first laid.

Second, there is a continuous need to strengthen the capacity of technocrats who are charged with putting policy ideas into practice. Policy is often made hastily at a high level without deep consideration of the detailed design or suitability to Ethiopian reality. Speed is stressed over quality. Top leaders are dedicated to national development and extremely busy. But, unlike successful East Asian economies which had a cadre of technocrats to support national leaders, there is only a thin layer of middle managers in the ministries, which prevents effective policy formulation and implementation in Ethiopia. In high-performing East Asian governments, policy decisions are made interactively in both top-down and bottom-up directions. A vision is handed down from the top, then details are researched and filled by competent mid-level officials. Ministers are briefed on the essence of proposed policy and approve the final document. A thick layer of professional and politically insulated technocrats contributed greatly to high growth in such countries as Japan, Singapore, Korea, and Taiwan (World Bank 1993; Campos and Root 1996). In Ethiopia, where such interactive decision making is absent, all substantive work must be done by the minister or state ministers. This

situation is surely not unique to Ethiopia; many developing countries face the problem of weak bureaucratic machinery. Ethiopia needs a bold administrative reform that boosts the capacity of bureaucrats significantly while reducing their number.

Third, Ethiopia's industrial growth is taking place in Africa where conditions are quite different from East Asia. The principal difference is the absence of the regional flying geese pattern with a leading nation generating structured layers of follower nations as explained above. Africa generally lacks sufficiently strong intra-regional trade, FDI, technology, and aid linkage among its member countries.<sup>23</sup> The relatively low income and small market size of Africa compared to Asia is another negative factor, which directs most exports to the EU or US markets using trade access privileges such as the Everything But Arms (EBA) and the African Growth and Opportunity Act (AGOA). This implies that Ethiopia must industrialize as a solitary bird, openly facing the pressure and competition of the global economy without intra-regional cover, linkage, or learning models. This calls for adjustments in adopting East Asian lessons, especially regarding the formation of foreign partnership in global marketing and knowledge transfer.

Finally, the same thing can be said in a brighter tone. Africa's different situation may offer new opportunities Ethiopia can capture as deepening globalization changes the path and style of economic development. Due to technological progress and reduced transport and communication costs, production processes are increasingly fragmented over many countries. Global value chains are formed and re-formed by multinational corporations which allocate research and development (R&D), design, materials, components, assembly, marketing, and branding functions in different countries for optimal sourcing (Bernhardt 2013). Under such circumstances, the absence of African flying geese may no longer be a serious disadvantage for Ethiopia because it can directly participate in global value chains by becoming one crucial chain in the area

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<sup>23</sup> The launching of the African Continental Free Trade Area (AfCFTA) in 2019 was a good start, but it will take much time to make this framework truly work to overcome the recognized problems. The Association of South-East Asian Nations (ASEAN), established in 1967, is regarded as a successful regional economic mechanism, but it took a few decades for ASEAN to begin a formal process of regional economic integration, and another few decades to implement proposed integration and facilitation actions, even in the strong presence of the flying geese pattern.

where the country excels (AfDB, OECD, and UNDP 2014). Yet, facing global competition alone is an enormous challenge for any latecomer. Government, enterprise, and citizen capabilities must be upgraded to global standards. This is a tall order in comparison with the world where latecomers can learn and prepare in steps within the region before jumping into the global scene. Geography and distance have become less critical than in the previous centuries, but whether they have become irrelevant for economic development is an open question.

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## Industrial Policy Support to Thailand: Initiatives in Response to the Asian Economic Crisis and Adaptation Thereafter

Minoru Yamada<sup>1</sup>

### 1. Introduction

This chapter reviews Japan's industrial policy support to Thailand in response to the Asian economic crisis in 1997, as well as the adaptation process undertaken thereafter by Thai stakeholders based on the outcomes of this support. In analyzing the case, its uniqueness is taken into account. First, as the support was provided in response to the economic crisis, it required emergent actions, which to some extent sacrificed the steady and long-term cooperation process that was characteristic of many other cases of Japanese support. Second, as the economic ties between Thailand and Japan have historically been strong, Japanese enterprises that had already advanced into Thailand and remained in the country at the time of the crisis, were strongly involved in the provision of support.

The analysis in this chapter is based on a review of existing literature as well as interviews with Japanese and Thai stakeholders involved in the initiatives that responded to the economic crisis and the evolution thereafter. In particular, the general description of the crisis and the recognition on the initiatives from a Japanese viewpoint relies heavily on Otsuji (2016). This chapter proceeds as follows: the second section provides an overview of the pre-crisis situation. The third section describes the action taken by stakeholders from the two countries during and after the crisis. Three concrete cases have been selected from the Thai

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government's attempts at industrial restructuring, namely (i) formulation of a small and medium enterprise (SME) promotion master plan; (ii) the establishment of a factory evaluation system; and (iii) strengthening of the automotive supporting industry. The fourth section discusses the characteristics emerging from the analysis of the support and adaptation process in the three cases and is followed by the conclusions.

## **2. Overview of the Pre-crisis Situation**

### **2.1. Progress of industrial development**

In general, Thailand has experienced steady industrialization, particularly since its adoption of export-oriented policies in the early 1970s (Hoyrup and Simon 2010). The major statistics related to economic/industrial development are summarized in Table 9.1. The annual growth rate of the manufacturing sector has surpassed that of GDP in most years since 1961. Additionally, the share of the manufacturing sector in the GDP has risen remarkably from 13.0 per cent in 1961 to 25.9 per cent in 1996, just before the crisis. Thanks to a generally favorable business environment, Thailand has also been a popular investment destination for foreign enterprises, including those from Japan. The Japanese Chamber of Commerce, Bangkok (JCC) was established as early as 1954. After the Plaza Accord in 1985, which triggered significant appreciation of the Japanese yen, many Japanese manufactures chose to establish their production sites in Thailand. By the early 1990s, major Japanese automotive assemblers had entered Thailand<sup>2</sup> (Higashi 2000) and in 1995, automotive production in the country exceeded 500,000. Despite the apparently impressive record of macroeconomic/industrial development, the Thai economy suffered from structural vulnerability, represented by an appreciated home currency (baht), an overdependence on import (partially due to weak supporting industries), and a resultant current account deficit. International competition continually tightened due to the improving performance of emerging countries such as China and Mexico. These factors brought about a sharp plunge in manufacturing exports in 1996.

The industrial policies implemented by the Thai government before the crisis were moderate; policies were not intended to promote specific segments of the economy, for instance individual industrial sectors

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<sup>2</sup> Some assemblers such as Nissan, Toyota, Isuzu, and Hino invested in Thailand as early as the 1960s.

**Table 9.1. Statistics Related to Economic/Industrial Development of Thailand (1961-2015)**

Indicators	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006-10	2011-15
GDP growth rate (%) <sup>1</sup>	7.2	9.2	5.8	8.0	5.4	10.3	8.2	5.7	-2.8	-7.6	4.6	4.5	3.4	6.1	7.2	6.3	4.2	3.8	3.0
Manufacturing value added growth rate (%) <sup>1</sup>	11.3	11.9	10.4	9.9	5.0	15.1	11.8	5.7	0.9	-8.4	9.8	3.3	2.0	8.8	10.2	7.5	4.2	4.7	1.1
Manufacturing value added (% of GDP) <sup>2</sup>	13.9	15.1	18.6	20.5	22.2	25.6	27.0	25.9	26.7	27.4	28.4	28.6	28.0	28.7	29.8	29.6	29.8	30.5	28.0
Manufacturing exports growth rate (%) <sup>2</sup>	9.2 <sup>a</sup>	22.8	64.5	38.9	10.9	42.5 <sup>b</sup>	23.2	-3.6	3.0	-1.4	7.4	19.8	-6.9	5.7	18.4	21.2	16.1	12.3	2.8
Foreign direct investment (net inflows) (% of GDP) <sup>2</sup>	-	0.6 <sup>c</sup>	0.8	0.4	0.7	1.7	1.5	1.3	2.6	6.4	4.8	2.7	4.2	2.5	3.4	3.4	4.3	3.4	2.2
Motor vehicle production (thousand units) <sup>3</sup>	5	12	25	63	93	169	397	559	360	158	323	412	459	585	742	928	1,123	1,304	2,028

Notes: a. Average between 1963-65.

b. Figures for 1988 and 1989 are not available.

c. Figure for 1970 only.

Source: 1. World Development Indicators.

2. Author's calculation based on World Development Indicators and UNCTADSTAT.

3. Figures until 1998: Higashi (2000). Figures for 1999 and after: International Organization of Motor Vehicle Manufacturers (OICA) website (<http://www.oica.net/production-statistics/>).

or SMEs, through measures such as government subsidies (Suehiro 2010). While government agencies such as the Ministry of Industry (MOI), the Ministry of Commerce, and the Board of Investment were concerned about the country's industrialization or SME promotion, there was no single organization that took overall responsibility. The MOI had limited presence within the government as its main function was regulation enforcement rather than policy formulation. However, the above-mentioned structural vulnerability and the necessity for industrial restructuring were recognized by the government before the crisis, which led to the prompt establishment of the National Industrial Development Committee (NIDC), chaired by Deputy Prime Minister in charge of economy, in August 1997 (Suehiro 2010).

## **2.2. Cooperation from Japan**

From the 1950s, various forms of industrial cooperation occurred between the two countries; this was in line with the active advancement of Japanese enterprises into Thailand. Like other ASEAN countries, under the overall policy direction of the Ministry of Trade and Industry

(MITI, or the current Ministry of Economy, Trade and Industry (METI)) of Japan, Japanese public organizations such as JETRO, AOTS, JODC, and JICA provided support through acceptance of trainees to Japan and the sending of Japanese experts to Thailand.<sup>3</sup> What is unique about Thailand is the cooperation between the Technology Promotion Association (Thailand-Japan) (TPA) and its counterpart organization, the Japan-Thailand Economic Cooperation Society (JTECS). TPA was established in 1973, primarily by former students who studied in Japan and had a strong commitment to strengthening economic/industrial ties between the two countries. Its activities include industry-related training/consultancy, language courses, and publications (JTECS 2003).

JICA's support for the Thai industrial sector has emphasized the strengthening of the real economy and thus its main counterpart organization has been the MOI. The cooperation initially focused on 'hard' technology such as metalwork and machine industries. Gradually, it became more comprehensive covering institutional aspects such as export promotion and then supporting industry development. In 1995, a JICA study project produced a report on 'industrial sector development (supporting industries),' which contained comprehensive recommendations for industrial promotion. The MOI realized some of the recommendations, such as the establishment of the Bureau of Supporting Industry Development (BSID) under the Department of Industrial Promotion (DIP) (JICA 1999).

### **3. Initiatives during and after the Economic Crisis**

#### ***3.1. Occurrence of the crisis and the Industrial Restructuring Plan***

In July 1997, Thailand was severely damaged by a currency crisis that was triggered by the large and quick outflow of short-term and speculative capital. The fixed exchange rate regime was abandoned due to decreasing

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<sup>3</sup> The Japan External Trade Organization (JETRO) provides services that contribute to the promotion of trade and economic cooperation with foreign countries. While Japan International Cooperation Agency (JICA) mainly provides support for the public sector in developing countries, Japan Overseas Development Corporation (JODC) and The Association for Overseas Technical Scholarship (AOTS) were organizations that supported industrial human resources development in developing countries through training and expert dispatch, respectively (these operations are now conducted by the new AOTS, or The Association for Overseas Technical Cooperation and Sustainability Partnership).

foreign currency reserves and the baht depreciated by more than 50 per cent within half a year. The crisis caused significant damage to the real sector. In 1998, the economic growth rate dropped to minus 7.6 per cent and the automotive production volume decreased from 559 thousand in 1996 to only 158 thousand in 1998. In response to the situation, the International Monetary Fund (IMF) and the World Bank extended their emergent financial and policy support, which required financial/fiscal stabilization policies. However, these measures, which focused on macroeconomic aspects, did not lessen the impact on the real economy and might have served to aggravate the situation further (Tanikawa 2000).

During the crisis, the already existent initiatives for industrial restructuring gained further momentum. The Industrial Restructuring Plan (IRP) was formulated by the Sub-Committee for Industrial Restructuring Plan under NIDC and approved by the Cabinet in early 1998. In formulating the IRP, the MOI relied significantly on the outcomes of the previous cooperation with JICA. The formulation process was also partially supported by a Japanese advisor from the MITI, who emphasized the importance of grasping the actual situation of Thai enterprises and taking measures to make feasible enterprises survive the crisis. The following are the factors that contributed to the increased momentum for IRP formulation within the Thai government:

- It was recognized that emergent responses focusing on macroeconomic aspects were not sufficient, and that addressing the needs of the real economy or individual industrial sectors/enterprises was necessary.
- There was pressing political demand for SME support (as symbolized by the emergence of the Thai Rak Thai Party led by Thaksin).
- The ambition of the MOI, especially the Minister of Industry was to strengthen its influence within the government.

The IRP consists of eight pillars that focus on (i) productivity, (ii) technological capabilities, (iii) labor skills, (iv) SMEs, (v) marketing, (vi) rural development, (vii) foreign direct investment (FDI), and (viii) environment protection. While the plan itself covered the period up to 2002, the concrete implementation plans were made annually starting from 1999. The plans made use of the government budget appropriated from financial support extended by donor partners such as the World Bank, the Asian Development Bank, and Japan (JICA 1999).

In parallel with the IRP formulation, the institutional settings for implementing industrial policies were also strengthened. Most importantly, in line with JICA's study in 1995, the MOI submitted a draft SME Promotion Act to Parliament in April 1999. The Act covered issues including (i) the SME promotion committee and office responsible for overall SME promotion policies; (ii) an SME promotion fund; and (iii) SME promotion action plans. At the implementation level, the MOI, in collaboration with the private sector, established new sectoral institutes (*Sathaban* in the Thai language) such as the Thai Automotive Institute (TAI) and the Electric and Electronic Institute (EEI) (JICA 1999).

In embarking on the IRP implementation, Prime Minister Chuan and the Japanese Minister of Trade and Industry agreed on Japan's cooperation for the preparation of SME promotion policies. According to the observation of one of the Japanese experts at the time, the Thai side had examined and compared the SME promotion system of various foreign countries. After deliberation, it requested support from Japan, who placed importance on the real economy or actual performance of 'ingredients' of the economy such as individual enterprises; this was in contrast to the IMF-like approach focusing more on the macroeconomic 'framework.' The context was also ripe for the Japanese side to support Thailand for the following reasons:

- Most of the Japanese enterprises in Thailand were committed to remaining in the country even during the crisis and had strong expectations for the Japanese government support to Thai industries.
- The Japanese government's policy towards ASEAN was also oriented towards focusing more on supporting the domestic industries (including SMEs) of the countries in the region beyond mere export promotion support. This was thought necessary for realizing further regional integration and stronger partnerships between Japan and ASEAN countries.

The following subsections outline three concrete cases from the various initiatives for industrial restructuring, where the MOI was in charge and intensive support was provided by Japan, namely (i) formulation of an SME promotion master plan; (ii) the establishment of a factory evaluation system; and (iii) strengthening of the automotive supporting industry.

### **3.2. Formulation of an SME promotion master plan**

The formulation of an SME promotion master plan (SME M/P) was one of the 24 projects within the 1999 IRP implementation plan, and under the fourth pillar of 'Program for Incubation & Strengthening of Small & Medium Supporting Industries' (JICA 1999). The DIP was responsible for this project receiving extensive support from Japan.

#### **3.2.1. Process of cooperation**

In response to the announcement of the Japanese government at the first ASEAN Economic Ministers-METI Economic and Industrial Cooperation Committee (AMEICC) meeting to support ASEAN countries suffering under the economic crisis, the MITI decided to send Shiro Mizutani to Thailand as an advisor to the Minister of Finance and the Minister of Industry. Mizutani was formerly a high-ranking official within the MITI who had served as Director General of the Consumer Goods Industries Bureau. In addition to his profound understanding of Japan's industrial and SME promotion policies, his human network with Thai stakeholders, established through his previous career as Representative of JETRO Bangkok office, made Mizutani the most suitable expert to serve as an advisor. In his role as Advisor, Mizutani visited Thailand on five occasions each of relatively short duration (for 55 days in total) between January and June 1999. To support his activities, close to one hundred working-level experts were mobilized from various Japanese organizations including the Japan Small Business Corporation (now the Organization for Small & Medium Enterprises and Regional Innovation, Japan), the Japan Small and Medium Enterprise Management Consultant Association (J-SMECA), and financial institutions dedicated to SME finance such as the Shoko Chukin Bank.<sup>4</sup> At the end of his mission, Mizutani submitted a draft SME M/P (the so-called 'Mizutani Plan') as a proposal to the Thai government. In coordination with the policy level support led by Mizutani, JICA also conducted follow-up survey to its 1995 study and submitted recommendations on the SME M/P and implementation plans for the newly established sectoral institutes (i.e. TAI and EEI).

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<sup>4</sup> It should be noted that these organizations were largely engaged in domestic businesses in Japan, meaning that supporting foreign countries was beyond their original responsibilities.

