
THE ECONOMIC IMPLICATIONS OF COMPREHENSIVE APPROACH TO LEARNING ON INDUSTRIAL DEVELOPMENT (POLICY AND MANAGERIAL CAPABILITY LEARNING): A Case of Ethiopia

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Abstract

Industrialization is the key for sustainable economic growth in Africa. The role of industrial policy has been discussed intensively recently. This paper sheds light on the learning (or learning how to learn) aspect of industrialization policy, proposing a comprehensive approach. A great deal of past literature focuses only on the technological aspects of learning, but industrialization is a multi-faceted task, covering policy planning, policy implementation, and managerial knowledge. This paper took up a case from Ethiopia. The case study confirmed that learning on managerial knowledge improved performance of private firms. It also confirmed that policy learning expanded the policy scope of the government to help private sector development. These two aspects are inseparable, and this comprehensive approach should be used by donor countries for the industrialization of Africa.

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1. INTRODUCTION

Notwithstanding the much improved economic performance of Africa in the past decade or so, industrial development continues to languish. The percentage of the GDP held by the manufacturing sector has been declining since the 1980s. Recent economic growth is dominated by the mining sector. Foreign Direct Investment (FDI) also goes into natural resources and not the manufacturing sector. As the population grows, youth unemployment (in other words, job creation) will become a serious issue for sustainable growth as well as political stability in the region. Therefore, industrial development, which contributes to increase in employment and income, is crucial.

There has been heated debate over industrial policy elsewhere and a renewal of interest recently; it remains one of the most controversial topics (Noman *et al.*, 2012; Lin, 2011; Lin and Chang, 2009; Cimoli, Dosi, and Stiglitz, 2009; Hausmann, Rodrik, and Velasco, 2005; The Economist, 2010).² This debate even goes back to 19th century economists Ricardo and List.³ There is still little consensus. From the viewpoint of the Washington Consensus, a number of issues such as rent-seeking, political capture, policy mistakes, and picking the winner were raised (Krueger, 2011; Pack and Saggi, 2006). On the other hand, advocates of industrial policy have emphasized that the market cannot be said to function perfectly to achieve general Pareto optimality under the assumption of perfect information and perfect competition, among other things (Greenwald and Stiglitz, 2012).

This paper will focus on the “learning” (or “learning how to learn”) aspect of industrial policy. Knowledge gaps (not just resource gaps) have long been identified as issues requiring attention for development, but have been long neglected (Stiglitz, 1998; Greenwald and Stiglitz, 2012; Noman and Stiglitz, 2012). Further, only a small number of papers have performed empirical analysis on learning in Africa in the past. Due to the recent growing interest in this field, the number of empirical studies has been growing gradually. These include the World Bank’s report by Dinh *et al.* (2012) on light manufacturing in Africa: Eifert, Gelb, and Ramachandran (2008) on infrastructure and doing business: and de Mel, McKenzie and Woodruff (2008), and Banerjee and Duflo (2005) on financial market failures.

Regarding learning, it is important to disaggregate “what to learn.” Technology and skill are not the only areas of importance for Africa. Industrial development does not occur by simply adopting new technology. There are other types of knowledge necessary to learn for industrial development, such as policy planning and managerial skills, as we will see later. Almost all the past literature on Africa, however, focused mainly on the technology/skill aspects. There is only limited literature surveying the policy and managerial aspects of learning

² Following past literature such as Rodrik (2007) and Noman and Stiglitz (2012), this paper also considers that industrial policy covers not only the manufacturing sector, but also broad sectors such as the agricultural and service sectors.

³ Historically, the most successful countries including the US and UK, among other countries also proactively used industrial policy in its development process (Chang, 2002).

in Africa, and still further empirical studies on other aspects of learning are required to see how effective learning is for economic growth (Sonobe and Otsuka, 2006; Sonobe, Suzuki and Otsuka, 2011; Klinger and Schündeln, 2007; Karlan and Valdivia, 2011; Field, Jayachandran, and Pande, 2010). This paper intends to shed lights on a comprehensive approach to learning, which will be discussed in detail later. For this purpose, this paper will look at the on-going project by JICA (Japan International Cooperation Agency) in Ethiopia.

2. LITERATURE REVIEW

2.1. INDUSTRIAL POLICY

In the 1990s, the major development policy was based largely on liberalization, privatization, and price-stability, and regarded industrial policy as a source of inefficient, market distortion. In 1993, the OECF (Overseas Economic Cooperation Fund, now JICA) published Occasional Paper No.1 entitled “Issues Related to the World Bank’s Approach to Structural Adjustment: Proposals from a Major Partner” (OECF, 1993a), arguing in favor of infant industry protection and of credit subsidies for selected industries believed to have export potential, which was in opposition to the Bank’s approach. In the same year, the World Bank published “The East Asian Miracle,” which gave very guarded and qualified support to industrial policy, and that too only for export promotion, not on import protection and credit market intervention. The OECF (1993b) disagreed with its view (Mosley *et al.*, 1995). Although the World Bank published the report, the mainstream policy has not changed. Industrial policy was by and large sidelined.

