CHAPTER

5

The Learning Process for State Leaders and the Ministry of Industry in the Early Industrialization Stage: The Experience of Meiji Japan

Kuniaki Amatsu[1]

1. Background

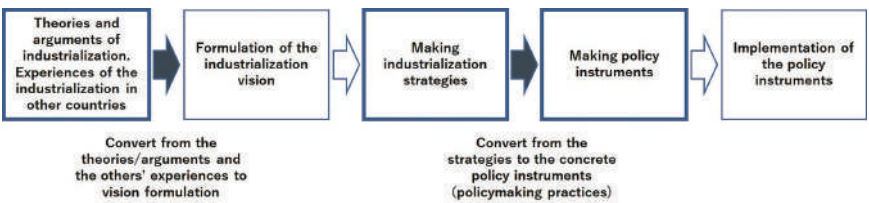
Industrialization is one of the most popular topics in economic development. Some countries have succeeded in industrializing but others have not. Various arguments on how to achieve this status have been made, such as the relevance of government intervention, the choice of outward or inward-looking 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,[2] 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).

[1] 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.

[2] 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

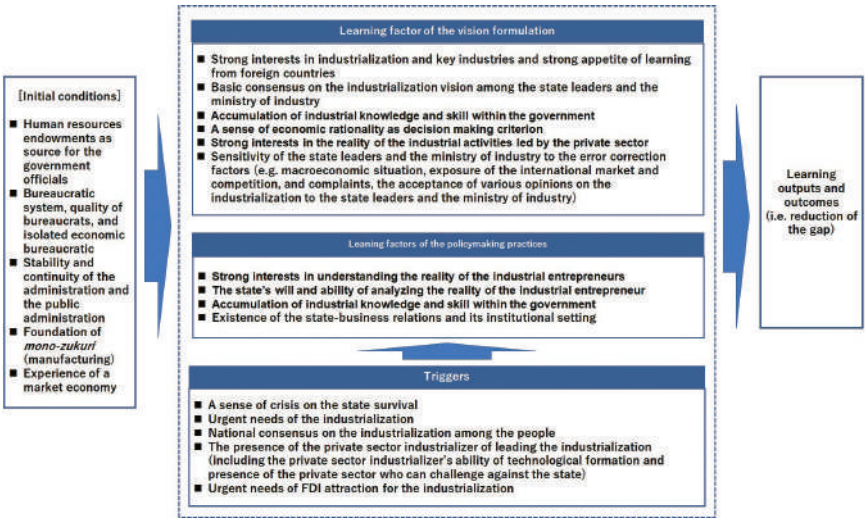
of industrialization. The first conversion failure can occur in the process between the theories and the experiences of other countries and the vision formulation. Many countries tend to formulate unrealistic industrialization visions based on euphoria, desire, and the bias of state leaders and government 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.[3]

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

[3] 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, *Kōbusyō*) (Meiji 1 to Meiji 6,[4] 1868 to 1873),[5] the era of the Ministry

[4] 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.

[5] 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.[6] Perhaps that vision did not set clear numerical targets for specific industries, different from some developing countries in the

[6] 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 (Unit: thousand JPY) (Unit: ten thousands JPY) after 1878

	Raw silk	Tea	Copper	Ceramics	Sea weads
1868	6,253	3,581	8	23	214
1869	5,720	2,102		4	575
1870	4,278	4,511	100	26	504
1871	8,004	4,671	142	22	461
1872	5,205	4,226	423	45	414
1873	7,208	4,659	539	116	537
1874	5,302	7,253	40	108	297
1875	5,424	6,862	135	113	342
1876	13,197	5,453	178	73	471
1877	9,626	4,375	519	120	416
1878	788	428	78	16	
1879	937	744	79	30	
1880	860	749	42	47	

Import (Unit: thousand JPY) (Unit: ten thousands JPY) after 1878

	Ginned cotton	Cotton yarn	Refined sugar	Sugar	Thick woolen cloth
1868	421	1,239	356	529	235
1869	1,087	3,418	531	1,090	606
1870	628	4,522	729	2,317	646
1871	206	3,520	845	2,188	840
1872	85	5,335	533	1,156	3,036
1873	264	3,400	576	1,599	1,320
1874	1,091	3,573	706	1,888	112
1875	371	4,058	842	2,582	53
1876	456	4,151	595	2,182	594
1877	418	4,084	688	2,105	684
1878	28	720	66	222	
1879	10	617	107	237	
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 kengisyo*) 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 kengisyo*) 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[7] (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	86,692			75,000	95,000	4,299	363,463	
	Revenue					417	703	15,971	4,607		21,698	
	Balance	-19,054	-10,011	-947	-11,959						-41,971	-20,273
Akabane mashinery 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	31,306	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.