The cooperation process had several characteristics. First, a high-ranking official like Mizutani was intentionally designated as an advisor to ensure high-level ownership on the Thai side. In response to Mizutani's advice, the two counterpart ministers promptly instructed their staff to take concrete actions. The quick and visible response sent out political messages to the general public that measures were steadily being taken to overcome the crisis.<sup>5</sup> Second, as Thailand was experiencing a severe economic crisis, support was provided in an emergent mode. Mizutani's visits were intentionally short so as to generate quick outcomes with a sense of emergency. This differs from common practice in Japanese industrial policy support, which has a longer time horizon, as illustrated by other chapters in this volume. Third, even under the emergent situation, the Japanese side managed to grasp the details surrounding Thai industries, ranging from various economic indicators and existing policies and laws/regulations to business practices on the ground.<sup>6</sup> This exercise was made possible by the large-scale mobilization of Japanese experts from various professional backgrounds. The presence of Japanese enterprises was another enabling factor; for example, the accurate information possessed by the JCC, which supplemented insufficient official statistics, was useful in analyzing the situation. Fourth, based on detailed observations, the SME promotion measures were tailored to the local Thai situation. While referring to the extensive menus found in relevant Japanese policies, Japanese experts avoided simply copying them. Rather, they prioritized those measures that would fit to the Thai context with necessary adjustments. For example, the establishment of SME cooperatives, which was a successful SME promotion measure in Japan, was not included in the Mizutani Plan as the assumption at the time was that strengthening individual SMEs should be prioritized in Thailand (AOTS 1999). The fifth characteristic concerns the modality of interaction between Japanese experts and their Thai counterparts. The Japanese experts were willing to consult with their counterparts on the contents of their recommendations. However, partly due to the emergent nature of the collaboration, there seems to have been limited room for intensive exchange of opinions, which could have served as a learning

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<sup>5</sup> For example, AOTS, in partnership with the MOI, conducted so-called 'training for ten thousand people' to equip a wide range of local industrial human resources with basic business skills such as bookkeeping and 5S.

<sup>6</sup> One of the practical findings was that the financial statements from Thai enterprises were in many cases unreliable and thus not duly examined even during appraisals by financial institutions.

process on the Thai side. While the recommendations were elaborated to suit the local Thai situation, such adjustments were made by the Japanese side and their counterparts largely accepted the recommendations as they were.<sup>7</sup> In the course of JICA's follow-up survey, the study team urged the MOI staff to propose priority projects to be included in the M/P, but they failed to do so (JICA 1999).

### ***3.2.2. Contents of the Japanese recommendations***

The outline of the SME promotion measures proposed in the Mizutani Plan is shown in Box 9.1 It consists of two pillars. The first pillar, or 'measures for solving problems faced by Thai SMEs,' can be understood as the policies addressing SMEs in general, which covered issues including finance, management, and technology. The introduction of a factory evaluation system was proposed as an independent primary measure. This was based on the recognition that understanding the actual and detailed situation of individual SMEs, through factory evaluation, was the precondition for all other SME promotion measures to be effective. The second pillar, or 'SME policies for realizing vigorous economic and social systems,' complemented the first pillar by targeting more specific segments of the economy. This can be understood as the manifestation of the typical Japanese idea that general (or 'horizontal') measures are not enough to realize strategic industrial upgrading, but rather targeted 'vertical' measures focusing on specific sectors (such as supporting industries) are essential.

### ***3.2.3. M/P formulation by the Thai government***

#### ***M/P by the MOI***

Based on recommendations from Japanese experts, the MOI elaborated its own SME M/P, which was approved by the Cabinet in April 2000. The coverage of this M/P was, in keeping with the MOI's jurisdiction, limited to SMEs in the manufacturing sector. Although the contents of the M/P more or less reflect the recommendations from the Japanese side (JICA 2002),<sup>8</sup> there are some differences that could be understood as a result of the Thai side's own translative adaptation as shown below:

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<sup>7</sup> According to a former Japanese expert, one of the exceptions was that the MOI insisted on including microenterprises as the target of support measures.

<sup>8</sup> According to a former Japanese expert, the MOI stated that '85 per cent' of the Japanese recommendations were accommodated.

### **Box 9.1. SME Promotion Measures in the Mizutani Plan**

#### **Measures for Solving Problems Faced by Thai SMEs**

1. Introduction of a Factory Evaluation System
2. Strengthening of the Financial System
  - (1) Restructuring of the Credit Guarantee System
  - (2) Restructuring of Special Financial Institutions (Establishment of a Financial Institution Specialized in SME Finance)
  - (3) Establishment of Equity Financing Facilities for SMEs
3. Measures for Further Upgrading Technological and Managerial Capability
  - (1) Introduction of a Comprehensive On-site Technical Guidance Program
  - (2) Technical Guidance Aiming at Global Standards
  - (3) Strengthening of Production/Quality Management through TQM, ISO, etc.
  - (4) Technology Development for SMEs and Promotion of Technical Guidance by Public Institutions
4. Human Resources Development
  - (1) Institutional Support for Promoting Human Resources Development for SMEs
  - (2) Support for Entrepreneurs and New Business Development
  - (3) Strengthening/Expansion of the Skill Certification System
  - (4) Strengthening of Human Resources Development Capacity at Vocational Training Schools and Universities
5. Improvement of Business Environment
  - (1) Institutional Promotion of Policy Dissemination Activities
  - (2) Introduction of a Preferential Purchasing System of SME Products by Public Institutions
  - (3) Strengthening of Export Promotion Activities
  - (4) Measures for Improving Efficiency of Logistics
  - (5) Support for Information Technology Development for SMEs
  - (6) Measures for Special Policy Objectives (Pollution Prevention etc.)

#### **SME Policies for Realizing Vigorous Economic and Social Systems**

1. Sector-wise Promotion Policies including Promotion Policies of Supporting Industries
  - (1) Sector-wise Promotion Policies
  - (2) Promotion Policies for Supporting Industries
2. Promotion Policies for Regional SMEs
  - (1) Formulation of Regional SME Promotion Plans
  - (2) Establishment of an Institutional System for Providing One-Stop Services
  - (3) Improvement of Business Environment
  - (4) Support for Small and Micro-sized Enterprises
  - (5) Support for Rural Areas and Region-specific Industries (Promotion of Local Industries)
  - (6) Regional SME Promotion through Linkage with Large Enterprises

Source: JETRO Bangkok Center (1999) (Translated by Author).

- The 'Introduction of Comprehensive On-Site Technical Guidance Program,' proposed in the Mizutani Plan, was not included in MOI's M/P in its suggested form. Instead, the M/P included the 'development of a consulting system for improving businesses and solving problems,' which could be understood as a measure with more general orientation (see the next subsection for the possible background to this development).
- Coordination among stakeholders appears to be emphasized. For example, 'business clusters' is positioned as one of the seven strategies. Although there are some references to clusters in the Japanese recommendations, cluster promotion is not an independent strategy. In addition, 'support for establishing micro and small enterprise cooperatives in the rural area' is included in MOI's M/P. It is interesting to note that the Mizutani Plan intentionally excluded SME cooperatives as the Japanese side thought these would not work effectively in the Thai context at the time.

While these differences are the results of MOI's own deliberations, it is appropriate to assume that the voices of third parties also influenced the formulation process, as illustrated below.

- In parallel with Japan's support, the International Labour Organization (ILO) and the United Nations Development Programme (UNDP) were implementing the 'Micro and Small Enterprises Development and Poverty Alleviation in Thailand Project.' This project produced several working papers, which largely advocated for SME promotion policies that complied with 'international best practices.' For example, the project recommended that provision of business development services (BDS) should be left to the private sector as much as possible.<sup>9</sup> They also demanded that SME policies be holistic and cover a wide range of enterprises, including the informal sector, rather than narrowing down the scope to specific industries such as manufacturing (Allal 1999).
- The World Bank was also involved in the formulation process. It conducted a large-scale enterprises survey (JICA 1999) and organized a seminar on SME M/P (Sevilla and Soonthornthada 2000).<sup>10</sup> This

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<sup>9</sup> One of the working papers includes a citation from a paper written by MOI's Director General, which is in line with the international best practices (Allal 1999).

<sup>10</sup> Japanese experts also referred to the World Bank survey results and had discussions with experts from the World Bank.

seems to suggest that the World Bank paid attention not only to the macroeconomic, or 'framework,' aspects but also to the real economy, or 'ingredients' on the ground.

- In addition to international donors, the presence of domestic stakeholders is also observed. For example, a paper prepared by the Institute for Population and Social Research of Mahidol University expresses some cautions around the SME M/P. Specifically, it raises questions about the appropriateness of the target sector selection and expresses an expectation that the formulation/monitoring process of the M/P be attentive to the opinions of domestic stakeholders (Sevilla and Soonthornthada 2000).

### ***Master plan by the OSMEP***

In February 2000, the SME Promotion Act was promulgated in parallel with the approval of the SME M/P by the MOI. As stipulated in the Act, the Office of SME Promotion (OSMEP) was duly established in November of the same year. Unlike the MOI, the OSMEP was mandated to cover SMEs in all sectors including manufacturing, trade, and service. An institutional framework, which remains in place today, was established where the OSMEP formulates and monitors comprehensive SME M/Ps and detailed action plans. The first SME M/P by the OSMEP was approved by the Cabinet in May 2003. It embodies the translative adaptation process by the Thai government reflecting upon MOI's M/P, opinions of international and domestic stakeholders<sup>11</sup> as well as the overall direction of the Thaksin administration who came to power in 2001. Box 9.2 and Figure 9.1 show the outline of strategies/measures taken by the M/P and its relationship with the Mizutani Plan, respectively.<sup>12</sup>

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<sup>11</sup> One of the Appendices of the M/P shows the process of its formulation. According to the appendix, SME promotion policies from eight foreign countries (Japan, China, Australia, Malaysia, Singapore, Italy, Taiwan, and South Korea) were studied and five domestic seminars were held in regional cities and Bangkok in order to collect voices from stakeholders (OSMEP 2003).

<sup>12</sup> The indications of the relationship between the two plans in Figure 9.1 are intuitively classified into solid lines (strong and clear association) and dotted lines (weak and ambiguous association).

## **Box 9.2. SME Promotion Measures in the Master Plan by the OSMEP**

### **Basic Strategies for Enterprises of All Types and Areas across the Country (Broad Based Strategies)**

1. Strategies for Revitalizing SMEs as an Important Mechanism for Economy and Society of the Country
  - (1) Measures for Rehabilitating the Status and Strengthening Financial Stability of SMEs
  - (2) Measures for Improving Environment of SMEs to Expand Market and Create Opportunities
2. Strategies for Creating and Improving Infrastructure and Reducing Barriers to Business Operations
  - (1) Measures for Developing Infrastructure and Improving Government Regulations and Services to Facilitate the Operation of SMEs
  - (2) Measures for Promoting Cooperation between the Public and Private Sectors and Strengthening Private Sector Organizations
3. Strategies for Strengthening SMEs for Sustainable Growth
  - (1) Measures for Enhancing Efficiency and Promoting ICT use of Operators of Manufacturing, Trading, and Service Enterprises to Adhere to Corporate Governance Principles Satisfying International Standards
  - (2) Measures for Promoting Joint Research and Development for Innovation towards Business Use among Government, the Private Sector, and Educational Institutions
  - (3) Measures for Linking Enterprises and Developing Integrated Enterprise Groups (Clusters) through an Enterprise Grouping System, an Information Network System, and a Supply Chain System
  - (4) Measures for Improving the Capacity and Quality of Life of Personnel in SMEs

### **Strategies Focusing on Target Groups (Sectoral Strategies)**

4. Strategies for Enhancing the Capacity of Exporting Enterprises to the International Level
  - (1) Measures for Strengthening Export Marketing Capacity
  - (2) Measures for Developing Products and Services of SMEs to Meet the Internationally Accepted Standards
  - (3) Measures for Creating a Good Business Environment and Reducing the Burden and Disadvantage of Export-oriented Enterprises Arising from Trade Barriers or Laws, Policies, and Measures of the Government
5. Strategies for Creating and Developing New Entrepreneurs
  - (1) Measures for Promoting and Linking Research Activities, and Developing Innovation towards Commercial Production
  - (2) Measures for Creating and Instilling a Sense of Entrepreneurship
  - (3) Measures for Creating Opportunities for New Entrepreneurs by Providing Necessary Facilities and Supporting Training/Generation Measures
  - (4) Measures for Creating an Atmosphere Encouraging Generation of New Entrepreneurs
6. Strategies for Enhancing the Potential of Community Enterprises in Solving the Issue of Poverty and Spreading Prosperity to Regions
  - (1) Measures for Developing Local Wisdom and Generating Commercial Benefits
  - (2) Measures for Enhancing the Capacity of Community Enterprises towards the Development of the System as a Whole and Promoting the Early Generation of Benefits at the Local Province and Community Levels
  - (3) Measures for Creating Markets and Distributing Goods and Services of Community Businesses to Markets

Source: OSMEP website (<https://www.sme.go.th/th/download.php?modulekey=12>) (Translated by JICA and Author).



Note: The outlines of the two plans correspond to those shown in Box 9.1 and Box 9.2.  
 Source: Author's elaboration.

**Figure 9.1. Comparison of SME Promotion Measures between the Mizutani Plan and the Master Plan by the OSMEP**

Some of the observations are as follows:

- Both plans commonly employ the two pillars of ‘general measures’ and ‘targeted measures’ for SME promotion; however, the targeted segments are different. While the Mizutani plan proposes targeting specific industrial sectors, including supporting industries, the OSMEP M/P targeted exporting enterprises and new entrepreneurs.<sup>13</sup>
- Establishment of a factory evaluation system is not included in the OSMEP M/P in a concrete way. There is a reference to ‘*shindan*’ (a Japanese word corresponding to ‘evaluation’ as detailed in the next subsection) only in the main text outlining the measures under the ‘Strategy for Strengthening SMEs for Sustainable Growth.’
- Issues such as the business environment for SMEs, public-private partnership, inter-enterprise linkages, and entrepreneurship are emphasized. This seems to show some inclination towards the ‘international best practices’ stated above.
- The M/P aims to improve the ‘quality of life’ of SME employees, which is a perspective not found in the Japanese recommendations.

### **3.3. Establishment of a factory evaluation system**

This subsection reviews Thailand’s endeavors to establish a system to strengthen BDS provision with reference to Japan’s enterprise evaluation (*shindan*) system, and the associated support from Japan.<sup>14</sup> The enterprise evaluation system is one of the measures that contributed to SME development in post-war Japan. Under the Japanese system, personnel equipped with knowledge and skills for diagnosing enterprises (including factories in the case of manufacturers) are certified and registered as professional evaluators (‘*shindan-shi*’ in Japanese); they play an important role in SME promotion activities. Typically, *shindan-shi* conduct overall diagnoses of enterprise/factory performance from a mainly managerial and financial perspective, with a view to identifying challenges and/or opportunities for further growth in enterprises. They then provide

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<sup>13</sup> In the Mizutani Plan, measures for strengthening export enterprises and entrepreneurs are included in the general policies. Regional SMEs are commonly targeted in the two plans.

<sup>14</sup> While the general term ‘evaluation’ is primarily used as the translation of ‘*shindan*’ in this chapter to maintain consistency with the Japanese recommendations in response to the economic crisis, the meaning of ‘*shindan*’ is more specific and closer to the word ‘diagnosis.’

general instructions for addressing the challenges and opportunities they have identified. For in-depth support, enterprises are expected to follow *shindan-shi*'s general instructions and rely on BDS providers with more specialized expertise. Guidance given by the *shindan-shi* is also expected to facilitate access to finance. As such, the role of *shindan-shi* can often be likened to that of 'home doctors,' as opposed to 'professional doctors.'

### **3.3.1. Initiatives in response to the economic crisis<sup>15</sup>**

The establishment of a factory evaluation system was one of the 24 projects in the 1999 IRP implementation plan and was included in the first pillar of 'Program for Improving Industrial Productivity and Renovating the Production Processes to Enhance Competitiveness in Production Costs and Product Delivery.' The MOI set up a Committee for Promoting the SME Evaluation Program which was made up of public organizations and private stakeholders, such as SME associations and financial institutions. This committee decided to implement the 'program for training SME evaluators for manufacturing enterprises' and designated the DIP as the body responsible for the program. Within the DIP, the BSID was assigned as the section in charge, which reflected the recognition that the factory evaluation system was primarily intended to promote a specific segment of SMEs or supporting industries. The actual implementation of the program on the ground was delegated to TPA.

The Japanese side provided intensive support for the Thai initiative. At the policy level, the Japanese advisor on IRP formulation contributed to the nurturing of a common recognition of the necessity for the factory evaluation system, which would be useful for discerning viable SMEs and connecting them to financial support. The Mizutani Plan also emphasized the system as the primary measure for SME promotion. JICA's follow-up survey report proposed a detailed implementation plan for establishing the system, with a view to connecting the evaluators' service to the specialized BDS providers and financial institutions. To materialize the proposed plan, field level support for evaluator training and trial implementation of factory evaluation was provided in four phases from July 1999 to March 2002. In cooperation with Japanese organizations that possessed practical know-how of the Japanese *shindan* system, including

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<sup>15</sup> The description in this subsection largely relies on Otsuji (2016), JICA (1999), and unpublished reports by former Japanese experts.

Japan Small and Medium Enterprise Corporation and J-SMECA, 115 experts were mobilized for the program.<sup>16</sup> During the cooperation period, 479 associate *shindan-shi*<sup>17</sup> were trained, and close to one thousand factory evaluations were conducted. As the program was implemented during a severe economic crisis, competent personnel (e.g. ex-bankers) also participated in the training program. Beneficiary SMEs were generally satisfied with the evaluations that were conducted.