In the wake of emerging economies such as China, India, Brazil, and South Korea, a growing number of people have started to regard industrial policy as an important policy tool for economic development as well as private sector development (Lin, 2012; The Economist, 2010; Hausmann, Rodrik, and Velasco, 2010; Lin and Chang, 2009; Cimoli, Dosi, and Stiglitz, 2009; Rodrik, 2007).⁴ This trend is partly due to the response of developed economies after the Financial Crisis; Rodrik (2010) called this movement the “return of industrial policy.” At least, if and how donors should promote industrial policy has become a hotly debated subject in recent years.

In the African context, in January 2008, the African Union Summit dedicated to the theme “the Industrialization of Africa,” AU (African Union) (2008) adopted AIDA (Action for the accelerated Industrial Development of Africa), declaring that:

it is Africa’s turn....the time is now....(n)o country or region in the world has achieved prosperity and a decent socio-economic life for its citizens without the development of a

⁴ Michael E. Porter (2007) proposed cluster approach and public policy to foster clusters instead of industrial policy because it minimizes distortions to competition, and is better aligned with market competition.

robust industrial sector (p. 1).

The UN Economic Commission for Africa (UNECA) and AU published their annual Economic Report on Africa (ERA) in 2011. This report also concluded that the role of states needs to be enhanced to foster economic and social transformation, and to correct market imbalances.

Justin Lin (2012), the former Chief Economist of the Bank, proposed what he calls New Structural Economics (NSE). The concept of NSE is controversial because it differs from the traditional World Bank approach. In his classification, the NSE is the third wave of developmental thinking. The first wave was from the emerging and developing economies (old structural economics). They emphasized market failure and proposed import substitution for structural changes. The results were disappointing, and the second wave of thinking highlighted government failures, and emphasized a “getting the prices right” policy. The third wave, which Lin proposed, intends to bring structural change back to the core of the discussion. His proposal is to industrialize according to the comparative advantages under the given endowment structure, which old structural economics went against. Regarding the last point on comparative advantage, Ha-Joon Chang is against comparative advantage theory, and argues that developing countries need to take more proactive industrial policy beyond the comparative advantage theory like Japan and South Korea (Lin and Chang, 2009).

Krueger (2011) commented on Lin’s proposal that his view is industrial and urban-biased (distortion), and there are many questions on the role of the state. Questions are, for instance, whether support should be given to all industries or to a specific industry, and what incentives (e.g., firm-specific treatment, subsidies, or tariffs?) should be included. She also pointed out the issues such as picking the winner and government failure as well.

On the other hand, Stiglitz (2011) agrees with the NSE proposal, and stressed, as Solow (1957) found, advances in technology have been the source of increase in per capita income over the last two centuries. In his view, disparity in knowledge matters for developing countries, so Stiglitz proposed to create “a learning society,” in which society intends to absorb and adopt knowledge, and eventually to produce new knowledge. In addition to “learning,” he also stressed the importance of “learning to learn (or the ability to learn)”⁵ (Greenwald and Stiglitz, 2012; Stiglitz, 1987).

2.2. LEARNING

Regarding learning, investment in learning tends to be less than expected (underinvestment) due to market failure. This is because of imperfect information and the nature of knowledge, with characteristics of public goods associating with externalities

⁵ Stiglitz (1989) explained the “learning to learn” effect by the following function: $\ln C_t - \ln C_{t+1} = a + b \ln Q_t$. Here, learning to learn changes the parameter b .

(spillovers). Knowledge itself should be essentially zero marginal cost. In the real world, however, firms have a tendency of neglecting to take learning benefits into account, so the “learning phase” incurs losses for private firms. This becomes a barrier to entry, implying the existence of a monopoly (Stiglitz, 2010 and 2012). Unlike the aggregate growth model of a closed economy with competitiveness assumed by Arrow (1962) and Kaldor and Mirrlees (1962), Dasgupta and Stiglitz (1988) found that the assumption is not valid. In other words, market equilibrium is not efficient if firms learn with cost. Because of the market failure, the state has to play the role of a catalyst to learning.

Noman and Stiglitz (2012) discussed that development strategies need to focus on a LIT (Learning, Industrial, and Technology) policy. This is due to the effectiveness of the LIT policy in promoting technological changes and encouraging shifts in production structure, just as knowledge accumulation could change the endowment.⁶ Further, it is argued that the LIT policy needs to support investment projects with large spillovers. The reason why the industrial sector is considered important is that learning in the industrial sector has more spillovers to the rural/agricultural sector. Moreover, there is greater incentive to invest in R&D (innovation) in the industrial sector than in the rural/agricultural sector. In this regard, linkages between the natural resource extraction sector and other sectors were typically weaker than the manufacturing sector and the rest (Greenwald and Stiglitz, 2006 and 2012).