[7] 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).

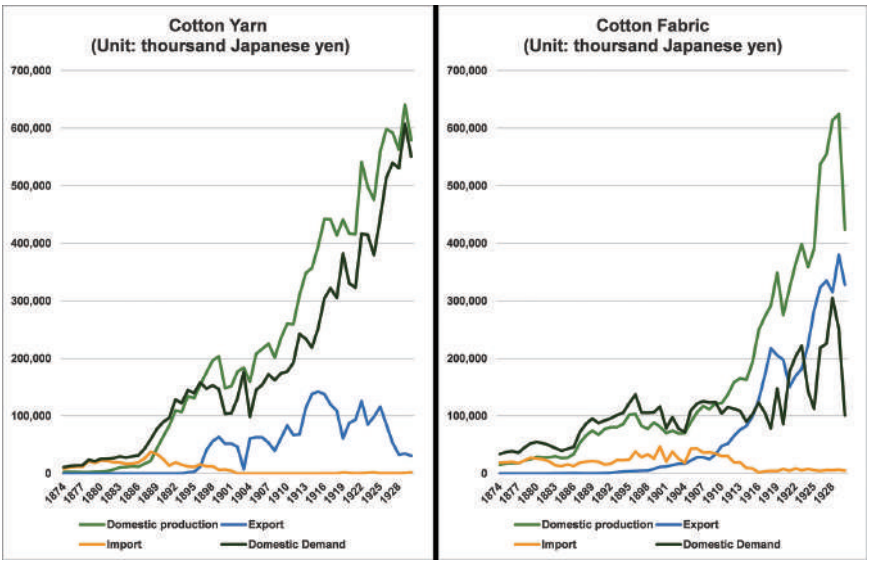
Table 5.3. The Development of the Cotton Spinning Industry from 1877 to 1895

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

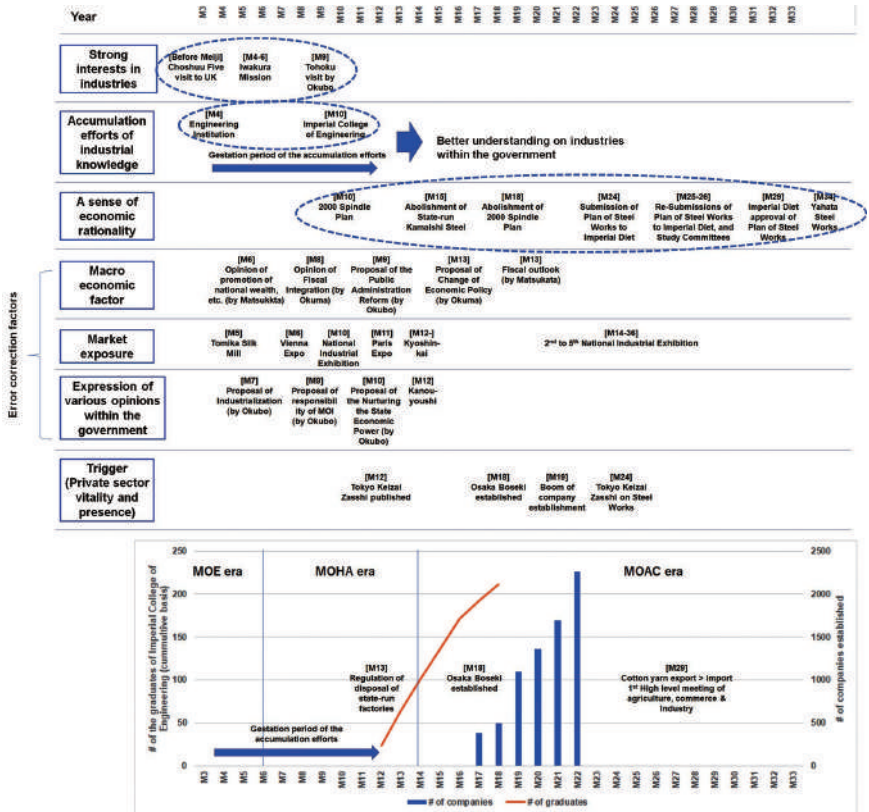
We can see which learning factors and triggers worked in accordance with the framework of Figure 5.2. Then we organize the facts of the selected learning factors and triggers in a chronological order (Figure 5.4). This figure describes the historical events in the upper side and the statistical data 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