When it comes to the cooperation process, however, the implementing structure on the Thai side was rather weak. The project office at TPA was largely occupied by Japanese experts and the main counterpart of the BSID was too busy to stay long at the office and pay enough attention to the daily operation of the program. TPA, the implementing organization on the ground, had difficulty assigning sufficient personnel to the program and Japanese experts were frustrated with frequent changes of their counterparts.<sup>18</sup> In devising the factory evaluation system, Japanese experts had to lead the process as this system was totally new to their Thai counterparts and it was difficult for them to make immediate contributions to the process of designing the system. As a result, institutionalization of the system fitted to the Thai local context did not progress as expected.<sup>19</sup>

### 3.3.2. *Development after the economic crisis*

After the intensive support from Japan in response to the economic crisis, the initiative from the Thai side unfolded in a manner considerably different from Japanese expectations. As the OSMEP was established as the organization with overall responsibility for SME promotion policies, the initiative for establishing the system was also transferred from the MOI to the OSMEP. The OSMEP seemed to give relatively low priority

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<sup>16</sup> JICA also assigned an expert for helping the institutionalization of the factory evaluation system during this period.

<sup>17</sup> Although Thai trainees acquired necessary skills to become *shindan-shi*, there was no mechanism, including examinations, for officially certifying their qualification. This was why they were designated as 'associate' *shindan-shi*.

<sup>18</sup> According to the reflection by a Thai expert involved in the program, this could partially be attributed to the high flexibility of the Thai labor market. It was not uncommon for Thai people, including TPA staff, to change jobs frequently especially when they accumulated sufficient skills and experiences at their current workplace to further their professional careers.

<sup>19</sup> There were some occasions where the Thai side exerted strong ownership. For example, the MOI secured budget for receiving some of the Japanese experts through tough negotiations with financial authorities.

to the establishment of the system, which coincides with the fact that OSMEP's SME M/P did not position the *shindan* system as an independent policy measure, as stated above. In fact, according to the opinion of a Thai expert, there seemed to be some reservation within the Thai government, from the outset, to legislate a rigid national system that could lead to the monopolization of general enterprise evaluation tasks by certified individual consultants.<sup>20</sup> In addition, it became necessary to coordinate the overall institutional framework for the provision of consulting services to SMEs. Specifically, while Japan provided support for introducing the *shindan* system, other donor partners also supported the formulation of business consultant qualifications. This then resulted in a situation where the quality of consulting service was not sufficiently assured (JICA 2002). Although the *shindan* system (more specifically, systematic training program or certification/registration system as found in Japan) has not been institutionalized due to these situations, related activities were observed, as illustrated below.<sup>21</sup>

#### ***MOI's endeavors for regional SME promotion***

The MOI continued activities mobilizing the trained associate *shindan-shi*, even after the intensive support from Japan ended. In particular, the MOI utilized associate *shindan-shi* in a systematic way within its jurisdiction. For example, diagnosis by associate *shindan-shi* was required in its projects such as Invigorating Thai Business (ITB), which responded to the trend towards emphasizing rural SMEs under the Thaksin administration. The MOI even trained new evaluators at the regional level, although the length of training was much shorter than the training conducted right after the economic crisis.

This trend of emphasizing the rural industries, together with the above-stated necessity for coordinating the consulting service provision, led the MOI to start an initiative to strengthen the institutions for supporting regional SMEs. With continual support from JICA, the MOI has been attempting to establish the Regional Integrated SME Promotion (RISMEP)

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<sup>20</sup> Apart from individual consultants, the Ministry of Finance has a system for registering organizations engaged in government programs for enterprise consultancy (TPA and TNI are registered under this system).

<sup>21</sup> In addition, trained associate *shindan-shi* themselves are thought to be utilizing the wide expertise gained through the *shindan* training. According to an interview from a Thai expert, one of the former associate *shindan-shi* is serving as a manager of the SME Development Bank of Thailand.

system nationwide. Under the system, various BDS providers (ranging from public support organizations to individual consultants) are networked at the regional level and provide collective support for SMEs in their respective regions.<sup>22</sup> Specifically, when a BDS provider receives an inquiry from an SME and finds itself unable to meet its demands, it introduces another BDS provider that has expertise more suited to the needs of the SME. As the target segment shifted from supporting industries in the urban area to rural SMEs, the responsible sections within the MOI also changed from the BSID. At the central level, the section within the DIP in charge of industrial/enterprise development in general took the lead.<sup>23</sup> At the regional level, local offices of the DIP (Industrial Promotion Centers (IPCs)) or, in provinces where IPCs are not located, local offices of the MOI played the central role in RISMED operations.

Although the *shindan* system was not introduced into Thailand in the same form as in Japan, some of its traits seem to be reflected in RISMED. Just as *shindan-shi* act as ‘home doctors,’ attending to the needs of SMEs and referring them to appropriate specialized BDS providers, members of RISMED networks collectively cater to the needs of SMEs in the region beyond their individual expertise. A Japanese expert who supported the establishment of RISMED suggests that her MOI counterparts recognized the necessity for, and actual lack of *shindan-shi*-like personnel with general but broad knowledge in the country, especially in the rural areas. Such recognition led them to introduce and expand RISMED where respective BDS providers, with limited expertise on their own, knew and complemented each other to serve as a collective platform for assisting SMEs in the region. This development could be understood as a translative adaptation process by Thai stakeholders, including the MOI.

### ***Shindan-related activities by other organizations***

Additional developments related to the factory evaluator training program took place after the economic crisis. TPA, which served as the main counterpart organization to Japanese experts within the program, continued its enterprise evaluation activities for Thai SMEs (the word ‘*shindan*’ is used on its website). Furthermore, the Thai-Nichi Institute of

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<sup>22</sup> The description on RISMED is based on JICA (2016, 2018) and interviews from a former JICA expert and former JICA staff in charge.

<sup>23</sup> Currently, the Division of Industrial Business Capability Development (DBCD) is in charge, although the name of the responsible section changed several times due to frequent reshuffling of the organizational structure of the MOI.

Technology (TNI),<sup>24</sup> which played an important role in industrial human resources development in Thailand, established a course for training *shindan-shi* in its Executive Enterprise Management Program (Ohno 2010). According to its website, TNI continues to offer courses on *shindan* in its Master of Business Administration (MBA) Program. In fact, some associate *shindan-shi*, who were employed by TPA and engaged in the SME evaluation program, continue to teach *shindan*-related content at TNI. The content has inherited the traits of the *shindan-shi* training provided by Japan such as an emphasis on on-site learning rather than classroom lectures.<sup>25</sup> These developments suggest that, even though the *shindan* 'system' did not materialize, the *shindan*-related expertise as well as the Japanese word itself have spread widely in Thailand. This further implies that the core idea of *shindan*, namely a recognition on the importance of general enterprise diagnosis at the beginning of a consultancy and the need for skilled and dedicated 'home doctor'-like personnel to conduct such initial diagnoses, has been well rooted in the country.

### **3.4. Strengthening of the automotive supporting industry**

This subsection reviews the initiative for strengthening supporting industries, with a focus on that of the automotive industry. While the case of the factory evaluation system explained in the previous subsection is a horizontal approach without strong focus on specific industrial sectors, the initiative presented here is typically vertical as the main interest is in the business relationship between assemblers and parts suppliers in specific sectors.

#### **3.4.1. Initiatives in response to the economic crisis**

The economic crisis hit enterprises in all sectors. However, from the viewpoint of foreign assemblers who were determined to remain in Thailand despite the shrinking domestic market, the emergence of competent local parts suppliers was particularly important for expanding exports. Against this backdrop, there was increased momentum for strengthening supporting industries. Sectoral institutes, such as TAI and EEI, were approved by the Cabinet in 1998 and started operation the next year. These institutes aimed to play an important role in promoting their

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<sup>24</sup> 'Nichi' means 'Japan' in Japanese. The University was founded by the TPA.

<sup>25</sup> Interview with a Thai expert.

respective sectors. However, existing literature does not clearly indicate the relationship between the initiative for strengthening supporting industries and the IRP. Although the second pillar of the IRP, the 'Program for Upgrading Technological Capabilities and Modernization of Target Industries,' is in line with the initiative, the 1999 IRP implementation plan did not contain concrete projects for this program.

In contrast, the Japanese side was proactive in supporting the initiative. At the policy level, Japan announced its intention to support the automotive supporting industry in four ASEAN countries including Thailand at the AMEICC meeting in 1998. The Mizutani Plan proposed a comprehensive on-site technical guidance program for supporting industries. According to the program implementation plan shown in JICA's follow-up survey report, selected local enterprises that showed significant potential were supposed to receive on-site technology transfer from experienced international experts as a means of improving their business performance.<sup>26</sup> The basic assumption was that such on-site guidance was more effective than off-site seminars and training.

### ***3.4.2. Implementation of the technical guidance program<sup>27</sup>***

In line with the proposed plan, actual cooperation with the automotive supporting industry, or the Automotive Expert Dispatching Program (AEDP), was conducted continually in two phases from October 2000 to September 2005. The experts from Japanese automotive enterprises, who were mainly dispatched through the JODC and JETRO programs, collaborated with TAI and provided technical support to around two hundred local auto parts manufacturers. In general, the program was evaluated highly by both parts manufacturers as direct beneficiaries and their business partners, or Japanese assemblers, due to the close coordination on the concrete content of the guidance to be provided to targeted local enterprises.

However, there was some complexity in the cooperation process. At the beginning of the program, the process was to some extent driven

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<sup>26</sup> Unlike the case of the factory evaluation system, this proposal was not based on a similar model found in Japan but rather on good practices from South Korea and Malaysia.

<sup>27</sup> The description in this subsection largely relies on Otsuji (2016) and METI (2004, 2005, and 2006).

by Japanese interests.<sup>28</sup> First, Japanese experts and TAI had different preferences for target enterprises; while the Japanese side preferred Tier 1 enterprises with a direct business relationship with Japanese assemblers, the Thai side was more inclined to include lower-level enterprises.<sup>29</sup> There were some occasions where the Thai side expressed explicit frustration with the Japanese way. Second, as TAI could only assign a limited number of counterparts, in many cases Japanese experts supported target enterprises directly with the help of interpreters. While this resulted in quick outcomes for target enterprises, the contribution to strengthening TAI's capacity was limited. This situation gradually improved as the program progressed. According to the reports of the second phase activities, the process for selecting target enterprises was mainly led by TAI and guidance to the target enterprises was eventually conducted by teams of Japanese experts and their TAI counterparts newly employed for the program.<sup>30</sup> More importantly, TAI staff, ranging from management to technical counterparts to Japanese experts, came to recognize that the program activities were being conducted for their own benefit and they came to appreciate the Japanese experts for their support (METI 2006).

### ***3.4.3. Development after the technical guidance program***

Owing a lot to the technical guidance program, the automotive industry in Thailand recovered well from the damage of the economic crisis. In fact, the country went on to establish itself as the 'Detroit of Asia,' as was the goal of the Thaksin administration.<sup>31</sup> FDI from Japanese automotive enterprises further accelerated after 2002, with the expectation that Thailand would become a hub of the automotive industry in the ASEAN

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<sup>28</sup> The title of the program ('Automotive Expert Dispatching Program') itself implies this tendency.

<sup>29</sup> Similar divergence of recognition was also observed at the policy level. In the opinion of one of the Japanese experts involved in the formulation of the Mizutani Plan, the MOI, or even the BSID, the section responsible for promoting supporting industries, was not very active in supporting enterprises that had a potential to become business partners with Japanese assemblers. In a sense, however, this stance of the MOI might be natural as there was a political pressure to ensure fairness in beneficiary selection and the ministry did not have sufficient technical capabilities to meet the demands of promising supporting industries.

<sup>30</sup> However, despite their satisfactory performance, retention of these counterparts was recognized as a challenge.

<sup>31</sup> While the Thaksin administration tended to emphasize the rural industries for political reasons, its 'dual-track' policies also placed importance on supporting industries in urban areas.

market. Automotive production in the country recovered steadily and exceeded one million vehicles in 2005.

Regarding the partnership between Thai and Japanese stakeholders, the technical guidance program evolved to a new modality. Support for individual local enterprises was scaled up to the broader initiative of human resources development within the automotive industry. In 2005, building upon the achievement of AEDP, the Automotive Human Resource Development Project (AHRDP) was launched. TAI served as the secretariat of the project and major Japanese enterprises (Toyota, Honda, Nissan, and Denso) sent experts to train Thai trainers in their respective fields (METI 2008).<sup>32</sup> To date, TAI continues to contribute to the human resource development of the automotive industry.<sup>33, 34</sup> According to its website, TAI provides 26 public training courses and 68 in-house training courses. Some of the course titles reflect the influence of Japanese management methods, such as 'Continuous development courses with Kaizen' and 'HORENSO Course, Japanese Communication Techniques for Increasing Work Efficiency.'<sup>35</sup> Although the on-site guidance program proposed by Japan during the economic crisis and implemented through AEDP was not institutionalized as originally envisaged, the shift in orientation from support for individual local parts producers to broader industrial human resource development is understood to be an adaptation by TAI and relevant stakeholders.

#### 4. Discussion

This section summarizes and discusses the tendencies and characteristics

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<sup>32</sup> Concerning the involvement of the Japanese public sector, while the experts from Japanese enterprises were dispatched as part of JETRO's program, JICA also participated in AHRDP by sending long-term experts in charge of the overall project coordination and providing relevant equipment. However, the next round of cooperation (Automotive Human Resources Development Institute Project), implemented from 2011 to 2016, was more privately driven and JICA did not participate.

<sup>33</sup> In addition to human resource development, as an organization responsible for the overall promotion of the automotive industry, TAI has various functions such as research and development, testing and inspection services, business analysis, and information provision.

<sup>34</sup> TPA has also played an important role in automotive human resource development through in-house training, consultancy, calibration, and translation/publication of technical materials.

<sup>35</sup> 'Kaizen' means 'improvement' in Japanese and 'horensō' is an abbreviation of Japanese words meaning 'report, inform, and consult.'

of the three Thai initiatives and the corresponding Japanese support to overcome the economic crisis. First, the factors that enabled effective actions in response to the crisis are analyzed. Then, the process of translative adaptation by Thai stakeholders, or how they digested and utilized the input and outcomes of the Japanese support, is reviewed.

#### **4.1. Enabling factors for effective actions**

The following are thought to be the direct and indirect factors that contributed to the effectiveness of the immediate actions taken in response to the economic crisis:

##### Direct factors

- (1) Private and public stakeholders in the two countries were engaged in the actions with seriousness as the risk of discontinuation of economic activities produced a strong sense of emergency.
- (2) The commitment of high-level government officials ensured steady implementation of the proposed actions. The intensive support from Japan was based on a request from the Prime Minister of Thailand and the announcement by the Japanese Minister of Trade and Industry at the AMEICC meeting. The Thai Minister of Industry was ambitious enough to enhance MOI's presence within the government by taking quick and responsive actions for saving SMEs, partially for political reasons.
- (3) There was full-fledged working-level support from the Japanese side. Experts from a wide range of Japanese organizations with diverse backgrounds were mobilized and contributed to both (i) preparation of recommended policy measures (SME M/P) and (ii) on-site training/consultation (the factory evaluation system and the technical guidance program).
- (4) The Japanese side tried to grasp not only the macroeconomic indicators but also the actual situation of the real economy. While Japanese models were referred to, they were not simply transplanted to the Thai context; attempts were made to adjust the models and devise solutions suited to the situations in the country through joint work with Thai counterparts wherever possible.

##### Indirect factors

- (1) Even before the economic crisis, there was awareness of the structural vulnerability of Thai industries and the necessity for promoting SMEs and supporting industries. This awareness meant

that Thai stakeholders were ready to take relevant actions once the crisis occurred, as illustrated by the quick finalization of the IRP in early 1998.

- (2) The long-term and multi-faceted relationship based on mutual trust between Thai and Japanese stakeholders facilitated the actions taken. For example, as a former JETRO Representative, Mizutani had an established network among Thai stakeholders. Similarly, TPA was an organization founded by former Thai students who had studied in Japan and had a basic understanding on the Japanese way of thinking.
- (3) The presence of Japanese enterprises in Thailand during the economic crisis was important. Unlike the time-bound cooperation projects of donor agencies, FDI enterprises are permanent stakeholders as long as they continue operations in the destination country. In the face of the crisis, Japanese enterprises, especially in the automotive sector, came to expect public support from Japan for strengthening Thai supporting industries, which generated a timely 'win-win' situation. The experts from Japanese enterprises actively engaged in the technical guidance program and contributed to a rapid improvement in the performance of Thai auto parts producers. This development served as the basis of the collaboration platform between Japanese automotive enterprises and Thai stakeholders including TAI, which led to AHRDP and other initiatives.

#### ***4.2. Translative adaptation process by the Thai side***

While the actions taken in response to the economic crisis were generally effective, this does not mean that the collaboration between the two parties was always ideal or that the outcomes of the actions continued or sustainably took root. The overall tendency commonly observed from the three cases is that, while the cooperation process was largely aligned with the Thai government's own plan, it also entailed some donor-driven aspects. In the end, however, the Thai counterparts exerted considerable ownership and used the outcomes of the Japanese support to respond to the context after the crisis, as will be discussed below.