2.3. MANAGERIAL CAPITAL

Then, the next question of “what to learn” comes to mind. Do we have to learn only “new technology,” as Solow (1956) found?⁷ When Lall, S. (1987) surveyed Indian firms, he stressed the importance of technological capability (TC). He disaggregates the TC into five elements: (1) project execution; (2) product engineering; (3) process engineering; (4) industrial engineering and planning; and (5) technological transfer. This classification is useful to deepen our understanding on elements of technology/skill.⁸

There is however, bias in his definition toward technical aspects of the firm. Other than these technological capabilities, private firms need to have other abilities as well: “management

⁶ They referred to examples from the US that the LIT policy led to the development of the telegraph, the Internet, and successful companies such as Federal Express.

⁷ Ansu and Tan (2012) argued that even though skill development is indispensable for economic growth and employment, it costs too much for Sub-Saharan governments to finance. In other words, they need growth to finance skill development. To solve this chicken-and-egg problem, they proposed a two-way solution. First, in the short term, the strategy needs to focus on meeting industrial needs and spurring growth. Second, in the long term, the strategy needs to improve the whole educational system. As for education, a number of studies found that higher education is closely correlated with firm growth in Africa (McPherson, 1996; Mead and Liedholm, 1998; Ramachandran and Shah, 1999; Mengistae, 2006).

⁸ Cimoli, Dosi, and Stiglitz (2009) discussed that technological learning is mainly done by imitation, reverse engineering, and copying, for example. This kind of capacity is called “absorptive capabilities.”

capabilities” which include marketing, finance, and external relations, among others (Wad, 1991).⁹

Although management capability is important, it has been neglected in development and growth literature. For Solow (1956), management capability is reduced to the residual of a production function (the error term).¹⁰ In the early days, Lucas (1978) and Rosen (1982) proposed “talent for management” as an important factor for production. Few empirical studies however, have been conducted on the managerial capital in the theory literature. Bruhn, Karlan, and Schoar (2010) discussed that the capital missing in developing countries is “managerial capital.” In their views, managerial capital can affect the production function through two channels. One is improving the marginal productivity of inputs (e.g., labor, physical capital). The other is improving resource constraints (e.g., access to capital or labor with better resource forecast).¹¹

Recently, with the attention on this field growing, the number of empirical studies has been increasing. These include: Klinger and Schündeln (2007) on a business training program held in Central America; Karlan and Valdivia (2011) on basic business training in Peru; Field, Jayachandran, and Pande (2010) on financial and basic business training in India; and Bruhn, Karlan, and Schoar (2010a) on consultant services to supplement management knowledge. These studies found mixed pictures that some training improves business performance (e.g., revenue, profits, employment, productivity), but others may not.

Through an empirical study in Africa, Sonobe, Suzuki, and Otsuka (2011) also confirmed the importance of management capital, in that technical assistance on “*kaizen*” enables informal firms to expand operations and generate employment.¹² As we will see in detail in the case of Ethiopia later, a productivity and quality improvement method, called *kaizen*, provides inexpensive basic management skills and can improve management practices. Their study focuses mainly business administration, basic business skill, and desk study of manufacturing floor management. They found that in Tanzania the training effects on record-keeping and

⁹ This thinking is the same as that of Cimoli, Dosi, and Stiglitz (2009) when they differentiate technological knowledge and sheer information. For them, technological knowledge is embodied in specific people, organizations, and local networks. They further classified production capacity and technological capabilities (or dynamic capabilities). The former is capacity to do routine work, and the latter is for technological change. It is argued that it is important for a country or organization to transition from production capacity to technological capabilities. Stiglitz (2012) also identified various structure of learning including these management capabilities as well, such as: inventory control process, labor management process, computerization, and financial service.

¹⁰ Bruhn Karlan, and Schoar (2010a) incorporate management capital into endogenous growth theory, as A in the production function: $y = AK^\alpha l^{(1-\alpha)}$. This implies that A decides if other inputs lead into high level of outputs.

¹¹ Recent papers also found that management practices and education are of low quality in developing countries, such as Chaudhry (2003) and Bloom and Van Reenen (2010).

¹² Similarly, Cimoli, Dosi, and Stiglitz (2009) also emphasized “problem solving knowledge” embodied in organizations (such as production technologies, marketing, labor relations, as well as “dynamic capabilities” of learning).

kaizen practices are highly significant, and so affects marketing in Ethiopia. According to their study, a majority of entrepreneurs do not keep records of the costs and revenues, and it hampers their objective judgment on their operation.¹³

2.4. POLICY LEARNING

In addition to the managerial capital, there is another important element of learning. That is policy learning. When Lall (1987) surveyed Indian firms, he rightly concerned the methods by which individual firms acquired technological capability (TC). These firms considered policy environment as an external factor, and they had got TC without any support from the government. As we have already seen, because of market imperfection, the knowledge does not spillover automatically. It is important for governments in developing countries to promote knowledge spillover, and to encourage learning.