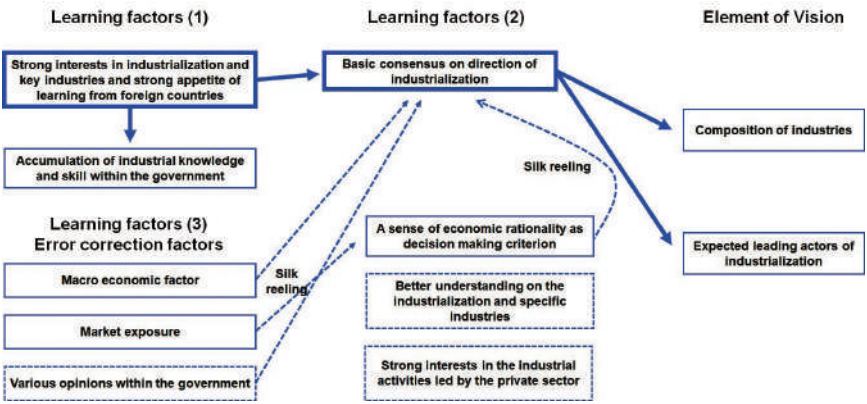


Source: Author.

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

open the country to the world to build modern industry. Thereafter, they became leading people in Japanese political and economic modernization efforts (Nakahara [1907] 1994).



Source: Author.

Note: In this figure, the functioning factors and influenced elements of the vision are indicated with arrows. A bold arrow indicates more influential nexus whereas a dotted arrow indicates some but a weak nexus. The boxes in bold indicate more influential factors. The boxes with dotted lines indicate non-functioning factors.

Figure 5.5. The Relationship between the Learning Factors and the Vision Formulation (MOE Era)

Many state leaders, government officials, and young Japanese followed this movement. These visits and study abroad contributed to building a basic consensus for the direction of industrialization and started the imitation of western style modern industries. However, the built consensus was not an appropriate direction. Unfortunately, that consensus was not backed by enough industrial knowledge and skill. Their strong interests induced by the euphoria went to the movement of the introduction of the modern industry into Japan and eventually worked on widening the gap between the formulated vision and the reality.

On the other hand, their strong interests brought about a positive movement in the long run, that is, the accumulation efforts of the industrial knowledge and skills within the government. Because of their strong interests, state leaders and the government officials were very keen to experience manufacturing directly. At the end of Edo period, the Edo *bakuhu* and some feudal loads tried launching modern industries. For example, when a Russian vessel was sunk near the Coastline of Heda in

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.[8]

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

[8] 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)

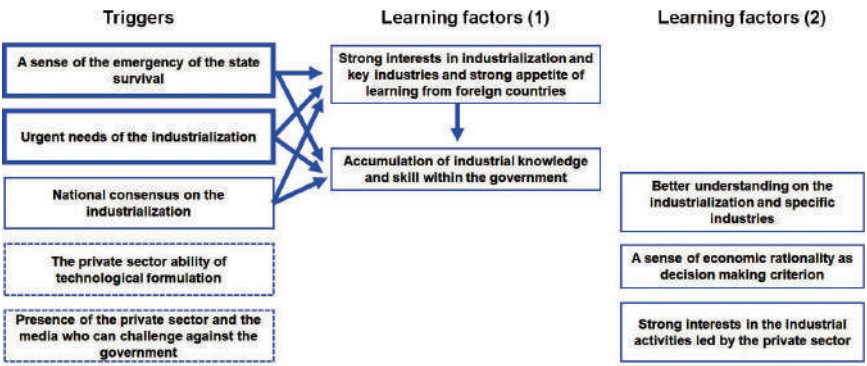
Year		Export	Import	Balance
Meiji 1	1868	15,553	10,693	4,860
Meiji 2	1869	12,908	20,783	−7,875
Meiji 3	1870	14,543	33,741	−19,198
Meiji 4	1871	17,968	21,916	−3,948
Meiji 5	1872	17,026	26,174	−9,148
Meiji 6	1873	21,635	28,107	−6,472
Meiji 7	1874	19,317	23,461	−4,144
Meiji 8	1875	18,611	29,975	−11,364
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.