First, all three initiatives were aligned with the Thai government's overall orientation, which suggests Thai ownership in a general sense. The SME M/P formulation and the establishment of the factory evaluation system were explicitly positioned as projects in the IRP implementation plan. The

initiative for strengthening the automotive supporting industry was also consistent with IRP's overall orientation, although it is not clear from the existing literature whether the actual activities were recognized as part of IRP implementation. Apart from the relationship with the IRP, the establishment of TAI as the sectoral institute responsible for automotive industry promotion was the Thai government's original initiative.

Second, during cooperation, the level of participation by Thai stakeholders was mixed. Concerning the SME M/P formulation, the Thai counterparts were cooperative, but the recommendations were written by Japanese experts who referred to Japanese models and adjusted them for the Thai context. Looking at the factory evaluation system, participating evaluators were eager to learn the skills necessary for enterprise diagnosis; however, the administrative counterparts could not spare sufficient time for the program or make significant substantial contributions, which caused some frustration among the Japanese experts. The MOI and TAI both had a stake in strengthening the automotive supporting industry (especially in terms of target selection); however, at the beginning at least, the actual guidance to the beneficiary enterprises was in many cases provided directly by Japanese experts due to the absence of Thai counterparts. These observations could be partially attributed to the emergent nature of the support provided during the crisis; the Thai side was not necessarily indifferent to Japan's support, but it had difficulty assigning adequate counterparts or it was not possible for those who were assigned to be proactive enough to participate in the activities in a constructive manner. This is all the more true given that these types of activities were quite new in the Thai context. In addition, it could be pointed out that the high flexibility of the Thai labor market might have been a factor behind the unstable assignment of counterparts with Japanese experts.

Third, despite their apparently limited participation during the cooperation period, Thai stakeholders sometimes utilized the outcomes of Japanese support in ways that the Japanese side did not expect; this could be understood as the process of translative adaptation. Building upon the Japanese recommendations, the MOI and then the OSMEP completed their own SME M/Ps. These plans were different from Japanese proposals as evidenced by their emphasis on the role of the private sector or smaller enterprises, which indicates an inclination towards international best practices. The OSMEP version did not position the factory evaluation system, the core of Japanese recommendations, as an independent

measure; this is presumably the result of their own elaboration as well as incorporation of the voices of a wide range of stakeholders. Concerning the factory evaluation system, while the 'system' of training or certifying/registering *shindan-shi* was not institutionalized, presumably reflecting the reservations Thai stakeholders had about introducing rigid legislation, the importance of enterprise evaluation, or *shindan*, is well rooted. TPA conducts consultations for enterprises using *shindan* expertise, and TNI includes *shindan* in its education program (such as MBA). It might even be argued that the high flexibility of the labor market contributed to the wide spread of the *shindan* concept. In addition, the mechanism for regional SME promotion, or RISMEP, has some commonalities with the concept of *shindan*; just as *shindan-shi* conduct general diagnosis and connect client SMEs to specialized BDS providers, RISMEP provides such a function collectively through networking of BDS providers with different expertise. In the automotive supporting industry, the technical guidance program established in response to the economic crisis concentrated on providing direct guidance to local enterprises to meet the expectation of Japanese assemblers. Maintaining the partnership with the Japanese enterprises, TAI later shifted its orientation to developing industrial human resources in the automotive sector in a broader sense, as the case of AHRDP illustrates.

## 5. Conclusion

This chapter analyzed Thailand's endeavors and Japan's support for industrial restructuring in response to the Asian economic crisis from the late 1990s to mid-2000s. Overall, it can be concluded that Thai stakeholders had adequate ownership and capacity to utilize the outcomes of Japanese support in a balanced manner, realizing translative adaptation in the face of changing contexts. More specifically, the immediate actions, which paid due attention to the actual situation of the real economy, contributed to containing the crisis even though the initiatives were sometimes led by Japanese experts from a short-term perspective. From a longer-term perspective, the endeavors to respond to the crisis contributed to laying the institutional foundation for industrial development and SME promotion of the country, which had been weak and fragmented before the crisis. Referring to the Japanese recommendations as well as voices of various stakeholders, the newly established OSMEP formulated a comprehensive SME M/P for the first time in the country. On the ground initiatives in response to the crisis led to (i) widespread recognition on the

necessity of solid evaluation/diagnosis of enterprise performance and (ii) a strengthened platform for developing industrial human resources for the automotive sector through private public partnership.

There are some limitations to this chapter, which suggest possible areas for further research. First, while the SME promotion measures proposed by the Japanese side were comprehensive, this chapter only looked in detail at the factory evaluation system and the technical guidance program where the MOI was responsible and Japan provided extensive support. Reviewing the process by which other recommendations, including financial measures addressed to the Ministry of Finance, were accommodated by the Thai side would add useful insight into Thailand's response to the economic crisis. Second, the analysis of this chapter is largely based on existing literature and discussions with relevant Japanese stakeholders. In-depth interviews from a wider range of Thai stakeholders might unveil important facts related to the endeavors during and after the crisis, which could lead to different interpretations from those presented in this chapter.

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# Part III

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Future Perspectives and  
the Way Forward



## Contemporary Agenda on Industrial Development and Policy Support to Developing Countries

Toru Homma

### 1. Introduction: Background and Mega-trends in Industrial Development in the 21st Century

Industry has been evolving since the era of the First Industrial Revolution in the 18th and 19th centuries when steam-driven production methods were introduced and disseminated (Schwab 2016). The landscape of industrial development has again changed significantly in the first twenty years of the 21st century, with the emergence of distinct mega-trends such as globalization, digitalization, a series of unexpected giant external shocks including the Coronavirus Disease 2019 (COVID-19) pandemic, and growing international concerns about the environmental and social impacts of development.

The shape of industry is also rapidly changing with new technology, globalized production processes and diversification of product needs coming to the fore. However, it is not clear how these changes affect the content and basic functions of industrial policy, as well as the process of its formulation and implementation, in developing countries. We need to know what has been changing and what has not in industrial policy, in particular in developing countries. In this situation, Aiginger and Rodrik (2020) point out a variety of trends that have contributed to renewed interest in industrial policy after a period of decline and summarize the general principles of industrial policy for the 21st century.

In seeking to answer this question, this chapter first attempts to capture the mega-trends of industrial development that have become evident in the first twenty years of the 21st century and to discuss related industrial policies and donor intervention. Then it examines the challenges and opportunities for developing countries in the face of such contemporary mega-trends and how industrial policy should/would change associated

with such trends. Finally, it concludes with some lessons for the future of industrial policy and draws implications for Japan's industrial policy support to developing countries. While the chapter mainly deals with the manufacturing sector, its analysis is not necessarily limited to that sector, depending on the nature of each topic. As the manufacturing sector itself is evolving as a result of on-going changes, this chapter takes a broader perspective which can be described as 'manufacturing and beyond.'

To provide the background for the chapter, the remaining part of this section summarizes four mega-trends around industrial development: (i) globalization; (ii) digitalization; (iii) global external shocks including COVID-19; and (iv) the growing environmental and social concerns.

The first mega-trend is globalization. In the last two decades or even in the last two centuries, globalization has been going on in various ways and has accelerated further recently. Technological progress and the resultant dramatic increase of affordable transportation and communication means have contributed to advancing globalization. From the industry viewpoint, the emergence of Global Value Chains (GVCs) is one of the most significant structural changes involving developing countries. The evolution, diversification, and fragmentation of GVCs provide a great number of opportunities for developing countries to penetrate into international production networks with huge global markets. The promotion and facilitation of foreign direct investment (FDI) and international trade are required to enhance GVCs. In order to reduce the barriers for international trade and investment among countries, a large number of Free Trade Agreements (FTAs), Economic Partnership Agreements (EPAs), and Bilateral Investment Treaties (BITs) have been established. Industrial policies to cultivate the fruits of globalization have been further activated and expanded to achieve export-oriented and FDI-led industrialization. Meanwhile, globalization incorporating GVCs, FDI, and FTAs may also create risks for developing countries in being left behind through this global competition.

The second mega-trend is digitalization. The rapid evolution of electronic technology and the consequent emergence of information and communication technologies (ICT) have dramatically changed the shape of industries in the world, in both developed countries and developing countries at the same time. A number of innovations, new industries, and epoch-making business models as represented by the

global giant platforms have been emerging. Existing industries have also been experiencing significant changes through digital transformation (DX). Digitalization has a strong power to transform industries in the world and has resulted in significant transformations up to the level of a revolution. This is the Fourth Industrial Revolution (4IR), and it is based on virtually networked production systems, represented by Industry 4.0. It is associated with up-to-date technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), robotics, 3D printing, and big data. It has significant impacts in the next decade, although industrial policies to utilize this new trend are still under-developed, especially in developing countries. For example, digitalization provides significant and wide opportunities for developing countries and startups in the world to utilize digital technology at affordable cost and sometimes create more advanced businesses than developed countries and established industries. This is because developing countries may be able to offer flexible opportunities for proof of concept (PoC) of new businesses and new technology applications due to their abundant social needs and their less rigid regulatory frameworks. These phenomena are often described as Leapfrogging and Reverse Innovation.

The third mega-trend is global external shocks as exemplified by the COVID-19 pandemic. Industry has been heavily hit by global-wide unexpected external shocks occasionally and irregularly during the past 100 or so years. The latest large one could be COVID-19, which was declared a pandemic in March 2020 and the world is still fighting against this extra-ordinary large-scale disruption as of August 2021. Even though their impacts were less than those of COVID-19, several other epidemics have affected human lives and industries in the last two decades. Furthermore, there have been other unexpected external shocks with strong negative impacts. These include natural disasters such as earthquakes with tsunamis, cyclones/hurricanes/typhoons, floods/landslides, forest fires, and so on. Other unexpected external shocks that need to be considered are economic shocks. The largest one in the last two decades was the 2008 global financial crisis.

All these unexpected external shocks have tremendous negative impacts on industries in developing countries from both the demand and supply sides. But at the same time, they also create unique opportunities for new industries and innovative businesses. From the policy aspect, policies to ease pains and assist their survival are immediately needed and must be

provided; but later more positive policies to nurture such new industries and innovative businesses should also be considered. Finally, policies to strengthen the resilience of industries may be introduced for the future unexpected external shocks.

The fourth mega-trend is the growing environmental and social concerns about industrial development. Sustainable and inclusive development is becoming mainstream not only in the international development community but also in the private sector, especially after the Sustainable Development Goals (SDGs) were adopted at the United Nations General Assembly in 2015 and disseminated around the world. The role of industry in contributing to the SDGs and providing solutions for environmental and social issues is increasingly attracting attention as Aiginger and Rodrik (2020) note: ‘an increased focus on societal and environmental goals is necessarily raising questions about industrial policy as it shapes the structure of economic activity more generally’ (p. 191). The need to address the SDGs is more significant in developing countries involving the local private sector. Global financial flows also pay attention to these trends, for example, emerging impact investment and Environment, Social and Governance (ESG) investment. These influence not only developed countries but also developing countries through the behavior of globally operating multinational enterprises (MNEs) and GVCs. Venture capital has been growing to supply seed money and beyond for startups, which contribute to providing solutions for social and environment issues, and operate in developing countries. A green industrial revolution is going on in response to the pressing need to create decarbonized society. Green industry is not only for anti-pollution and renewable energy, but it is conceptual change in any industry designed to create an efficient and green society. Industrial policies need to address these various dynamic changes in relation to environmental and social concerns in the next few decades.

These four mega-trends are summarized in Table 10.1.

The remaining sections of this chapter focus on globalization, digitalization, and unexpected external shocks among the four mega-trends mentioned above. In particular, three topics from each, that is, GVCs, Industry 4.0, and COVID-19, are taken as significant keywords presented in the following three sections (Section 2, 3, and 4), as summarized in Table 10.1. These mega-trends do not necessarily exist alone, rather they are

**Table 10.1. Major Contemporary Mega-trends around Industry Discussed in This Chapter**

	Globalization	Digitalization	Global external shock	Environmental and social response
Keywords	GVCs, FDI, FTA/EPA	DX, 4IR, I4.0, IoT, AI	COVID-19, Pandemic, disaster, economic crisis	SDGs, ESG, Decarbonized society, Green industry

Source: Author.

closely interlinked. For example, COVID-19 accelerates digitalization; GVC sophistication and environmental/social-friendly enhancement; and digitalization provides solutions to COVID-19 and GVC networking.

## **2. Renewed Interest in Emerging Global Value Chains (GVCs)**

### **2.1. Overview of GVCs**

The Organisation for Economic Co-operation and Development (OECD) (2021) describes GVCs as being ‘where the different stages of the production process are located across different countries.’ Inomata (2019, 36) defines GVCs as the production and consumption network in the global game to create and distribute values. The theoretical framework of GVCs has been conceptualized based on accumulated works such as Gereffi et al. (2005) which identified the five types of GVC governance as hierarchy, captive, relational, modular, and market. Recently evidence-based research has been attempting to recognize how GVCs work in developing country contexts. The World Bank (2019) suggests that GVCs powered the surge of international trade after 1990 and they now account for almost 50 per cent of global trade. The Bank suggests that GVCs have helped poor countries grow faster over the past 30 years and a 1 per cent increase in GVC participation is estimated to boost per capita income levels by more than 1 per cent, which is almost twice as much as conventional trade.

One of the most significant concepts behind GVCs is ‘fragmentation,’ which means specialization of the various production processes in multiple countries. This fragmentation allows developing countries the opportunity to participate in part of a GVC without having a full set of production capabilities. In this regard, value chain management through the initiative of MNEs throughout the whole process, and the network infrastructure such as transportation and communication channels,

become important.

GVCs are composed of chains of value-added processes from upstream to downstream around the core production process, such as research and development (R&D), design, logistics, production, distribution, sales, and services. Generally, there is a tendency for value added in the core production process to decrease while value added in the upstream and downstream processes increases over time. Along with such tendencies, how developing countries associate with this 'servicification' of the manufacturing process (Hallward-Driemeier and Nayyar 2017) is important so they can avoid the 'race to the bottom' in the lower value-added production processes and can secure more benefits from higher added value processes in the upstream and downstream of GVCs.

## ***2.2. Industrial policies in developing countries in relation to GVCs***

The World Bank (2019) suggests that national policies can boost GVC participation. More concretely, GVCs can continue to be a force for sustainable and inclusive development if developing countries speed up trade and investment reforms and improve connectivity, but at the same time if advanced economies pursue open and predictable policies. It also suggests renewed interest in GVCs due to their larger contribution to growth as follows: 'In contrast to "standard" trade carried out in anonymous markets, GVCs typically involve long-term firm-to-firm relationships. This relational nature of GVCs makes them a particularly powerful vehicle for technological transfer along the value chain. Firms have a shared interest in specializing in specific tasks, exchanging technology, and learning from each other' (World Bank 2019, 70).

For developing countries to pursue trade and investment reforms and improve connectivity for better GVC ecosystems a standard policy menu for investment and trade promotion and facilitation is required, including trade/investment regulatory reform for further liberalized and simplified ecosystems, capacity development of investment/trade promotion agencies, hard and soft infrastructure improvement, special economic zone development, and customs reform. In other words, a broad-based 'horizontal policy' is indispensable. Also policies for securing GVC benefits for developing countries need to be considered. These GVC benefits include: (i) job creation; (ii) technology transfer (typically from

multi-national enterprises to local partners); (iii) capital inflow; (iv) backward linkage establishment; and (v) spillover effects in the local economy.

As the GVC's nature is fragmentation and they offer selective participation in certain industries, policy to set priority industries may also be needed. In other words, 'vertical policy' focusing on a specific industrial sector is significant. At the same time, fragmentation also suggests that there is much room to have divestment if a host country which participates in a particular segment of a GVC does not maintain or improve the advantages for footloose type investors. For example, wage standard setting is quite important but requires sensitive policies to balance securing job welfare for people and maintaining competitive labor costs for investors.

Thus, while GVCs provide wide opportunities for developing countries to earn the benefits mentioned above, they may also be a risk that developing countries may be left behind in global competition if they cannot secure a position in the global production network. Developing countries should not rely heavily on the benefits brought by the GVC leaders such as multinational enterprises, they should also put further effort into their industrial policies to grow local industries to be potentially linked with the GVCs. Regarding FDI-based GVCs, basically a country is not in a position to choose those GVCs, it is rather that FDI or GVC lead firms are in a position to choose countries.