There have been successful policies and failures in the past. Looking at the development cases of Asia, their recipe and timing (what and when) varies country by country (JICA, 2008). In other words, country context mattered greatly when planning industrial policy. As country context matters, a government should not just blindly copy the successful policy of another country: they need to learn how to analyze country context and how to adopt the best possible scenario. In other words, they need to “learn how to learn” selectively from the cases of various countries. For instance, the role of public sector to develop SME (Small and Medium Enterprises) changes according to the country context and to the stages of industrial development. Ito and Urata (1998) compared the development of the auto parts industry in Japan and Korea, and found different roles for the public sector to promote the auto industry. In Korea, the public sector was to dissipate knowledge to SME, but in Japan, the public sector played a small role. Ohno (2013) stressed the importance of policy learning, and discussed that policy learning should be based on a systematic collection and comparison of international best policy practices and failures. This is to enhance government capability for a country to be able to become industrialized. Thus, policy learning is another aspect on which some thought is required.

Regarding learning on a policy level, there are several attempts from donor countries. One example is the KSP (Knowledge Sharing Program) of the KDI (Korean Development Institute). The case we will see in this paper is JICA’s program in Ethiopia. One feature distinguishing this program is a comprehensive approach, which we will discuss in the next section.

¹³ Sonobe and Otsuka (2006) studied eight industrial clusters in Japan, China, and Taiwan, and found that multi-faceted innovations are needed to achieve a major improvement in the enterprise performance. Further, they argued that the innovations are difficult tasks, and are possible only by entrepreneurs with higher education or entrepreneurs with rich managerial human capital.

3. POLICY AND MANAGEMENT CAPITAL LEARNING IN ETHIOPIA

3.1. A COMPREHENSIVE APPROACH TO LEARNING

As we have seen so far, two levels of learning are necessary: (1) policy level (policy learning) and (2) private firm level (technology/skill and management capital learning). The two of them are inseparable. Business environment affects private firms' strategy in the market. There are various elements in the business environment that private firms need to take into consideration. Among them, the following elements are especially important: outlook on inflation and exchange rate, changes in the system of taxation, and industrial policy.

Here, industrial policy in broad definition includes various policies. These are: infrastructure development policy, education and vocational training policy, financial policy (especially loans to small and medium-sized enterprise), FDI promotion policy, trade policy, intellectual property rights policy, and industrial standards policy, among others. The outlook of these policies will affect a private firm's long-term strategy, especially for its investments, but not its short-term strategy. If the future is uncertain, it will result in low investment in the private sector, since private firms would not take the risks. The term "investment" includes investment on productivity and quality improvement as well as physical investment.

A government policy will affect private firm's decision in many ways. For instance, productivity and quality improvement will be discouraged under high inflation and exchange rate volatility. This is because it is difficult for private firms to recognize and measure the results of the improvements under uncertain situations. On the other hand, government support such as infrastructure development, education, vocational training, and SME development policy will encourage private firms to improve productivity. Thus, policy and private firms' operations are closely connected to each other. In order to industrialize, it is necessary to tackle both policy and private levels.

Table 1: Structure of Learning

1. Policy Level
1-1 Policy Planning
1-2 Policy Implementation
2. Private Firm Level
2-1 Strategic Business Administration
2-2 Manufacturing Floor Management
2-3 Basic Business Skill
2-4 Technology/Skill

Now, each level can be disaggregated. Regarding the policy level, these are (1-1) policy planning and (1-2) policy implementation. The capacity of policy planning is important, as the previous section discussed. The capacity for policy implementation is different from that of

policy planning. How effectively a government can implement a policy largely depends on their organizational capacity. Industrial development is a multi-sector (or a multi-ministerial) task. Several sectors can be involved in exporting even a single agro-industrial product abroad: for example, agriculture, manufacturing, and transport sectors. In addition, factors such as quarantine, tax and customs procedures, and exchange rate also affect export performance. In other words, promoting exports requires total governmental effort with inter-governmental coordination as well as public-private consultation. Coordination with all stakeholders requires very high capacity, and is a difficult task.

In some countries, excellent policy plans are drafted without taking feasibility and government organizations' capacity into account. These two factors are correlated, but the issues that need to be learned are different. As Cimoli, Dosi, and Stiglitz (2009) discussed, "organization building" is one of the most difficult tasks, and policies and institution-building have shaped both the accumulation of technological and organizational capabilities. These capabilities decide the national capabilities to catch up with crucial knowledge (Cimoli *et al.*, 2009). This paper disaggregates these.