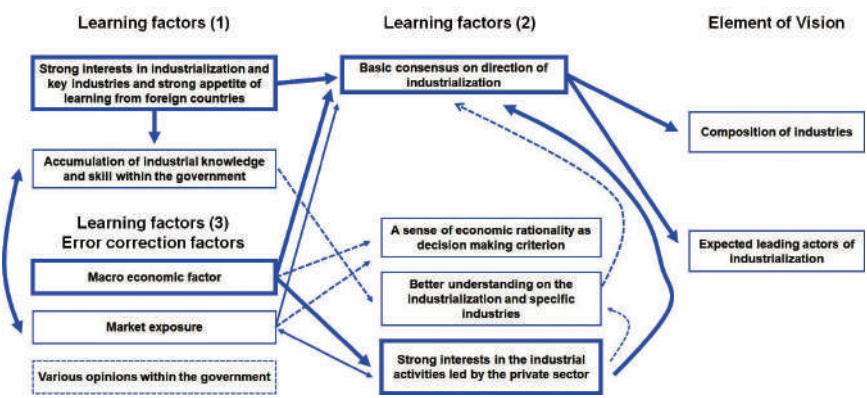
On the other hand, there was a trigger which did not function in the MOE era. That was the private sector related triggers. We assume there were two options for reducing this gap: one is that the state leaders and government officials would modify their vision to meet the reality; and

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.

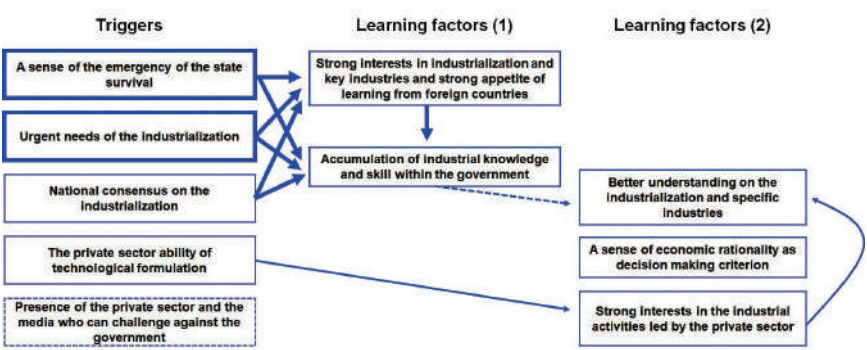
On the trade deficit side, because of this error correction factor, Meiji Japan began to emphasize the industries which would contribute to a decrease in imports and an increase in exports and promoted the indigenous industry in addition to the key industries targeted since the MOE era. The decline of 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

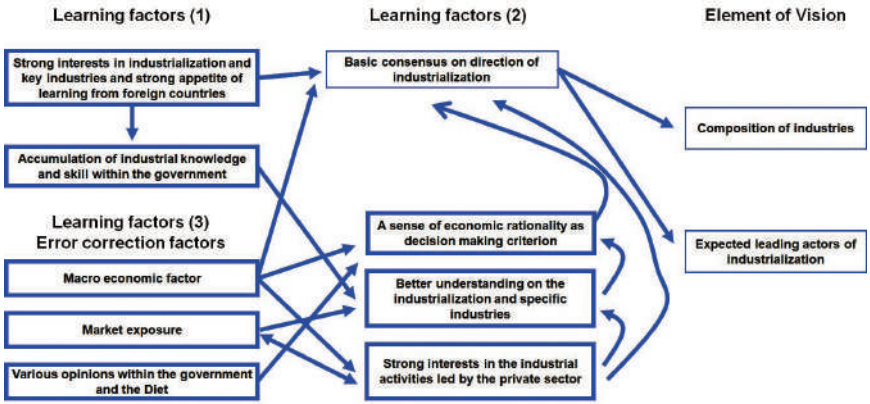
The learning in this era was characterized by the functioning of all learning factors. For example, the factor of the efforts in knowledge accumulation actually started playing an important role in building of a better understanding of industries, and there was the development of a sense of economic 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).