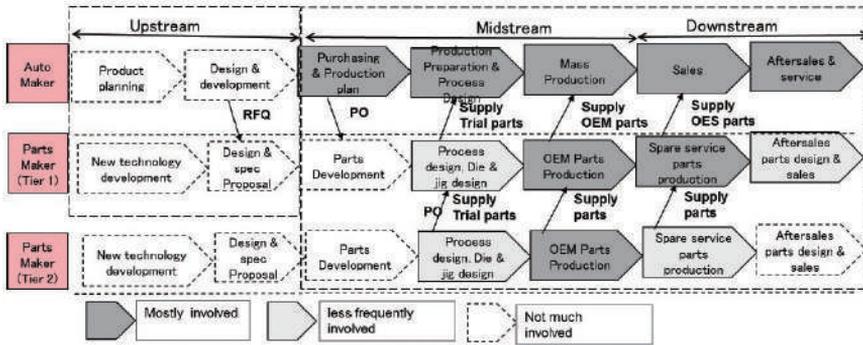
### ***2.3. Donors' intervention in GVC-related industrial policy***

Donor intervention in GVC-related industrial policy has been evolving in response to the rise of GVCs in developing countries. The Japan International Cooperation Agency (JICA) has been working on GVCs in developing countries by assisting supporting industries (parts and component industries), especially in the second tier and third tier in the pyramid of automotive industry under Japanese car manufacturers. Having a careful look at firm-to-firm relationships in the GVCs of the automotive industry, JICA has been conducting technical cooperation in Thailand, Indonesia, Philippines, Mexico, and South Africa. Katai (2020) finds some evidence of a positive relationship between GVC lead firms' evaluation of quality/cost/delivery (QCD) levels and the supplier firms' position in GVCs in Mexico. This is good evidence to support the idea of the importance of firm-to-firm relationships, as mentioned in the World

Bank report (World Bank 2019), and is a distinct feature of Japanese GVCs. As suggested in the previous sub-section, investment reform is an integral part of industrial policy related to GVCs. JICA has been supporting investment reforms in many countries mainly in Southeast Asia, South Asia, Africa, and Eastern Europe. Parts of this JICA support are quite comprehensive, and include dispatch of an investment promotion policy advisor to its investment promotion agency (IPA), support for investment policy reform with long-term investment promotion plan development, legal/regulatory framework upgrades, capacity building of IPAs, investment climate reform, special economic zone (SEZ) development, economic infrastructure development, private/public partnership frameworks, and so on.

For more deeply related intervention in GVCs, JICA implements some technical cooperation projects on selected industries that rely on GVCs, such as in the automotive and electric/electronics industries, and in some countries such as Indonesia and the Philippines. In the course of the study, GVC analysis is conducted as shown in the example presented in Figure 10.1. This shows local parts makers are involved in the production process together with auto makers; but in other processes upstream and downstream they are less involved and value is not added locally. Furthermore, the JICA study team assisted the secretariat for inter-ministerial coordination on industrial policy to provide hands-on policy inputs including neighboring countries' good practices in response to actual needs. This hands-on support, which corresponds to 'translative adaptation processes' (see Ohno, Chapter 1), was welcomed and created some successes such as the realization of a new tax incentive scheme for accelerating R&D and human resource development for several designated industries including the automotive industry.

Subsequent to these recent attempts to support GVCs, the nature of JICA's intervention has been changing. First, JICA's intervention is widening from the main focus on production process in global supply chains to include those out-of-production processes that add more value, such as R&D, design processes, and affiliated services. Second, the target of its intervention is expanding from isolated individual parts manufacturing small- and medium-sized enterprises (SMEs) to more structured groups involving both the parts/components local industries and the assemblers of the finished product.



Source: JICA and NRI (2019).

**Figure 10.1. Status of GVCs in the Automotive Sector in Indonesia**

As pointed out earlier, the World Bank took GVCs as the main topic in its annual flagship report *World Development Report 2020* (World Bank 2019), and the OECD has been pursuing GVCs and conducting international research projects. The Donor Committee for Enterprise Development (DCED) collects donor interventions in value chain development and shows that many European donors focus more on GVCs in the agro-processing industry, while Japan focuses more on the automotive industry. DCED (2021) also shows that the activation and appropriation of market mechanism, logistics improvement, actor analysis, environment and social considerations, and Corporate Social Responsibility (CSR) are the key elements of donor interventions related to GVCs in developing countries.

### 3. Industry 4.0 / 4th Industrial Revolution

#### 3.1. Overview of 4th Industrial Revolution / Industry 4.0

The 4th Industrial Revolution (4IR) is recognized as introducing ‘smart applications that integrate virtual and physical production systems,’ following the 1st Industrial Revolution (1760-1900, the use of steam and mechanically driven production facilities), the 2nd Industrial Revolution (1900-70, mass production driven by electricity and based on division of labor), and the 3rd Industrial Revolution (1970-present, extensive use of controls, information technology, and electronics for an automated and high-productivity environment) (ADB 2018, based on Schwab 2016).

The idea of Industry 4.0 (Industrie 4.0 in Germany) was established in

Germany around 2013 through the initiatives of German manufacturing and other industries backed by the government. Putting the Internet of Things (IoT) and Cyber Physical System (CPS) as its core, Industry 4.0 harnesses the three concepts of connecting, replacing, and creating to achieve more efficient production and productivity improvement (Nagashima 2015). The concept of Industry 4.0 is sometimes interchangeably used with the term 4IR. The United States (US) followed the German movement, and the Industrial Internet Consortium was created.

A World Bank publication by Hallward-Driemeier and Nayyar (2017) shows that the top 10 technologies associated with Industry 4.0 are: the IoT, big data analytics, 3D printing, robotics, smart sensors, augmented reality (AR), cloud computing, energy storage, AI / machine learning, and nano-technology. Utilizing such digital technologies, the idea of 4IR/ Industry 4.0 is being tested and/or has already materialized in global industry.

Although these trends originated in developed countries, developing countries, in particular relatively advanced ones, are also getting involved in Industry 4.0. Mischke (2019) demonstrates that developing economies are beginning to close the gap through rapid adoption of new technologies starting from a low base as shown in the growth of the Country Digital Adoption Index. Some of the technologies with Industry 4.0 such as AI become more easily available even in least developed countries such as those in Sub-Saharan Africa. On the other hand, close to 50 per cent of tasks could be automated by 2030, affecting 760 million workers in emerging economies (Mischke 2019). The digital divide, which means 4 billion people in the world being outside the digital economy, may be becoming more serious especially in developing countries. It is important to analyze the pros and cons of the impacts of 4IR on the future of developing countries.

### ***3.2. Industrial policies in developing countries in relation to Industry 4.0***

In response to rapidly growing interest in 4IR in western countries, several countries in Asia have been attempting to accommodate this movement into national policy. In 2015, China set forth 'Made in China 2025,' which contains innovation of manufacturing as a target utilizing digital technologies. In 2016, Japan advocated the concept of 'Society 5.0' in its

science and technology plan as the cyber-physical integrated social system for human-centered society, which fully utilizes IoT, AI, and robotics to provide solutions. Society 5.0 is considered as the next society following Society 1.0 (hunting), Society 2.0 (agriculture), Society 3.0 (manufacturing), and Society 4.0 (information). It is considered that Japanese industry has strength in 'integral architecture' on manufacturing products from numerous parts with optimal adjustment thanks to its technological capability. However, 'modular architecture,' which represents simple assembly of units with less coordination than the 'integral architecture,' becomes more mainstream under the global digitalization era (Lim and Fujimoto 2019). Japan needs to reconsider how to survive in the era of 4IR with digital technology and a systemic approach.

Meanwhile, several Southeast Asian developing countries have published national industrial policies inspired by Industry 4.0. These include Thailand 4.0 in 2015, Making Indonesia 4.0 in 2018, and Malaysia's National Policy on Industry 4.0 (Industry 4WRD) in 2018. While these policies have the contents and flavor of Industry 4.0, they are considered as updated versions of more comprehensive national industrial policies.

These policies essentially demonstrate the positive impacts of Industry 4.0 as a key driver to create innovation, raise efficiency, and improve the productivity of industry. However, negative concerns such as job opportunity loss due to the introduction of up-to-date automation technologies, and safety and data security issues caused by the new technologies, tend to be left out of their consideration. The DCED Annual Conference held in 2019 discussed Industry 4.0 as its main topic on private sector development in the age of digitalization. The Conference summarized great opportunities for developing countries' development through innovation in the private sector including startups geared by digitalization and industry 4.0-type technologies. At the same time, it voiced concerns about the possible negative effects on job markets caused by AI and automation, and stressed the need for education and vocational training to meet the emerging requirements for digital skills. The United Nations Industrial Development Organization (UNIDO) suggests 4IR technical cooperation including convening/awareness raising, road mapping and policy advice, readiness analysis and industry 4.0 observatory, demonstration, learning and innovation centers, Industry 4.0 absorptive capacity building, and international twinning (Memedovic 2019).

Essentially, renewed industrial human resource development should be the key in developing countries. Advanced Southeast Asian countries such as Thailand, Malaysia, and Indonesia are already faced with rapid increases in the cost of labor and the emerging necessity for accelerating automation and factory IoT (JICA and NRI 2019). Industrial human resource development is required to support human resource shifts from simple labor-intensive workers to advanced technological engineers. In any developing countries including those in Sub-Saharan Africa, there is also increasing demand for fostering entrepreneurs who can initiate digital technology-driven businesses utilizing AI, IoT, and big data. But, this requires earlier education and training in advanced ICT. Industrial policy should accelerate this dynamic shift of industrial human resources by providing learning opportunities for digital technology/system engineering at higher education or Technical and Vocational Education and Training (TVET) level, and the skill development opportunities for technicians in industry and establishing a fiscal/non-fiscal incentive framework for enhancing such opportunities.

### **3.3. Japan's possible intervention in Industry 4.0**

Industry 4.0 is still new even to Japan, particularly in its technical cooperation area. Under such a situation, what can Japan or JICA contribute to adding value in this area? JICA commenced the 'Data Collection Survey on Upgrading Manufacturing Industry using the Latest Technology' in 2019 with some field surveys in the target countries such as Thailand, Vietnam, Indonesia, Malaysia, and Myanmar, as well as literature surveys on the benchmark countries such as Germany, the US, China, India, and Japan. The Survey's purposes are: (i) analyzing the impact of rapidly advancing new technologies in industrial development; (ii) mapping out the current situation of Industry 4.0 in selected Asian countries; and (iii) proposing plans for the cooperation program of JICA in this area.

The Survey so far has found that the industries in the target countries are generally not fully equipped to accommodate Industry 4.0 developments such as IoT in their industry. Nevertheless, it has identified some trial cases and potential needs. The Survey has also found that Industry 4.0 has an affinity with *Kaizen*,<sup>1</sup> which: (i) has the distinct feature of data

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<sup>1</sup> *Kaizen* is an inclusive and participatory approach to the continuous improvement of

visualization; (ii) originates from statistical quality control; and (iii) is fairly well disseminated in the surveyed Southeast Asian countries (Homma 2020a). Furthermore, Japan may have comparative advantages over other countries in certain areas of manufacturing industries, in particular robotics and factory automation where hardware technology and software technology are integrated. These areas could be prioritized and promoted.

As was implied previously, Industry 4.0 is still new even in Japan, especially from a viewpoint of technical cooperation. While there is a great potential for Japan to contribute to this area, it has not yet developed policies how to make this future concept a reality. Therefore, it seems that a co-learning and co-creation approach is needed and suitable rather than the traditional type of one-way technology transfer. It should be appropriate for Japan to think together and learn together about how to accommodate Industry 4.0 in host developing countries, utilizing a hands-on approach with a problem-solving methodology such as *Kaizen*.

## **4. COVID-19 and Industrial Development**

### **4.1. Overview of the COVID-19 pandemic**

The World Bank (2021a and 2021b) suggests that the world real GDP growth in 2020 was -3.5 per cent and that COVID-19 is likely to cause a global recession whose depth is surpassed only by the two World Wars and the Great Depression over the past century and a half. World trade volume in 2020 decreased by 8.3 per cent compared with the previous year. The International Labour Organization (ILO) (2021) confirms the massive impact that labor markets suffered in 2020 with 8.8 per cent of global working hours being lost in the whole of last year (relative to the fourth quarter of 2019), equivalent to 255 million full-time jobs or approximately four times greater than the number lost during the 2008 global financial crisis.

In a nutshell, industry in the world has heavily suffered from COVID-19 through a massive economic slump, huge demand losses, trade volume losses, liquidity losses, job opportunity losses, and difficulties in access

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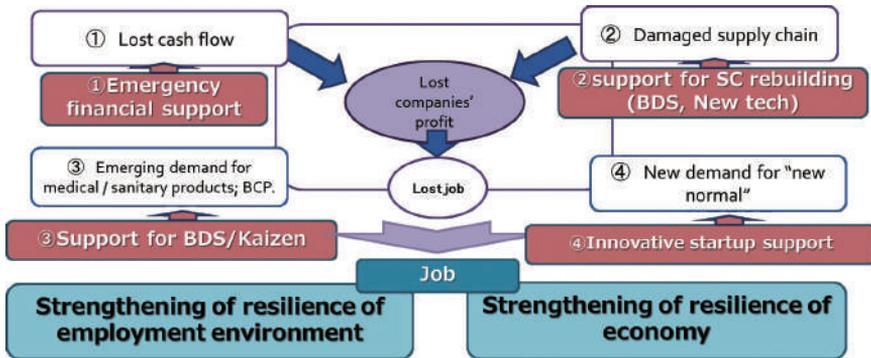
quality and productivity, resting on a distinctive philosophy and tools/methods. It forms the basis of multiple management systems, including TQM and TPS, developed in Japan and adapted for use in other countries (Hosono et al. 2020).

to finance. Developing countries of course faced all these problems even before the COVID-19; but the picture has become worse, up to a fatal situation, due to COVID-19. The ILO (2020) reveals that enterprises in the surveyed developing countries claim they stopped operations due to COVID-19 (70 per cent of respondents), experienced a shortage of cash flow (86 per cent), and received less than half the number of orders compared with before-COVID-19 (33 per cent). Furthermore, GVCs are damaged and/or interrupted due to massive lockdowns affecting national borders and factories, less human mobility, a mismatch in demand and supply, a logistics slump due to demand loss, and concern for the rise of protectionism as against free trade regimes. Thus, the benefits of GVCs for developing countries have deteriorated.

On the other hand, this unprecedented global crisis also provides positive impacts for industry. First, extra-ordinary immediate demands are created for certain products; in particular, medical products such as masks, gloves, personal protective equipment (PPE), and ventilators. Second, digitalization and DX have accelerated to meet the huge demand for remote working, contactless procedures, and automated production. Third, a wide variety of new technologies called 'Corona-Tech' are being rapidly developed especially by startups to solve the huge social issues created by COVID-19. Fourth, due to the interruption of GVCs and general trade, local production with tailor-made technology and home-grown solutions are being enhanced.

#### ***4.2. Policy support in response to COVID-19***

The world is being forced to devote massive resources to alleviate the negative impact caused by COVID-19. The World Bank (2019) suggests three-stage policy support: (i) relief; (ii) restructuring; and (iii) resilient recovery. Initially, immediate actions are required to mitigate shocks and short-term financial schemes should be provided for mainly SMEs and for job security. The ILO (2020) reveals that enterprises in the surveyed developing countries need support in the form of business continuity advice (50 per cent of respondents), advice on export and logistics restrictions and requirements (38 per cent), and other information. In the restructuring stage, policy support for restoring their businesses and accelerating their reopening through policies to enhance demand are required. Finally, in a resilient recovery stage, there is a need to secure a firm foundation and 'build back better.'



Source: JICA Private Sector Development Group (2020), cited in Homma (2020b).

**Figure 10.2. JICA’s Support in Private Sector Development in Response to COVID-19**

JICA has formulated a framework for supporting its private sector development (PSD) program in response to COVID-19 (Figure 10.2). This identifies four major consequences of COVID-19 in relation to PSD, namely: (i) lost cash flow; (ii) damaged supply chains; (iii) emerging demand for medical/sanitary products and business continuity/contingency planning (BCP) of local SMEs; and (iv) demand for a ‘new normal.’ In response, JICA has been providing: (i) emergency financial support; (ii) support for supply chain rebuilding by business development services (BDS) and new technology; (iii) support for BDS/Kaizen; and (iv) innovative startup support.

One such example to associate with the above (iv) is the JICA NINJA<sup>2</sup> Business Plan Competition in response to COVID-19, based on its startup support ‘Project NINJA.’ This is essentially a business contest in 19 African countries to provide support for startups and the acceleration of new businesses in response to COVID-19, such as remote medical services, infection information delivery, remote business/education tool, online sales, logistics/delivery system, and other Corona-Tech-based business. It supports proof of concept (POC) for the winners for their business ideas, and attracted 2,713 applicants by August 2020 from 19 African countries.

Each donor agency has created a COVID-19 specialized website. DCED created one of the fastest knowledge portals on its website called ‘Private

<sup>2</sup> NINJA stands for ‘Next Innovation with Japan’ (JICA’s startup support activities).

Sector Development and COVID-19' immediately after the pandemic declaration in March 2020. The portal provides useful content such as: (i) information on socioeconomic impacts and national responses; (ii) how to adjust PSD interventions in the short term (a greater focus on: (a) conducive investment policies/procedures; (b) tax relief or other measures to ease the financial burden on businesses; and (c) digitalizing administrative procedures); (iii) promoting economic recovery and resilience; and (d) building agency knowledge portals, statements, and funding activities.

### ***4.3. Resilience and future pandemic and other challenges***

As discussed in this section, there are tremendous negative impacts caused by COVID-19 on industry; at the same time, there are also some new positive opportunities for the future such as Corona-Tech.

This section also repeats the use of the word 'resilience' as one of the key words in dealing with these impacts. COVID-19 is indeed one of the heaviest shocks in a century but similar pandemic and other unexpected external shocks including natural disasters may attack industry again in the future. What is required for preparing for such future anticipated events is to enhance the resilience of industries. To strengthen resilience, the recovery process is quite critical. Many donors call for 'build back better,' which is exactly suited to the purpose of strengthening resilience. The EU has set policy on green recovery for this stage to realize 'build back better.' It is crucial for the world including developing country governments to draw-up comprehensive recovery plans involving various sectors horizontally and deepening each sector vertically. In a nutshell, the COVID-19 experience shows that industrial policy in developing countries needs to take this opportunity to accelerate transformation in the short run, and to strengthen resilience of industries in the long run.