Turning now to the private firm level, there are four sub-levels of entrepreneurial skills: (2-1) strategic business administration (including labor management and computerization); (2-2) manufacturing floor management (including inventory control); (2-3) basic business skill; and (2-4) technology/skill. Basically the first three items are elements of managerial capacity. The capacity of strategic business administration (2-1) is required for employers and the business administration department. Manufacturing floor management (2-2) is required for factory workers as well as factory managers. The basic business skill (2-3) was found lacking by Sonobe, Suzuki, and Otsuka (2011) in many micro and small enterprises in Africa. This includes skills such as record keeping, which is essential for the day-to-day operation of a company in any general affairs. This paper will look at the case of Ethiopia based on this structure.

3.2. BACKGROUND OF THE PROGRAM IN ETHIOPIA

As a comprehensive approach to learning, this paper will take up a program in Ethiopia supported by JICA in collaboration with GRIPS (National Graduate Institute for Policy Studies of Japan). This program was initiated in response to the request from the late Prime Minister Meles Zenawi, and has two components: support to formulate industrial policy in the new five-year development plan (industrial policy dialogue); and support to develop private firms (a project for quality and productivity improvement). These two components are implemented side by side, taking the linkage between the policy and operation of private firms into consideration. This program started in 2009 and completed its first phase in 2011. The program was started with strong leadership by high-ranking government officials (top-down), and was implemented by equally strong ownership by government technocrats and private firms (bottom-up).

The late Prime Minister was critical of the Solow model because the model treats technological change as something external to the economic process, as an exogenous factor

(Zenawi, 2012). In his view, technology is a public good, and there are market failures in providing it. Therefore, he believed that developing countries should not leave technological development (innovation) to the market, and the key to this is learning from abroad. He argued that technological capability accumulation is the central challenge for developing countries to achieve continued growth. It will enable developing countries to move up the technological ladder. He compared two types of national innovation systems, and discussed that the system needs to reflect the structure of the economy. Those systems are the mission-oriented systems in the US, UK, and France, and the diffusion-oriented systems of Germany, Sweden, and Switzerland. A mission-oriented system is a system to explore the new technology, such as by first-rank universities. A diffusion-oriented system is to exploit existing technologies through social mechanisms such as standardization of products, or an apprentice system of training craftsmen. For developing countries, he argued that it would be easier to adopt and adapt existing technology in developed countries rather than innovation.

With this view, he tried to learn from cases in foreign countries such as South Korea and Taiwan. He even sent government officials to these countries. In addition, he requested specific assistance to adopt and adapt existing technology from development partners such as Germany, Italy, and UNIDO (United Nations Industrial Development Organization) (Ohno, 2013). In response, Germany implemented ECBP (Engineering Capacity Building Program). ECBP includes a TVET (technical and vocational education and training) system, engineering and private sector development, among others. From Japan, he requested the specific support mentioned above.

3.3. OUTLINE OF THE PROGRAM

(A) INDUSTRIAL POLICY DIALOGUE – MUTUAL LEARNING

The industrial policy dialogue was started in June 2009 and ended the first phase in May 2011. The dialogue was started together with the pilot project for productivity and quality improvement (*kaizen*), which we will see in the next section. The aim of the dialogue is to exchange views on: (1) the new five-year development plan;¹⁴ (2) issues needed to be tackled for policy planning and implementation (e.g., inter-governmental coordination); and (3) progress and issues on the pilot project. These three elements complement each other, and cover policy strategy to private sector operation on the ground.¹⁵

The dialogue was held quarterly eight times at three levels: (1) Prime Minister, (2)

¹⁴ The five-year plan (2005-2009) is the Plan for Accelerated and Sustained Development to End Poverty (PASDEP). The debate was also held for the new five-year plan namely, the Growth and Transformation Plan (GTP, 2010-2015).

¹⁵ This dialogue was an approach to “mutual learning” between the Ethiopian side and the Japanese side. As discussed, context matters greatly for policy planning; the Japan side has rich knowledge on East Asian cases, but little knowledge on the Ethiopian economy. The Ethiopian side understands its own economy, but has little knowledge regarding East Asian cases. If policy prescription were one-size-fits-all, things would be much simpler. The dialogue approach provided mutual learning opportunity to find solutions.

Ministers and State Ministers, and (3) Heads of Directorates and Institutes. These three levels have different organizational responsibilities and authorities on policy planning and policy implementation. Therefore, naturally, even if the topic is the same, the contents of discussion and issues to be challenged are different. From the Japanese side, the core members of JICA-GRIPS team were Professors Kenichi Ohno and Izumi Ohno.

(B) THE PILOT PROJECT FOR PRODUCTIVITY AND QUALITY IMPROVEMENT (KAIZEN)

In parallel with the policy dialogue, a pilot project for productivity and quality improvement started in October 2009 and ended in May 2011 (phase 1). Phase 2 of the project has been underway since November 2011. The productivity and quality improvement is called “*kaizen*.” It is a method to continuously improve productivity and quality in a participatory process and a bottom-up approach. Under the structure of learning we discussed above, *kaizen* mainly focuses on (2-1) strategic business administration, and (2-2) manufacturing floor management. It does not require additional cost from the employer. It does not require restructuring such as cutting employment, unlike BPR (Business Process Reengineering).