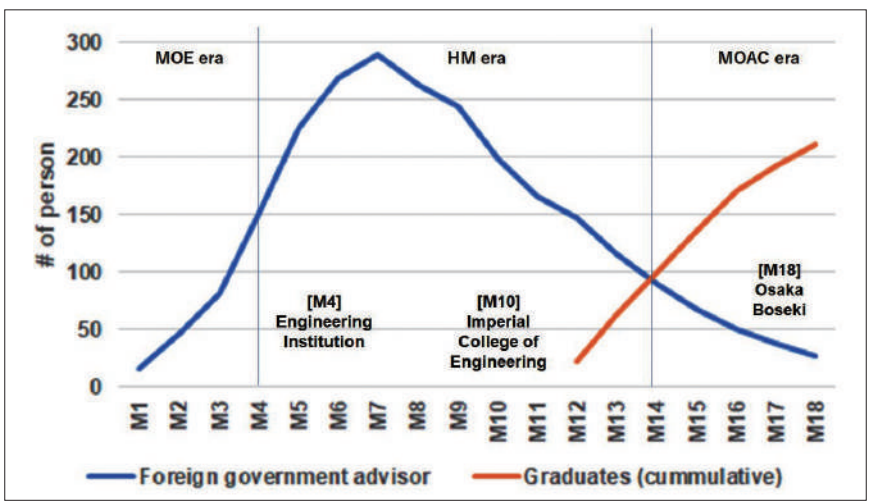
The downward trend in government foreign advisors since the middle of MOHA era was mainly because of fiscal reasons. However, the replacement of government foreign advisors by the graduates of the Imperial College of Engineering should also be acknowledged as another main reason. For example, the graduates 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).

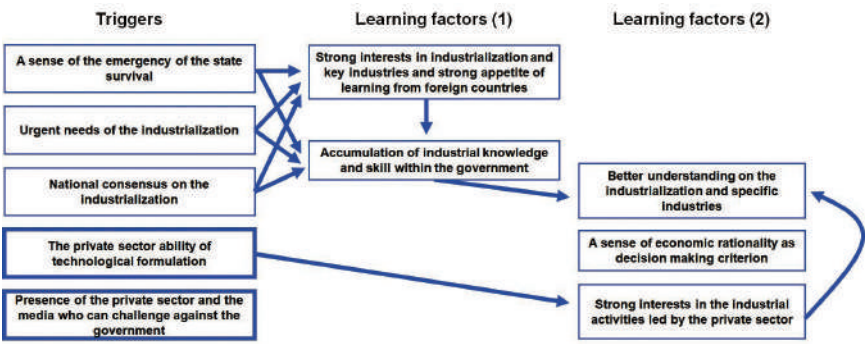
Next, the factor of market exposure performed more highly. The participation in Expos and the organization of the National Industrial Exhibitions remained a good opportunity for the government to know the position of Japanese manufacturing in terms of international competition and a shift toward a more 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 Zassi*' (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 Zassi*' 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.[9] 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

[9] 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).[10]

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

[10] 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 (Nōsyōmusyō 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)[11]. 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

[11] 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).