## **5. What Does and Does Not Change in Industrial Development under These Trends?**

This section builds on the prior analysis of the contemporary megatrends, in particular GVCs, Industry 4.0, and COVID-19, and summarizes their distinct opportunities and challenges in the context of the industrial development of developing countries. It then analyzes how these should or should not change the content of industrial policy and the process of policymaking and implementation, as well as the firming up of Japanese

industrial policy support to developing countries as discussed in the other chapters of this volume. Sub-section 5.1 articulates the opportunities and challenges caused by the above-mentioned contemporary mega-trends for industrial development of developing countries. Then Sub-section 5.2 discusses the immovable nature of industrial development policy. Finally, Sub-section 5.3 deals with anything that changes significantly in industrial development policy vis-a-vis these mega-trends.

### ***5.1. Opportunities and challenges under the contemporary mega-trends in developing countries***

The above-mentioned contemporary mega-trends present both ‘opportunities’ and ‘challenges’ for developing countries.

Regarding ‘opportunities,’ globalization and digitalization widen the chances for any developing countries, which are not located in the East/Southeast Asia as the ‘global factory,’ to participate in global production networks without a ‘full-set’ industrial base. Fragmentation as a result of GVC deepening has been providing smaller but adoptable processes utilizing host countries’ advantages, and it can be observed for example that Cambodia and Lao PDR have benefited from such fragmentation. Digitalization encourages startups in Southeast Asia and Sub-Saharan Africa to create ‘leapfrog’ technologies and new businesses which have been changing traditional industries locally, regionally, and sometimes internationally.

As another angle of opportunities, while mega-global external shocks such as COVID-19 and increased environmental and social responsibilities are often characterized as burdens, they can also provide a significant volume of potential needs (opportunities) and issues that can be solved by the power of industry. ‘Corona-Tech’ and social businesses are examples for these in developing countries.

On the other hand, developing countries also face ‘challenges.’ First, these benefits and emerging needs may not be automatically available to a developing country under the severe global competition existing today, if no efforts are made to enhance its capacity to fully utilize them (Todo 2008). Capacity development at the firm, industry, and national levels is indispensable if countries want to take advantage of these opportunities. The benefits of GVC fragmentation may not be fully realized without

further efforts to upgrade their capacity for adding more value; otherwise the GVC opportunity may fall into a “race to the bottom”.

Secondly, further complexity may be generated from surviving under these mega-trends in a comprehensive manner. For example, as environmental and social compliance and digitalization for IoT are increasingly required for participating in GVCs, those businesses that want to be a part of GVCs in developing countries need to take further consideration of these aspects in addition to upgrading their added value.

Third, particularly for industrial policies, there may be less space for policy makers to intervene in globally operated industry, considering the increasing power of MNEs and the global giant platformers to govern global (and regional/local) industries. Developing countries are therefore required to make further advanced and strategic industrial policies to cope with these situations (Cimoli et al. 2009).

## ***5.2. What does not change in industrial development policy under these trends?***

Despite these major trends, there are no significant changes in the fundamental policy directions raised in this volume, even though there is some acceleration for those directions. These include following the distinct features discussed throughout the volume.

First, the fundamental importance of industry, in particular manufacturing, which fully utilizes a country’s advantage and leads its economic growth, remains the same. Therefore, industrial development policy to support such industry remains significant. Even though digitalization is rapidly advancing as we enter an information and digitalization-based society, physical products will be manufactured by somebody somewhere in the world.

Second, the combination of horizontal (broad-based and not attempting to benefit any particular industry sectors) and vertical industrial policies (focusing on specific sectors) is still crucial, and they are complementary (see Hosono, Chapter 2). While the comprehensive features of up-to-date mega-trends such as COVID-19, 4IR, and the SDGs require a horizontal approach, specialization at depth is also needed for each sector. This suggests the significance of a vertical approach, as well.

Third, key areas, domains, and measures of industrial policy basically remain the same. For example, the key areas and domains proposed in Chapter 2 by Hosono (2021), which are classified using three essential supply-side measures (education/training, firm capabilities, and technology/innovation), two other supply-side measures (finance and infrastructure), and three demand/supply measures (internal market, international trade, and foreign investment), still make sense and are equally useful when developing countries consider appropriate industry policy packages under contemporary mega-trends. Even though issues become more complex and comprehensive under the new trends, these domains still form an integral part of industrial policy framework.

Fourth, the basic structure of an industrial policy document and the procedure of industrial policy formulation basically remain the same. They still need to have vision, missions, strategy, policy instruments, and action plans, with common key areas, for example in the policy documents presented in the earlier section on Industry 4.0. Although the mega-trends provide strong reasons for their consideration in the documents, procedures still need to follow the general sequence of analysis, draft making, stakeholder participation, public hearing, and finally a political decision.

Fifth, government policymaking organizations and private sector participation in the process are still critical. There is a need to establish a proper policymaking structure in the government, with high-level initiatives and workable secretariats and with inter-ministerial coordination mechanisms, to cover the complex issues arising from COVID-19 and environmental/social responses. Private sector participation and public-private partnership are equally significant to expose business to such complex issues.

Sixth, the combination of policymaking and implementation is still quite crucial. As it is often observed in many countries, this does not work without proper implementation even if excellent industrial policy is formulated. In other words, implementable industrial policy is required for making things happen and the results of implementation need to be feed-backed to policymaking, especially in the era of rapid transformative changes under digitalization and other mega-trends.

Seventh, policy learning process and policy dialogues to assist this process

remain useful and effective. Even though historically accumulated replicable experiences for up-to-date trends such as Industry 4.0 and COVID-19 are much less important, it is still important to learn about each other's on-going experiences, with hands-on policy dialogue for facilitation. This tendency may imply the effectiveness of 'translative adaptation' processes, which feature hands-on approaches and learning and adaptation processes.

Eighth, FDI-led industrialization associated with linkage formulation with local industry remains highlighted. Although there are some accelerating factors such as GVCs and some discouraging factors such as the attempts to domesticate manufacturing processes observed at the initial stage of the COVID-19, the basic direction of industrial policy toward FDI-led industrialization remains a common approach.

### ***5.3. What changes in industrial development policy under these trends?***

On the other hand, there are some significant changes in industrial policy along with these major trends. These include following distinct features discussed throughout the entire volume.

First, concrete policy details including policy menu and priority settings may change or be added. For example, emerging industrial sector such as ICT industry should be more prioritized along with digitization trends, and the idea of resilience should be added to industrial policy as one of the key directions. It obviously needs to deal with more sophisticated global production network and digitalized industries including industrial human resource development. At the same time, it requires to look at closely the difference of level of sophistication between, for example, upper middle-income countries and least developed countries in Sub-Saharan Africa.

Second, the idea of sustainable and inclusive development may be enhanced. Along with the emerging function of industry (from multinational enterprises up to startups) to provide 'solutions' for society, industrialization focus may be shifting from supply-driven (product out) to demand-driven (market in) and thereby up to 'solution-driven.' This solution-driven function seems to be accelerated in response to a wide variety and complex development issues under the with/post COVID-19

era and beyond. Digitalization further makes it easier to provide useful solutions. Resilience is again a key word in relation to sustainability and inclusiveness. Industrial development in the fragile context is also an up-to-date topic.

Third, speediness for policymaking and implementation may change. In the 4th Industrial Revolution era and ‘with/post COVID-19’ situation, policy needs to be prepared and implemented at faster speed to meet immediate solution needs and fully utilize digital transformation benefits.

Fourth, a whole of government approach may be more crucial. Industrial policy requires not only the ministry in charge of industry. It also needs to involve more government resources beyond the typical ministry to meet with the complexity and opportunities under these trends.

Fifth, the likelihood for latecomer countries to catch up may change. In the digitalization era, many new businesses and application of new technology for solution are emerging in developing countries, suggesting the possibility of ‘leapfrog’ (which suggests something beyond catchup) and even ‘reverse innovation.’ As it is not easy to harness such leapfrogging up to the creation of country-level significant change, industrial policy may be needed to fairly utilize such opportunities. At the same time, this means that there are also negative opportunities for least developed countries. Again, success or failure depends on industrial policy making and implementation.

## **6. Implications and Conclusions**

Based on the discussions in the previous sections in this chapter, and additional thoughts, the final section draws lessons and implications in relation to industrial policy support and contemporary mega-trends.

First, the four mega-trends around industrial development as summarized in the above—globalization, digitalization, unexpected external shocks, and environment/social responses—are quite influential, and this chapter has prioritized three of them, namely, GVCs, Industry 4.0, and COVID-19 as typical examples.

Second, although these up-to-date trends and phenomena bring significant impacts on industries in developing countries, the basic nature

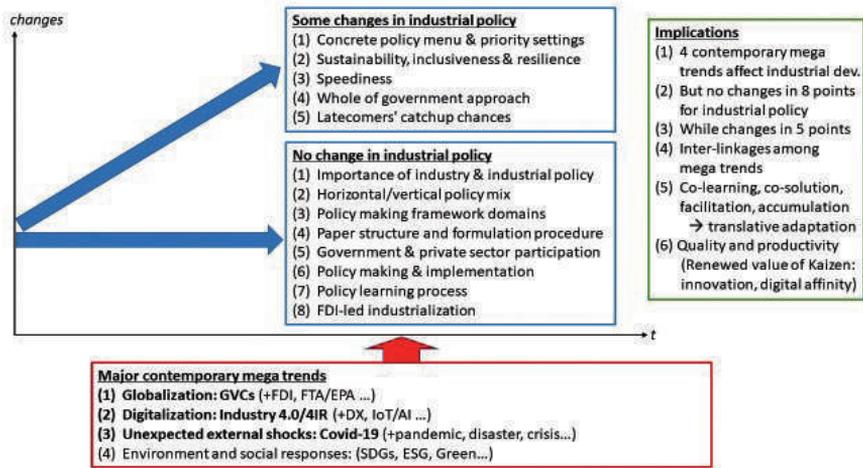
and framework for industrial policy may not change drastically. These include: (i) the fundamental importance of industry/manufacturing; (ii) horizontal and vertical policy combination; (iii) key areas, domains, and measures; (iv) the structure of policy documents and the procedures in their formulation; (v) government organization and private sector participation; (vi) combination of policymaking and implementation; (vii) policy learning processes; and (viii) FDI-led industrialization.

Third, there are some significant changes in industrial policy in response to these major trends. These include: (i) concrete policy menu and priority settings; (ii) enhanced idea of sustainability, inclusiveness, and resilience; (iii) speediness; (iv) whole of government approach; and (v) latecomers' catchup chances.

Fourth, inter-linkages among these major trends also need to be recognized to properly consider industrial policy. For example, (i) the usefulness of Industry 4.0 for efficient GVCs; (ii) the disruptive impact of COVID-19 on GVCs and the need for resilience; and (iii) the acceleration of Industry 4.0 to pursue a contactless digitalization world by COVID-19 through such technologies as Corona-Tech.

Fifth, regarding Japan's industrial policy support approach, we should recognize that there are limitations to Japan's advantage from its own industrial development in the context of 21st century major trends. Developing countries may be more advanced in some cases, represented by the impact of the phenomena of leapfrogging and reverse innovation on digitalization and in response to the pandemic. What is crucial here is to consider new approaches to learning together (co-learning), solving issues together (co-solving), facilitating these joint efforts (facilitation), and accumulating in an appropriate way such experience for further utilization (experience accumulation). This may create new values of industrial policy support. At the same time, it may also correspond to the basic idea of 'translative adaptation' which features 'learning and adaptation processes.' In conclusion, Japan's industrial policy support approach can also be upgraded by these new approaches to co-learning, co-solving, facilitation, and experience accumulation.

Sixth, contemporary mega-trends encourage developing countries to enhance quality and productivity improvement capability to participate in GVCs and utilize digital technology. Kaizen, as the Japanese unique



Source: Author.

**Figure 10.3. Implications of Industrial Policy Support in Response to Contemporary Mega-trends**

and traditional approach for industrial development through quality and productivity improvement and a still useful approach in the up-to-date context, may work on this and also create ‘renewed values’ under the 21st century’s major trends of: (i) the renewal of the concept of *Kaizen* as the approach to produce ‘incremental innovation’;<sup>3</sup> (ii) affinity with Industry 4.0/digitalization due to the nature of data visualization; (iii) contributions to the responses to the pandemic, for example the concept of sanitization and efficiency; and (iv) contributions to social considerations through its human-centered bottom-up approach.

Figure 10.3 summarizes and conceptualizes the implications raised above on industrial policy and contemporary mega-trends. The long arrows show changes over time in industrial policy based on major contemporary mega-trends.

Finally, this chapter offers only preliminary thoughts and circumstances around industrial policy resulting from the major up-to-date trends. This should change rapidly over time, and additional studies are necessary to deal with on-going issues. Hence, this research needs further elaboration

<sup>3</sup> Cirera and Maloney (2017) suggested *Kaizen* can contribute to increasing firm capability, in particular, managerial capability, which is the initial step to future innovation.

with more concrete examples of the variety of countries, industries, and technologies involved in responding to such mega-trends.

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## The Way Forward: Industrialization Challenges and Implications for Japanese Development Policy Support

Izumi Ohno, Akio Hosono, and Kuniaki Amatsu

[A] central focus of development policy should be closing that gap [a gap in knowledge]—and that means enhancing learning. This is, for instance, one of the central objectives of modern industrial policies, which seek to promote particular industries and particular technologies with greater learning capabilities and greater spillovers to other sectors. (Stiglitz and Greenwald 2014, 22)

### 1. Introduction

This volume examines the role of industrial policies in promoting the structural transformation of catching-up economies through learning processes, and also considers the role of Japanese development policy support—one type of intellectual cooperation—in facilitating indigenous learning of latecomer countries. Our main interest has been the practical aspects of industrial policymaking—policy content and methodology for its design and implementation—because this is a most crucial point that affects the effectiveness of industrial policy, as contemporary debates suggest.

The volume is based on a premise that industrial policy contributes importantly to promoting indigenous and societal learning, which is essential for latecomer countries to attain industrial catch-up. Our thinking is greatly inspired by two lines of thought: (i) Stiglitz and Greenwald’s vision toward ‘creating a learning society’ which emphasizes the significance of local learning and the role of industrial policy in development (Stiglitz and Greenwald 2014); and (ii) Maegawa’s theory of translative adaptation (Maegawa 1994, 1998, 2000), which attaches high importance to indigenous perspectives and local learning. To this end, we have developed an analytical framework by synthesizing Stiglitz’s

knowledge-centered development thinking toward an industrialized economy and Maegawa's theory of translative adaptation (Chapter 1, Figures 1.2 and 1.3).

Chapters in Part I presented various case studies and suggest that different policy content, distinctive learning patterns, and diverse paths to industrialization are available to developing countries. They also show how industrial policies have worked in Japan, Korea, Malaysia, Brazil, and Chile to support the accumulation of technological capabilities, the transformation of their organization of production, and the promotion of research and development, especially at the initial stages of industrial catch-up (Cimoli et al. 2008). Part I also sheds light on the government as a learner of industrial policymaking, based on the specific case of Meiji Japan. For the government to effectively promote societal learning, it must learn how to grasp the real needs of actors within the economy and interact with them, in close partnership with the private sector.

Japan is one of the few donors that provides industrial policy support to developing countries. While not so many donors show interest in industrial policy, Japan considers it important to strengthen the government's capacity for industrial policymaking. Chapters in Part II presented various case studies on the perspectives and approaches underlining Japanese policy support for industrial development in Argentina, Vietnam, Ethiopia, and Thailand. As these case studies show, the objectives and nature of Japanese policy support differ according to the prevailing situation in the recipient country—ranging from the formulation and implementation of development (or industrial) policies to systemic transition to the market economy, emergency crisis response, and others. But, overall, such intellectual cooperation commonly reflects the 'ingredients' approach, with a strong focus on the real-sector economy, field-orientation, and a hands-on approach. If properly implemented, such features and approaches can be conducive to supporting the indigenous policy learning process of developing countries. Lastly, Part III discussed the mega trends of industrial development and their implications.

In the following, we highlight the central messages of this volume and draw implications for the future of industrial policies and Japanese intellectual cooperation.

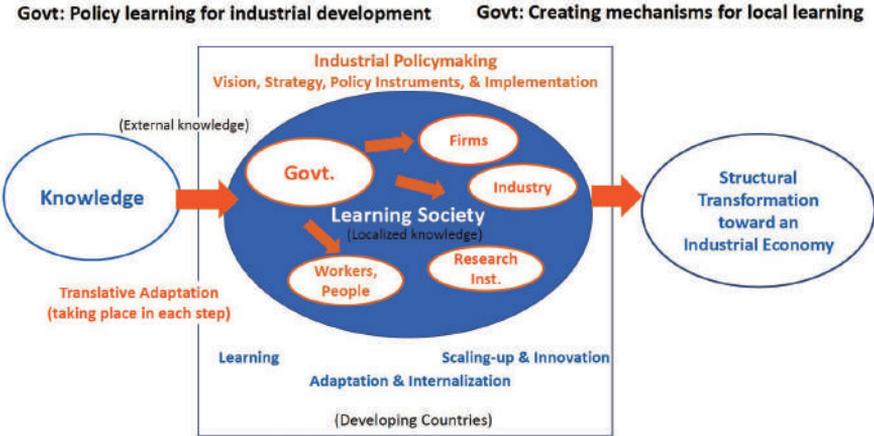
## 2. Industrialization Process through Translative Adaptation

In this volume, we have attempted to examine translative adaptation and local learning in the process of industrial catch-up and their relationships with industrial policies from various aspects. Viewed through a lens of translative adaptation, the process of industrialization must be managed with strong country ownership over policy content, institutions, technology choices, social systems, and values. It is also important that learning and adaptation take place with good understanding of the country's uniqueness and through trial and error processes. The government assumes a key role in this challenging undertaking, and industrial policies are a key building block because they 'create economic policies and structures that enhance both learning and learning spillovers' (Stiglitz and Greenwald 2014, 15).