Japan itself introduced productivity and quality improvement in 1955 at the start of Japan’s era of rapid economic growth, learning from American business management tools.¹⁶ There were dual aims. One was to enhance competitiveness to expand the market, utilizing resources effectively and scientifically, at the same time reducing production costs. The other was to boost employment and to enhance real wages and the standard of living.

3.4. IMPACTS AND THEIR CAUSES

What kind of impact did the program have? Before examining overall impacts, we will start by looking at the impacts of the pilot project. There is a certain degree of limitation in this analysis due to lack of data such as benchmarking data, since the program was not designed to be analyzed by econometric analysis such as RCT (Randomized Control Trial). Therefore, the analysis here is only a qualitative analysis. It is a future task after phase 2 to run a more rigorous impact analysis.

Regarding the pilot project, a team of JICA and Ethiopian experts together visited 28 pilot private manufacturing firms 10 times each, and gave them questions, rather than answers, on what the companies needed to think about to improve their operations. The 28 pilot private firms were from the (1) agro-processing, (2) chemical, (3) metal, (4) leather, and (5) textile industries. After the 10 consultations over a half-year, as Table 2 shows, the highest benefit to a company was 3.25 million Ethiopian Birr (ETB), equivalent to around US\$195,195. The 28 firms had obtained an average benefit of ETB 500,000 (equivalent to around US\$30,030). Given that

¹⁶ The three guiding principles of productivity improvement were set out in 1955 in Japan, which were: (1) expansion of employment; (2) cooperation between labor and management; and (3) fair distribution of the fruits of productivity.

the average number of employees was 402 per company, the pilot project generated a benefit of ETB 1,240 (US\$74.5) per head, which almost equaled the prevailing gross monthly wage (US\$75).

These improvements, having such significant impacts, were made without additional investment cost. The firms simply improved their method of operations through *kaizen* by conducting 5S activities and reducing seven types of waste (overproduction, inventory, repairs/rejection, motion, processing, waiting, and transport).¹⁷

Table 2: Results Observed from the Pilot Project Companies (examples)

Quantitative Results (Monetary Impacts)
(1) Average quantitative benefit of ETB 500,000 (US\$30,030) per pilot company. Given that the average number of employees is 402 per company, the average benefit per head is ETB 1,240 (US\$74.5), which is comparable to the prevailing gross monthly wage (US\$75).
(2) Company A reduced costs by (a) ETB 10,000 (US\$600) per month and (b) ETB 78,000 (US\$4,685) per annum.
(3) Company B generated additional income of ETB 1.2 Million (US\$78,072) per year.
(4) Company C decreased down time ETB 204,000 per day (US\$12,252).
(5) Company D rectified raw material defect used for manufacturing ETB 2.4 million (US\$144,144).
(6) Company E identified repaired and reused usable machines and equipment worth 3.25 million US\$.
Quantitative Results (Non-monetary Impacts)
(1) Company F increased labor productivity, by reducing time loss for searching for tools on average by 50 percent.
(2) Company G reduced floor space by around 50 percent.
(3) Company H improved the defect ratio in the range of 50 to 70 percent.
(4) Company I improved lead time in the range of 16 to 90 percent.
Qualitative Results
(1) Clean working environments created.
(2) Teamwork and motivation of workers developed.
(3) Health and occupational safety of workers improved.
(4) Increased employee participation.
(5) Knowledge obtained on how to meet quick delivery and to reduce costs.

Source: the author based on Shimada, Homma, and Murakami, 2013 and JICA, 2011b

Note: 1 ETB = US\$16.65

Table 3 shows qualitatively measured results by the Ethiopia-JICA team. Companies classified as Grade 5 means that there is a high possibility to be a model company, with the other grades meaning: Grade 4 (good possibility); Grade 3 (some possibility); Grade 2 (low

¹⁷ 5S is the working environment improvement methodology called *Seiri* (orderliness), *Seiton* (tidiness), *Seiketsu* (cleanliness), *Seisou* (cleaning up), and *Shitsuke* (discipline); these terms have been standardized in English as Sort, Set in Order, Shine, Standardize, and Sustain.

possibility); and Grade 1 (no possibility). In short, this table shows 10 companies out of 28 companies (more than one-third) are graded 5 and 4 as candidates for being excellent companies in the near future. These results indicate that even if the input is small, learning about (2-1) strategic business administration and (2-2) manufacturing floor management have certain positive impacts. In other words, according to the 28 pilot companies experiment, there are huge possibilities for Ethiopian (or African) enterprises to improve productivity and quality greatly with small changes in (2-1) strategic business administration and (2-2) manufacturing floor management.