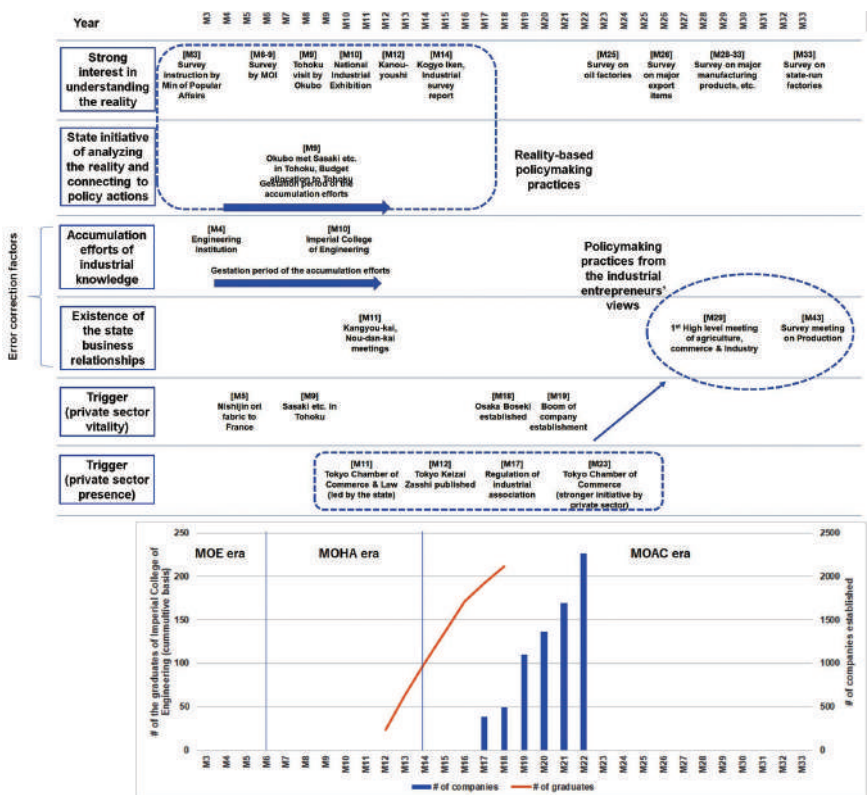
In addition, an obvious change in the government's recognition toward industrial entrepreneurs can be observed in an opening address by Kaneko Kentaro, the Senior Vice Ministry of Agriculture and Commerce in the First High-level Meeting of Agriculture, Commerce, and Industry organized in Meiji 29 (1896). 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

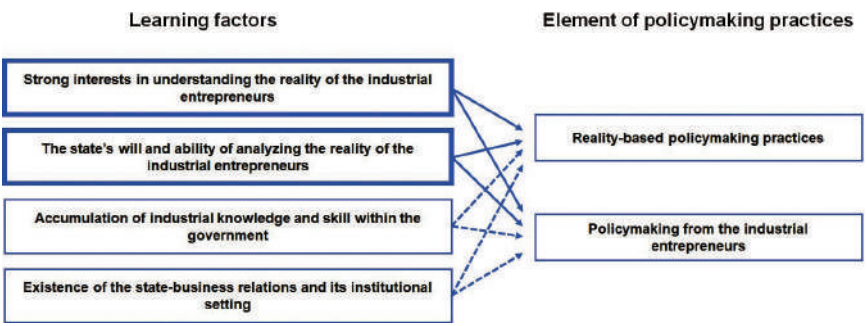
The trigger did not function to facilitate the learning process in the context of policymaking practices. There already existed private industrial entrepreneurs. The indigenous industry continued their production activities as already described. However, state leaders and government officials were not 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).

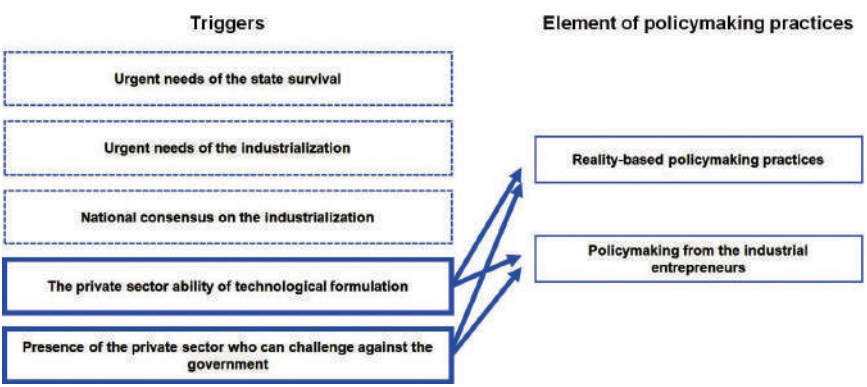
The effects of the accumulation efforts relating to industrial knowledge and skills were probably not so influential in this era. The Imperial College of Engineering was established in Meiji 10 (1877) under MOE by re-organization of the Engineering Institution. As already stated above, the original main 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 (Nōsyōmusyō 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 Zassi* 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.