Translative adaptation, local learning, and industrial policymaking interact in two ways (see Figure 11.1). The first is that the government must be a good learner of industrial policymaking through translative adaptation. When the government of a latecomer country endeavors to establish an overall vision and strategic direction for industrialization and designs industry policy instruments, it inevitably experiences the process of acquiring knowledge and technology from foreign models. It is important that such process be accompanied by indigenous learning with translative adaptation in respective countries. This involves: (i) collecting the information on relevant policies and practices from other countries and analyzing the merits and demerits of each policy option (learning stage); (ii) selecting what policies to adopt and examining their adaptability (adaptation & internalization stage); and (iii) applying the policy nationwide and if successful, even disseminating these experiences to other countries as a policy option (scaling up stage) (Chapter 1, Figure 1.2).

The second way is that the government is responsible for creating policies and institutions for effective local learning so that translative adaptation takes place within the society, including in the private sector. It is important to create an internal mechanism within a country to absorb foreign knowledge, adapt it to the local context and enable scaling up and innovation. This is exactly the role that industrial policy is expected to play. Policy areas include: (i) acquiring knowledge from abroad (such as, opening up trade, foreign direct investment (FDI), and technology

licensing, intellectual property rights); (ii) absorbing knowledge (such as education and training, beyond basic information); and (iii) disseminating and communicating knowledge with wider or targeted population, increasingly with the help of telecommunication technologies (World Bank 1999) (see Chapter 1, Figure 1.3). Ideally, a process of indigenous learning will take place in both the public and private sectors. In this process, public-private partnership is essential because knowledge and information flow in both ways and mutual learning is necessary. As shown in Figure 11.1, the government’s role is critical in supporting the learning of the private sector, especially in the early stage of development where private sector dynamism is weak. As the private sector grows, it will assume a greater role in public-private partnerships including the creation of indigenous and innovative knowledge. For effective policymaking, the government needs to learn from the private sector about the actual situation within industries.



Source: Elaborated by Author.

**Figure 11.1. Role of Industrial Policy through a Lens of Translative Adaptation**

In summary, the government has a dual role in establishing the systemic aspect of learning—as a learner (policy learning) and a facilitator of learning by the private sector (technology learning)—with a thorough understanding of each country’s situation and surrounding external environment. As such, translative adaptation, local learning, and industrial policymaking are inter-dependent and work together.

### **3. Government as Solution and Problem**

The above discussion reminds us of Peter Evans' famous notion of 'the state as problem and solution' in industrial transformation (Evans 1992). Our case studies contain concrete examples of the dual role of the government in the context of industrial policymaking.

#### ***3.1. Creating a learning society through industrial policies***

As shown in Part I, countries have a variety of experiences with the formulation and implementation of industrial policies and the process of indigenous learning during industrial catch-up (Chapters 2-5). The scope of industrial policy, target industries, institutional arrangements, and a mix of policy instruments adopted differ among countries (e.g., steel industries in Japan, Korea, and Brazil, and natural resource-based industries in Malaysia, Brazil, and Chile), but the case studies confirm that industrial policies overall have contributed to the structural transformation of their economies.

As Chapter 2 concludes, the development of these industries was not achieved in a *laissez-faire* market. In all cases, vertical (or selective) policies have been applied, in addition to horizontal (or neutral) policies applicable to all industrial sectors. Public-private collaboration has been key to enhancing the societal capacity for local learning. In the countries studied, partnerships between the government, firms, their associations, research institutions, and other stakeholders have contributed to promoting indigenous learning, adaptation, and innovation. In this way, industrial policies played important roles in creating organizations and incentives and supporting research and development (R&D).

Japan and Korea are exemplary countries that have successfully developed basic industries (such as steel and automobile) through collaborative efforts by the government and private sector. The government took initiatives to formulate industry-specific plans and promotional measures, for example, steel industry rationalization plans and temporary measures for the promotion of the machinery industry in Japan, the Heavy and Chemical Industry (HCI) drive, a development plan for the Pohang Iron and Steel Company (POSCO), and long-term plan for automotive industry development in Korea. In response, the private sector made significant efforts to learn foreign technologies, and subsequently adapt

and improve them. Furthermore, as in the case of Japanese automotive industry including supporting industries, innovative efforts were made locally to introduce Japanese-style management methods to improve quality and productivity such as Total Quality Management (TQM), the Toyota Production System (TPS), and another system known as *Kaizen* approach.

In Latin America, the cases of Brazil and Chile are good examples of governments implementing respective industrial policies through translative adaptation. They have learned from various foreign models, but their industrial policies have been adapted to their actual environment, where East Asia's Flying Geese pattern of development is unlikely. While the experiences of Brazil's industrial policies are mixed, there are some brilliant success stories within the manufacturing (e.g., steel, airplane, pulp, and aluminum) and agriculture/agroindustry (e.g., grains and meats) sectors, as the analyses of Chapters 2 and 3 show. Chile has generally accepted neoliberal economic policies based on the Washington Consensus, but secured policy space to develop its own industrial policies such as the promotion of salmon farming and processing technologies.

For industrial policy to work effectively, it is vitally important that the government create core institutions charged with industrial policymaking, which take a deep interest in understanding the reality of industries and in close interaction with the private sector and other stakeholders. In post-war Japan, the Ministry of International Trade and Industry (MITI) acted as a super ministry for industrial policymaking, with broad mandate over trade, industry, domestic market, environment, and SMEs, which are often fragmented in developing countries, and assumed the responsibility for both horizontal and vertical policies. The MITI formulated and implemented industrial policies in partnership with business. Various instruments—formal to informal—were mobilized, and industry associations also provided communication and network space (Chapter 4). In Brazil, the National Economic and Social Development Bank (BNDES) has played a critical role as an executive organ of industrial policy. It coordinated with political leadership that provides vision and priority setting, as well as external actors that possess technologies and provide markets in the international sphere. Through close dialogue with the business sector, BNDES possesses the information on their actual situations and needs. It translated political vision, facilitated the introduction of technology, and concretized industrial policy instruments

by coordinating with various ministries in the government (Chapter 3). The role of BNDES as an industry-friendly intermediation for learning and investment is also noted by Cimoli et al. (2008).

### **3.2. Learning as a dynamic process**

The above examples demonstrate governments adopting a proactive role in creating a learning society, particularly supporting private sector development, through industrial policy. This is a positive aspect of government—as a solution provider in the industrial catch-up process. But, we should also recognize its weak aspect—the government as problem. The reality in developing countries reveals that not a few governments suffer from low capacity for policy design and implementation. This is one of the reasons why scholars and neoclassical economists, particularly in the 1980s-early 1990s, offered cautious assessments of industrial policy (Kruger 1974) when full-fledged structural adjustment programs were implemented.

Subsequently, the *East Asian Miracle: Economic Growth and Public Policy* (World Bank 1993) and *The World Development Report 1997: The State in a Changing World* (World Bank 1997) somehow shifted the negative tone against industrial policies and recognized their effectiveness under certain conditions, based on the experience of high-performing East Asian economies. Yet, these reports remain cautious, stating that it is difficult to apply these policies with poor institutional capacity. The ‘two-part strategy’ proposed by WDR 1997 called for matching the state’s role to its capability. While this strategy does not categorically deny the use of industrial policies in developing countries, its practical implications are that the governments of developing countries with low institutional capacity should focus on getting the fundamentals rights (i.e., the provision of public goods and other intermediate services to correct market failures) without performing high-level interventions (Ohno 2013a). Consequently, the two-part strategy is substantially similar to previous ones, including the arguments presented by the *East Asian Miracle* (World Bank 1993).

In this light, the case study of Meiji Japan (Chapter 5) shows that learning is a dynamic process and that the capability of industrial policymaking can be enhanced progressively. Meiji leaders had a keen interest in industrialization in general and the state of industries and were eager to learn from foreign countries to catch-up. After repeated trial and error

over industrialization efforts, Meiji leaders finally came to formulate a vision for industrialization that is based on the reality of the industrial sector and reflects the views of industrial entrepreneurs into policymaking practices. The core institution charged with industrialization also evolved over the period of nearly 30 years—from the Ministry of Engineering to the Ministry of Home Affairs, and then to the Ministry of Agriculture and Commerce. As the government enhanced its capability to analyze the reality of the industrial sector and accumulate industrial knowledge and skill, and as the private sector grew, interactive communication between the government and private sector expanded and deepened. This in turn contributed to enhancing the process of industrialization vision formulation and policymaking practices. These practices were inherited to the MITI (Chapter 4).

Because learning is a dynamic and progressive process, we have emphasized the importance of policy learning for industrialization. Instead of rejecting outright the possibility that developing countries adopt industrial policy, Part I of this volume provided various case studies related to the policy content and methodology for designing and implementing industrial policy. It is important to strengthen the government's policy capacity in promoting industrialization rather than reducing the scope of its intervention.

### ***3.3. What is to be learned?***

Our case studies also suggest that there are several aspects critical to successful policy learning by the governments of latecomer countries. Key policymakers must have a strong interest in industrialization in general and in specific industries, make efforts to accumulate industrial knowledge and skills within the government, and have a good understanding of the reality of industrial entrepreneurs and sensitivity to economic rationality. These essential attitude-aspects must be learned to make the process of industrial policymaking and implementation realistic.

More specifically, the government needs to foster a sense of economic rationality in the formulation and implementation of industrial policy. As our analysis of successful cases show, BNDES in Brazil and MITI in post-World War II Japan have given due consideration to economic rationality in the process of industrial policymaking and implementation. In this regard, it is important for policy makers to have a general interest

in and passion for industrialization and strive to accumulate industrial knowledge and skill within the government (Chapters 2, 3, and 4). Such efforts toward indigenous learning would involve trial and error processes and take a long time. Whether the government can manage the industrialization process properly with realistic goals and targets during such a long gestational period significantly affects the outcome of industrialization. In parallel, the government must pay attention to macroeconomic variables and make necessary adjustments if there are signals that its industrialization plan is too ambitious to sustain macroeconomic stability. Otherwise, the country would suffer from negative economic consequences especially if massive public investments in industrialization were to be made in an inefficient manner (Chapter 4).

#### **4. Dynamic Capacity Development and the Role of Development Policy Support**

The government of Meiji Japan (1868-1912) proactively learned from abroad by inviting foreign advisers and sending study missions overseas, and enhanced its policy and technical capacity progressively. In those days, no donor countries or international organizations had provided support to latecomer countries to acquire knowledge or technology. It was also the age of imperialism and colonialism. So, the Meiji government had no way but exercise its own initiative.

Today, the world is quite different. Developing countries have ample opportunities to acquire advanced knowledge and technologies from abroad, through development cooperation, FDI, and other channels. This suggests that it is all the more important for latecomer countries to be mindful of translative adaptation and indigenous learning so that the advanced knowledge and information obtained can be validated and adapted to the country-specific context and diffused at scale. This also implies that external partners, particularly donor countries and agencies must ensure that development cooperation be conducive to translative adaptation and local learning within partner countries.

##### ***4.1. Rethinking development cooperation toward effective local learning***

How, then, can donors assist in partner countries' capacity development for learning to industrialize?

This volume's message is that donors must duly respect key ingredients of translative adaptation—including country-specific uniqueness, strong country ownership, and process-orientation with room for trial and error—when providing development cooperation. There is already much literature and frequent discussions within the international community on the importance of country ownership and the need to reject a one-size-fits all approach, and it is fair to say that there is an established global consensus on development effectiveness (OECD 2005). But, these discussions largely focused on public financial management and the use of partner country systems, and alignment of donor support with development priorities, which can be viewed as the 'framework' approach. Furthermore, their attention (at least, in the early 2000s) focused on the public-expenditure intensive social sectors, as emphasized by the papers on poverty reduction strategies introduced by the World Bank and the International Monetary Fund (IMF) as part of the Enhanced Heavily Indebted Poor Countries (HIPC) initiative. Productive sectors received limited attention. Neither has attention been paid to how development cooperation can support policy capability for industrialization. While this may be partly because of ideological polarization, the reality is that unlike Japan or Korea, only a few Western donors have catch-up experiences to share with developing countries. These suggest that it is important to consider the practical aspects of industrial policy support and the role of Japanese intellectual cooperation.

In this volume, we argued that dynamic capacity development is a promising approach to enhancing the government's capacity for industrial policymaking (Chapter 1). Building on real-sector concern ('ingredients' approach), field-orientation, and joint work, this approach could facilitate the process of learning and translative adaptation. The case studies in Part II show that Japanese development policy support is one method for supporting dynamic capacity development of partner countries, particularly policy learning for industrialization. Case studies of Latin America ('Okita Report' for Argentina, The Study on Economic Development of Paraguay (EDEP)), Vietnam (Ishikawa Project), Ethiopia (industrial policy dialogue), and Thailand (Mizutani Plan and related industrial cooperation) share common characteristics of Japanese development thinking and practices, such as real sector concern, long-term perspectives, and a hands-on approach to promote the process of local learning.

A hands-on approach emphasizes the sharing of context-specific, tacit knowledge and interactive communications with counterparts (Chapter 6). In most of the case studies, the sharing of knowledge and interactive communications was extended beyond direct counterparts to scholars, the private sector, industry associations, and research institutes. For such an approach to work, certain prerequisites must be satisfied on both the donor and partner country sides. Partner countries must be ready to listen to external voices and make a high-level commitment to development policy support. Industrial policy is comprehensive, and the engagement of national leaders is essential.

#### ***4.2. Variations in development policy support***

The Okita Report for Argentina (1986-87) is the first large-scale intellectual cooperation Japan provided. Its policy recommendations reflect the economic thoughts of Okita, an architect of Japanese post-war economic recovery programs, such as long-term perspectives (e.g., scheduled trade liberalization), the importance of industrial development, and public-private partnerships. EDEP (1998-2000) paid due attention to the situation specific to Paraguay and proposed a strategy for a cluster of agro-industrial chains, consisting of soybeans, maize, and other commodities to enhance the country's competitiveness. The Ishikawa Project of Vietnam (1995-2001) was requested by Vietnamese leaders who sought advice from Ishikawa, who had profound knowledge of Chinese development (which took a 'gradualist' approach to market-oriented reforms) as an alternative to 'big bang' reforms to market-oriented economies adopted by Russia and many East European countries in the early 1990s. Taking the form of joint research between Vietnam and Japan, Ishikawa gave special importance to building trust with the Vietnamese side, respected their policy ownership by giving policy options, and emphasized the learning process. Ethiopia-Japan industrial policy dialogue (2009-present), Japan's first case of intellectual industrial cooperation in Africa, started with a request by the Prime Minister who was eager to learn from the East Asian development experience. It has emphasized mutual trust and dialogues with national leaders and key policymakers. It is also process-oriented, with the efforts to reflect Ethiopian ownership over the choice of dialogue topics and to follow up policy recommendations with Ethiopian policy action and Japanese industrial cooperation. In this way, Ethiopia-Japan industrial policy dialogue has taken hands-on approach, placing a strong emphasis on the policy learning process.

While sharing common characteristics, Japanese development policy support takes a customized approach. It is designed and implemented in a given context of particular partner countries, which differ significantly according to the development stage of their market economy, internal and external circumstances, and their governments' policy capacity. Aid schemes depend on individual cases. There is no standardized method or fixed format for this type of intellectual cooperation.

Among the four case studies, industrial policy support to Thailand (1999) has a distinctive feature. Because this support was provided as a response to the Asian financial crisis, the duration of advisory work was relatively short compared to the other Japanese policy support programs. It has also been provided in close partnership with Japanese companies. Yet, its advice included a long-term perspective on Thailand's industrialization such as automotive industry development. One suggestive point is the role played by local industrial organizations in adapting the Japanese model of *Shindan-shi* (SME management consultant) and disseminating its practices to local private sector. Thanks to long-standing economic cooperation between Thailand and Japan, these local industrial organizations have acquired industrial technologies from Japan and shared them with the Thai private sector, acting as an intermediary. It is fair to say that they have contributed to the local learning and translative adaptation process.

It should be noted that the four case studies analyzed in this volume are 'flagship' projects among Japanese intellectual cooperation, which were/have been implemented with the mobilization of relatively large resources (e.g., budget and staffing). Also, the strong political commitment of partner countries is necessary for serious and durable dialogues. So, unlike conventional technical cooperation projects, development policy support cannot be conducted in a large number of countries. At the same time, there are practices that differ from such large-scale development policy support: the Japan International Cooperation Agency (JICA) dispatches a number of long-term policy advisors from various sectors to the governments of developing countries (Hashimoto 2007) and their perspectives and approaches to economic development are quite similar to those discussed in this volume.