Table 3: Qualitatively Measured Results from the Pilot Companies

Sub-sector	Grade					Total No. of Companies
	5	4	3	2	1	
Metal	1	2	2	2	1	8
Textile	1	1	1	1	1	5
Agro-processing	1	1	1	2	1	6
Chemical	3		2	1	3	6
Leather			2			3
Total Occurrences	6	4	8	6	6	28

Source: JICA, 2011a

(A) FACTORS OF DIFFERENT PACE OF PROGRESS: CLEAR POLICY MESSAGE FROM THE GOVERNMENT AND MANAGER'S STRONG COMMITMENT AND OWNERSHIP

Is learning about (2-1) strategic business administration and (2-2) manufacturing floor management enough to improve private sector operation without any learning on the policy level? What are the decisive factors for success and failures among pilot companies? The pace of progress is different among companies participating in the *kaizen* project.

One of the important factors of success was the managers' strong commitment and ownership to introduce the new method. Managers of successful companies understood that the key to improve productivity and quality is a bottom-up approach at the manufacturing floor. They tried to build good management-employee relationships, appreciating communication with employees and employee training. This commitment of managers is difficult to measure. Before the project, *kaizen* was new to Ethiopia, and managers did not have knowledge about the method. Considering the situation, it was extraordinary that Ethiopian entrepreneurs showed strong commitment to the new method. What was the reason behind it?

It was the clear policy message from the government that the government will support the introduction of the new method. The late Prime Minister and other government high-ranking officials had mentioned the initiative to introduce *kaizen* on TV and in public speeches. This clear message reduced the entry barrier for private companies to learn the method and

improve productivity and quality. Unlike under the condition of asymmetry of information, managers took the learning benefit into account, so the learning phase was not considered a loss for them. Because of this clear policy message, an introduction seminar on *kaizen* held in Addis Ababa before the project started attracted huge attention. Even though *kaizen* was very new to Ethiopian entrepreneurs, more than 320 entrepreneurs from 170 private companies attended the seminar. The policy message generated commitment and ownership of Ethiopian entrepreneurs.

(B) LEARNING POLICY PLANNING: FOCUS ON QUALITY AND PRODUCTIVITY

In spite of the clear message from high-ranking officials, the same policy message was not clear in the policy documents, such as the five-year development policy and sectorial development policy. In the process of the preparation of the GTP, the policy message was discussed in the policy dialogue. The issue was how to synchronize the GTP, a guiding framework of national development plans, and activities on the ground. For that purpose, MSE (Micro-Small Enterprises) policy was discussed in detail.

The Ethiopian government examined Asian cases by themselves, with JICA-GRIPS providing some comparative case studies from East Asia such as Japan's SME development policy and Singapore's nation-wide movement of productivity and quality improvement. This self-learning increased policy space, and a result of this, in the framework of the GTP, a new MSE development strategy was adopted, referring the introduction of *kaizen* to industrial development. This policy shows the policy direction, and catalyzes learning in the private sector.

(C) LEARNING POLICY IMPLEMENTATION – COORDINATION AND CAPACITY DEVELOPMENT

Another important point is policy implementation by government bureaucrats and technocrats. One of the issues raised and discussed in the policy dialogue was a policy coordination mechanism across ministries and agencies. For industrial development, as we saw, different ministries and agencies are involved. For any government, it is a challenge to build consensus on key policy directions and the way it is implemented among stakeholders inside and outside government. East Asian countries have certain mechanisms to coordinate this. JICA-GRIPS provided the Ethiopian government with various case studies of such mechanisms.

In terms of MSE development in Ethiopia, there are several ministries and agencies in charge of it, and the government setup is very complex. These include the Ministry of Industry (MoI), Ministry of Urban Development and Construction (MoUDC), Ministry of Education (MoE), TVET, and the EKI (Ethiopian *Kaizen* Institution). Learning the coordination mechanisms of East Asia, the Ethiopian government also developed several coordination mechanisms. For example, for MSE development, a National Council was established to coordinate it, co-chaired by MoUDC and MoI. This coordination mechanism reduces unnecessary fragmentation.

Further, regarding learning *kaizen* at the private firm level, the government agency plays an important role in catalyzing the learning. The important thing is that the above impacts of the project were brought from the Ethiopian government experts who learned the method based mainly on on-the-job training (spillover effects based on the knowledge acquired by doing).

The experts belonged to the *Kaizen* Unit in the then Ministry of Trade and Industry (now the Ministry of Industry). The late Prime Minister established this new unit just before the start of the pilot project, as a part of his initiative. The membership of Unit consists of nine young Ethiopian professionals, but without any knowledge about the method. There was very clear policy guidance for them from the Government high-ranking officials and the new MSE development policy. They also received higher demand from private firms other than the pilot companies (bottom-up needs), as they knew that the government supported the introduction of *kaizen*. These demands from the top and from the ground are the driving force behind their self-learning.

(D) POLICY LEARNING AND EXPANDING POLICY SCOPE

The business environment for pilot companies was an important factor. The successful companies had no disruptive management condition. On the other hand, companies with disruptive management conditions failed to progress. The condition was mainly being unable to procure essential materials for their operations due to the shortage of foreign currency. Ethiopia had difficulty with importing some essential materials.

The issue of shortage of foreign currency had been discussed at the policy dialogue, and pros and cons of import substitution policy discussed in the process to prepare the GTP. With careful examination, the government of Ethiopia expanded the scope of the policy from an export promotion policy focusing on a few selected sectors (such as leather and leather products, textile and garment, and agro-products) to an import substitution policy. The import substitution policy focuses on industries such as chemical, metal and engineering. Regarding the expansion of policy scope, Dani Rodrik of Harvard University also advised the Ethiopian government in 2008 (Rodrik, 2008; Ohno, 2013).

As Table 4 shows, although this management skill was new to the Ethiopian experts before the project, after the project six out of nine experts were assessed as being competent enough to be a Consultant and provide a consultancy service, and three experts were assessed as assigned to be Assistant Consultants.¹⁸

¹⁸ In response to the achievements of the initial project, which ended in June 2011, including the *kaizen* dissemination plan, in October 2011 the Ethiopian Government established the world's first governmental institute named *kaizen*, called the Ethiopian *Kaizen* Institute (EKI), under the Ministry of Industry. The Ethiopian Government and JICA began the Phase 2 *Kaizen* Project in November 2011 for capacity building of EKI and related organizations in order to disseminate *kaizen* throughout the country. This project is expected to contribute to establishing a system to disseminate *kaizen* in Ethiopia in a sustainable manner.

Table 4: Assessment of Capacity Development of Ethiopian Experts on kaizen

Level	Competence	Level of knowledge and skill	Assignment	Before Project	After Project
5	Competent to provide consultancy services on <i>kaizen</i>	<ul style="list-style-type: none"> - 8 years of experience and more - Experience of consultancy services for at least 30 companies by him/herself in 6-years' service 	Lead Consultant		
4	Competent to provide consultancy services on <i>kaizen</i>	<ul style="list-style-type: none"> - 6 years' experience - Experience of consultancy services for at least 15 companies by him/herself in 4-years' service 	Senior Consultant		
3	Competent to provide consultancy services on <i>kaizen</i>	<ul style="list-style-type: none"> - 4 years' experience - Acquired relevant knowledge and skills for <i>kaizen</i> in addition to TQM/QCC/5S/QC 7 tools - Acquired other knowledge and skill on industrial business engineering (financial management, human resource management etc.) - Competent to prepare case materials for training exercise - Experience of consultancy services for at least 5 companies by him/herself in 2-years' service 	Consultant		6
2	Competent to guide <i>kaizen</i> activities	<ul style="list-style-type: none"> - 2 years' experience - Acquired advanced and applied knowledge and skills on TQM/QCC/5S/QC 7 tools - Competent to present at least 5 case studies of <i>kaizen</i> for training purpose 	Assistant Consultant		3
1	Competent to conduct <i>kaizen</i> activities for yourself	<ul style="list-style-type: none"> - Acquired person with no experience - Acquired basic knowledge and skill on TQM/QCC/5S/QC 7 tools - Competent to make at least two cases analysis 	Junior Consultant		
0	No experience			9	

Source: JICA, 2011a

Note: TQM: Total Quality Management; QCC: Quality Control Circle; 5S: Sort, Set in Order, Shine, Standardize, and Sustain; QC: Quality Control.

As we have seen with the Ethiopian case, learning managerial knowledge improved performance of private firms. The quality and productivity project focuses, among various aspects of managerial capital, on strategic business administration and manufacturing floor management. Policy learning also contributed to the improvement, expanding the policy scope of the government to help private sector development. Selective policy learning from successes and failures of East Asian countries enables the Ethiopian Government to expand its policy scope. The clear policy direction catalyzed learning on the ground. The coordination mechanism among Ministries and government agencies made the approach to MSE development more comprehensive rather than fragmented. The government agency has obtained practical knowledge on *kaizen* through learning by doing, and has disseminated its knowledge to private sectors to improve their productivity and quality.

4. CONCLUSIONS

This paper examined the learning aspect of industrial policy, disaggregating the elements of learning, which mainly consist of policy-level and private company-level learning. Earlier literature focused mainly on introducing skills and technology into private companies. Recently, there is growing interest in managerial capability learning. This paper explored the possibilities of a comprehensive approach, since policy learning and managerial capability learning are inseparable, and used a case in Ethiopia to study the impacts.

The results of the Ethiopian case imply that learning on various levels will strengthen Africa's private sector for industrial development, allowing it to become competitive. This comprehensive approach of learning is still new to the development partners. The approach will enable African countries to sustain their economic growth, diversifying their economies and securing more jobs for the younger generations.

As mentioned, there is certain limitation set on this case study due to lack of data. The ongoing empirical study for the phase 2 should provide a more thorough analysis.

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