## 5. The Way Forward: Industrialization Challenges and Implications for Japan's Development Policy Support

As Chapter 10 discussed, the shape of industrialization is rapidly changing in the 21st century, with the expansion of global value chains (GVCs), the digital revolution, and Industry 4.0. There is a drive toward realizing inclusive and sustainable industrial development as embraced in the Sustainable Development Goals (SDGs). The COVID-19 crisis also confirms an important role that industry plays in enhancing economic and social resilience and 'building back better' recovery in the post-pandemic era. These mega trends offer opportunities for developing countries to intensify industrialization. It is important for developing countries to take advantage of such emerging opportunities and move forward, with sufficient understanding of the challenges ahead. This final section discusses industrialization challenges in today's context and considers implications for Japan's intellectual cooperation including policy support to industrial development.

### 5.1. *Striking a balance between old and new challenges*

Currently, active discussions are underway around whether and how the restructuring of global production networks might take place as a result of the COVID-19 crisis and other factors. It is possible that the COVID-19 pandemic and prevailing geopolitical tension (trade frictions between the United States and China), together with rising costs of Chinese labor, provide potential opportunities for developing countries to capture diversifying FDI. Such FDI may include green, climate-resilient, future-proof, and sustainable sectors.

On the positive side, certainly there are broadened opportunities for developing countries to industrialize. Because 'industrialization can happen stage by stage in global value chains (rather than sector by sector)' (Baldwin 2016, 278), developing countries do not have to prepare a 'full-set' industrial base. Neither do they have to worry about the sequencing of which industry to start with. The digital revolution may also provide an opportunity for developing countries to 'bypass traditional stages of development to either jump directly to the latest technologies (stage-skipping) or explore an alternative path of technological development (path-creating)' (Yayboke and Carter 2020).

Nevertheless, we should not forget that old problems continue to exist. The nature of development challenges has not changed fundamentally. Our analysis of the World Bank's income classification data on 193 countries (UN member states) during the period of 1987-2019 where historical data are available<sup>1</sup> found that many countries moved up the World Bank's income ladder over the recent three decades and that now, more countries belong to the upper middle- and high-income categories (see Table 11.1, Figure 11.2). But, the more careful analysis reveals the following three issues.

First, Africa continues to face the challenge of the 'low-income trap.' The number of countries in the low-income category declined from 49 to 29 over the past 32 years (after a peak of 66 in 2001<sup>2</sup>), of which 23 are Sub-Saharan African countries. Moreover, 22 countries have never moved up to the lower-middle income category, and 20 of them belong to Sub-Saharan Africa. This means that African development remains a long-standing challenge.

Second, the number of countries in the middle-income categories, particularly the upper-middle income category increased from 24 to 54 over the past 32 years. China and Indonesia are two notable countries which jumped up from the low- to the upper-middle income category. At the same time, there are quite a few countries which move up and down between income categories (Figure 11.2). For example, Russia and Argentina (currently, upper middle-income countries) fluctuate between the lower-and upper-middle income categories. The oil-rich countries of Angola and Venezuela (respectively, lower-middle income and upper-middle income countries), move between low to upper-middle income categories. Algeria, another oil-rich country (currently a low-income country), fluctuates between the low- and lower-middle income categories.

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<sup>1</sup> For operational lending purposes, the World Bank classifies economies into four income grouping: low, lower-middle, upper-middle, and high. Income is measured using gross national income (GNI) per capita, in US dollars, based on Atlas methodology. The World Bank has historical data from 1987 to 2019 (see <https://datahelpdesk.worldbank.org/knowledgebase/articles/378834-how-does-the-world-bank-classify-countries>). For example, thresholds of 2019 are: (i) 1,035 US dollars and less for low-income countries; (ii) 1,036 to 4,045 US dollars for lower-middle income countries; (iii) 4,046 to 12,535 US dollars for upper-middle countries; and (iv) 12,535 US dollars and above for high income countries.

<sup>2</sup> The high number in the mid-1990s-early 2000s is largely associated with serious external debt problems, which developed into the HIPC (debt relief) initiative by the international community.

Third, the number of countries in the high-income category doubled from 30 to 61 during 1987-2019. This category consists of three heterogeneous countries: (i) traditional advanced countries that joined the Organisation for Economic Co-operation and Development (OECD) before 1987; (ii) oil-rich countries (e.g., Kuwait, Qatar, United Arab Emirates); and (iii) emerging economies. While the former two had already achieved high-income status at an early stage, the latter (iii) countries have newly joined this category, coming from diverse regions<sup>3</sup> including Eastern Europe, which experienced a transition to the market economy in the 1990s (see Table 11.1). Such a rise of emerging economies is encouraging development. But, we should also note that Singapore, South Korea, and Israel are the only countries that have caught up with the advanced countries during the past three decades, if we use the very high-income threshold of 25,000 US dollars (twice as high as the World Bank's high-income threshold<sup>4</sup>). This implies that only a handful of countries have rapidly caught up to become leading countries, despite an increase in the number of high-income countries. Technological upgrading and value creation remain an important challenge for other emerging economies.

**Table 11.1. World Bank Income Classification (Number)**

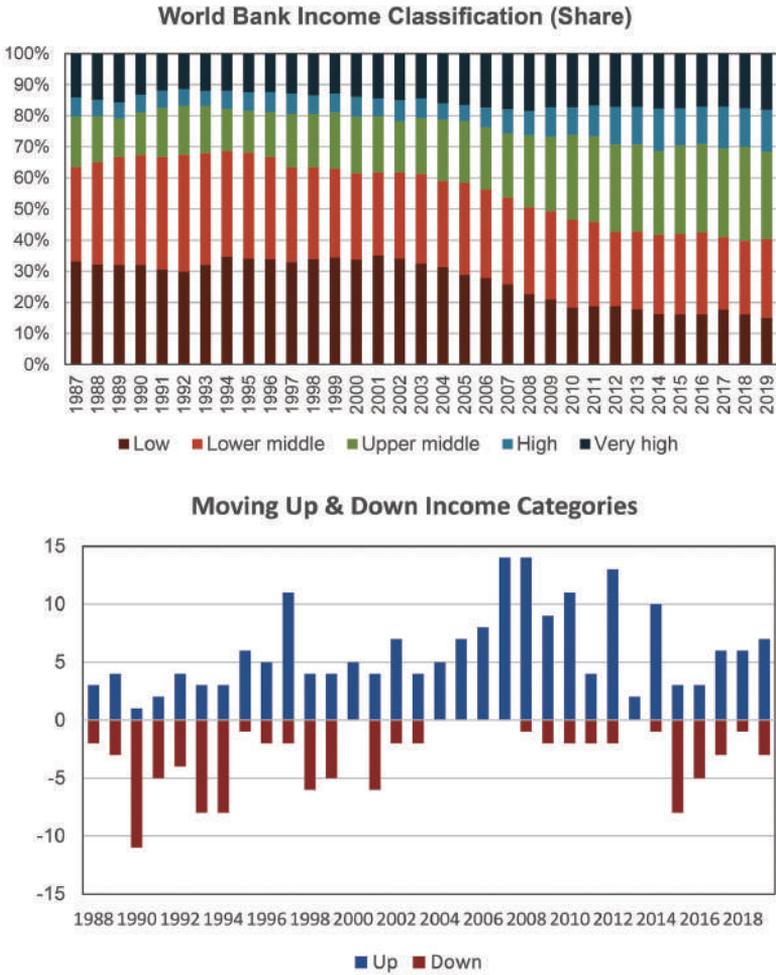
Income Category	1987	2001	2019	Regional Composition (Number in 2019)
Low income country (LIC)	49	66	29	East Asia & Pacific: 1, Central Asia: 1, South Asia: 1, Middle East: 2, Sub-Saharan Africa: 23, LAC: 1
Lower middle income country (LMIC)	45	50	49	East Asia & Pacific: 12, South Asia: 6, Middle East: 5, Sub-Saharan Africa: 18, LAC: 4, Europe: 4
Upper middle income country (UMIC)	24	34	54	East Asia & Pacific: 9, South Asia: 1, Middle East: 5, Sub-Saharan Africa: 5, LAC: 20, Europe: 14
High income country (HIC)	30	38	61	East Asia & Pacific: 8, Middle East: 8, Sub-Saharan Africa: 2, LAC: 8, North America: 2, Europe: 33
<b>Total</b>	148	188	193	

Source: Calculated by Author, based on the World Bank income classification data.

<https://datahelpdesk.worldbank.org/knowledgebase/articles/378834-how-does-the-world-bank-classify-countries>.

<sup>3</sup> Such emerging economies include Singapore, South Korea (East Asia); Czech Republic, Estonia, Lithuania, Poland, Romania, Slovak Republic, Slovenia (Eastern Europe); Chile, Panama, Uruguay (Latin America) and a few Caribbean countries, Mauritius, and Seychelles (Sub-Saharan Africa).

<sup>4</sup> Since the World Bank's high-income category is broad and includes countries with per capita GNI 12,500- 85,000 US dollars or more, we have hypothetically created the US dollar 25,000 threshold for the very high-income category.



Note: UN member states only.

Source: Calculated by Author, based on the World Bank income classification data.

**Figure 11.2. Analysis of World Bank Income Classification Data**

This reality reveals that there exist ‘development traps’ regardless of income levels. Here, the role of manufacturing cannot be overstated because the above-mentioned rapidly rising economies (such as Singapore, South Korea, China, and Indonesia) have achieved industrialization driven by manufacturing. Meanwhile, a question remains whether today’s latecomer countries represented by Sub-Saharan African countries follow the same East Asian path of industrialization or not. The signs of deindustrialization

and servicification are observed in those countries. Digitalization might bring about a leapfrog opportunities for latecomers, but country-specific solutions must be designed and implemented (Chapter 10).

Therefore, developing countries need to cope with both new and old challenges. As Baldwin (2016) states, the new landscape may change the nature of the ‘master plan’ of industrialization. But, having the right ‘master plan’ is one thing, and its effective implementation is another task.

Global value chains are not magical. They open a new way to industrialize, but they do not solve the hardest development problems. Successful development requires a broad array of social, political, and economic reforms that are as difficult now as they ever were. (Baldwin 2016, 278)

We would like to add that the new ‘master plan’ needs to be properly formulated, with good understanding of the prevailing economic situations, needs of the business sector, and international environment. Proper institutional settings must be installed to undertake such tasks, and strong political commitment to industrial upgrading is essential. These are common, old challenges, which must be addressed by any developing countries aspiring for industrial catch-up. Those aspiring and willing developing countries should acquire core policy capability for effective industrial policymaking by learning from the others, as we have argued in this volume.

Certainly, the new landscape of industrial development requires adapting prioritization, aligning the choices of industry and technologies to the emerging opportunities and changing environments. But, the methodology for industrial policy formulation and implementation, such as real-sector concern, the role of agencies tasked with industrial policy, and close partnership with the private sector, must be commonly learned and acquired. In other words, the ‘ingredients’ approach remains valid to tackle the common problems of industrial development—regardless of ‘a particular age, society and international environment’ (Ohno 2013b, 25).

## ***5.2. Translative adaptation in today’s context***

For today’s developing countries, the lens of translative adaptation is becoming more important than ever. In an inter-connected world,

developing countries are required to exercise more sophisticated capabilities under strong country ownership. Problems are getting more complex and comprehensive. Now that new knowledge and technologies are available more easily and quickly in a standardized format, it is all the more necessary for developing countries to actively and effectively learn to industrialize. This means collecting knowledge and information on available policy options by learning from the experiences of other countries, selectively adopting and adapting them to country-specific situations, and also taking account of the current global environment.

Industrial policymaking in the post-pandemic world requires enhanced government capacity, which was required in the past but has become more important under the current crisis. This includes taking advantage of a new policy scope including digitalization, speed in policy making, and clear instructions and implementation of actions. Furthermore, in the post-pandemic world, industrialization requires a greater emphasis on sustainability, inclusiveness, and resilience. These also necessitate a nationally integrated approach to address complex challenges instead of separate ministerial actions.

Moreover, translative adaptation is needed for Japan. Japan itself must make conscious efforts to adapt and innovate its approaches to the current dynamically changing environment. This includes the need to adapt to the post-COVID-19 world and to a changing role of Japan in the Asian and world economy, and regional and global production networks.

While the importance of Asia in the global economy has increased significantly, Japan's share in the Asian economy has decreased over the recent decades. In the 20th century, Japan was virtually a driving force of the Asian economy, as the front-runner of the Flying Geese. But, in the 21st century, other Asian countries have increased their presence as economic powers and investors. The era in which Japan dominantly led the Asian economy has come to an end (Goto 2019).<sup>5</sup> And importantly,

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<sup>5</sup> For example, the share of Asia in global GDP increased from 10 per cent in 1968 to 28 per cent in 2018. The share of Japan in Asian GDP peaked at 78 per cent in 1988 and fell to 21 per cent in 2018. Asia's presence as an investor has significantly increased. In 1980, Europe accounted for 48 per cent of global outward FDI, followed by North America (38 per cent); Asia accounted for only 10 per cent of global FDI (of which 80 per cent was Japanese FDI). By 2017, Europe and Asia became nearly equal top investors, accounting for 33 per cent and 32 per cent of global outward FDI respectively, followed by North America (24 per cent) (Goto 2019).

Asian companies have come to lead the value chain by building new comparative advantages, as was the case of Malaysia leading worldwide R&D and innovation in the palm oil industry (see Chapter 2). These changes suggest that Japan may wish to participate in the value chain led by Asian local companies in a way that takes advantage of Japan's strengths.

### ***5.3. Implications for Japan's development policy support***

What do all these changes mean for Japanese intellectual cooperation, especially policy support for industrial development?

First, Japanese perspectives on industrial development, based on the 'ingredients' approach and long-term perspective, continue to be valid and important. As we discussed, in a contemporary world, developing countries can consider industrial policy options more broadly, with attention to interplays among the emerging mega trends. The scope of the master plan may change (Baldwin 2016), but the government must possess core policy capability so that the new master plan can be formulated properly. This requires listening to the voices of the private sector, collecting data and information on firm activities, with deep knowledge of key industries. These are the essence of the 'ingredients' approach which Japanese development cooperation has placed high importance for long.

Second, knowledge sharing of industrialization experiences should be promoted among those countries interested—from a perspective of translative adaptation. As we have shown, the paths to industrialization are diverse, and various experiences have been accumulated over the past decades within and beyond East Asia. Here, what matters most are the practical aspects of industrial policymaking, especially the methodology for industrial policy formulation and implementation, rather than the simple replication of a particular development model. It is also important to promote knowledge and experience sharing of the recent industrializers—those countries that have succeeded in industrialization not long ago—in light of how they learned from other countries and 'adopted and adapted' foreign models suitable to their respective countries.

Third, Japan should be actively engaged in promoting knowledge sharing and learning of industrialization experiences among the recent

industrializers and developing countries, and acting as a facilitator of local learning and translative adaptation. Japan has fostered the ‘ingredients’ approach, field-orientation, and joint work (or hands-on approach) through its long-standing development cooperation including policy support. These are the key ingredients of a dynamic capacity development approach. It is important that such approaches, together with a perspective of translative adaptation, be fully incorporated in the process of knowledge sharing and learning of industrialization experiences. In reality, these approaches and perspectives are implicitly understood and practiced by Japanese experts and professionals engaged in development cooperation. But, they tend to remain as tacit knowledge. Japan must make more efforts to convert tacit knowledge into explicit knowledge so that these approaches and perspectives can be better understood by other countries.

Fourth, Japan should make greater efforts to publicize and disseminate its experiences with development policy support, particularly the approaches and perspectives adopted in industrial policymaking. As discussed earlier, because of its customized approach, there is no standardized method and aid scheme for Japanese development policy support to be implemented. As a result, while individual projects may be known among those concerned circles, this type of intellectual cooperation as a whole has relatively low visibility within Japan and abroad. This is quite different from the initiatives of several countries such as the Knowledge Sharing Program (KSP) offered by Korea<sup>6</sup> and the Knowledge Bank based on Norway’s experience with managing oil for development.<sup>7</sup> The compilation of this volume is our modest effort to raise the visibility of Japanese development policy support and disseminate its approaches, as one way to facilitate the process of local learning and translative adaptation by partner countries.

Lastly, it is increasingly important to emphasize the process of ‘co-creation’ when Japan undertakes development policy support for

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<sup>6</sup> KSP is managed by the Korean Development Institute, aimed at sharing knowledge with partner countries with Korean development experiences. <https://www.ksp.go.kr/english/index>.

<sup>7</sup> In 2018, the Norwegian government established the Knowledge Bank in Norad (Norway’s development cooperation agency) to share Norway’s experiences with managing oil for development and other areas (ocean, fish, gender equality, agriculture, digital, etc.) through its technical cooperation program. <https://www.norad.no/en/front/the-knowledge-bank/>.

industrialization. First, Japan must learn together with partners to find joint solutions (co-learning and co-solving). This is because development challenges in the 21st century have become more complex, sometimes going beyond what Japan experienced in the past through its own industrial development. Leapfrog technologies may be more advanced and easily tested in developing countries. Second, it is important for Japan to build intellectual networks with the other industrializers systematically so that their relevant experiences can be shared with developing countries when it conducts development policy support. In this process, Japan may wish to play a facilitating role so that they can take account of translative adaptation perspectives when sharing their industrialization experiences (joint facilitation). Third, it is important that such experiences can be accumulated for further utilization and enhancement of development policy support (experience accumulation). All together, the process of 'co-creation' itself can be viewed as translative adaptation and can contribute to creating new values for development policy support.

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