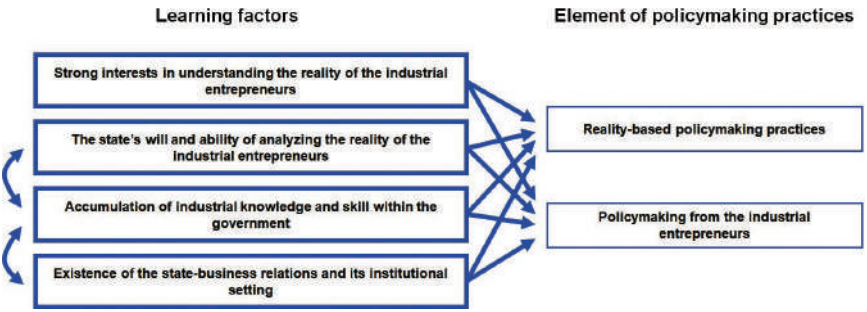
Figure 5.14. Relationship between Triggers and the Policymaking Practices (MOHA Era)

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.

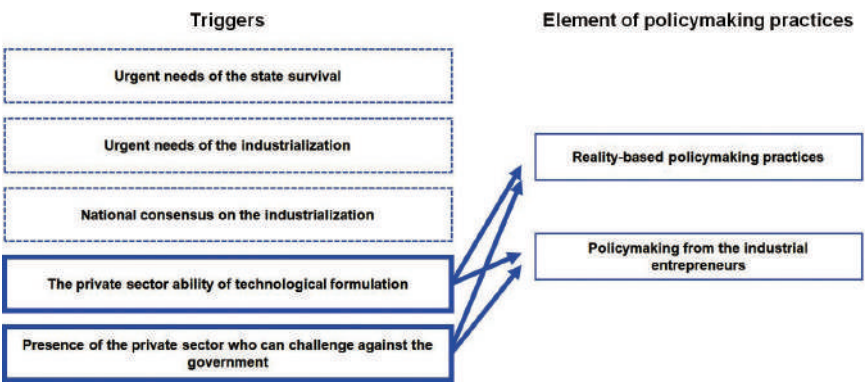
Second, the distance between the government and industrial entrepreneurs was further reduced. The institutional arrangements began to be made formally, such as the High-Level Meeting of Agriculture, Commerce, and Industry in Meiji 29 (1896). By so doing, the views of the industrial entrepreneurs were 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 kaigisyo*) 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.

References

Amatsu, Kuniaki. 2021. "Difference in Vision of State Leaders and Their Role in the Outcome of Industrialization: A Comparison of Meiji Japan and Post-colonial Africa." *Industrial Policy* 1(1). http://indpol.org/index.php/indpol/article/view/12.

Ando, Satoshi. 1999. *Okubo Toshimichi to mingyō syōrei*. Tokyo: Ochanomizu Syobo.

Fujimura, Toru. 1958. "Nōsyōmusyō setti to Maeda Masana no kōgyō iken ni tuite." *Ibaraki Daigaku Seikei Gakkai Zassi* 4: 1-46.

Fujiwara, Takao. 2016. *Meiji zenki Nihon no gizyutu densyū to iten*. Tokyo: Maruzen Planet.

Harada, Mikio. 1972. *Nihon no kindaika to keizai seisaku: Meiji kōgyōka seisaku kenkyū*. Tokyo: Toyo Keizai Shinposya.

Inoue Kaoru Kō Denki Hensankai. (1933) 2013a. *Segai Inoue kō den*, Vol. 3. Reprint, Yamaguchi: Matsuno Syoten.

——. (1933) 2013b. *Segai Inoue kō den*, Vol. 4. Reprint, Yamaguchi: Matsuno Syoten.

Ishizuka, Hiromichi. 1973. *Nihon sihonsyugi seiritusi kenkyū*. Tokyo: Yoshikawa Kobunkan.

Kashihara, Hiroki. 2009. *Kōbusyo no kenkyū: Meiji syonen no gizyutu kanryō to syokusan kōgyō seisaku*. Tokyo: Keio Gizyuku Daigaku Syuppankai.

Katsuda, Magoya. (1910) 2004. *Okubo Toshimichi den*, 3 vols. Reprint, Yamaguchi: Matsuno Syoten.

Kawai, Yoshinari. 1969. *Meiji no iti seinenzō*. Tokyo: Kodansya.

Kinugawa, Taichi. 1937. *Honpō mensi bōsekisi*, Vol. 2. Tokyo: Hara Syobo.

Kobayashi, Masaaki. 1980. *Nihon no kōgyōka to kangyō haraisage*: Seihu to kigyō. Tokyo: Toyo Keizai Shinposya.

Kume, Kunitake. (1878) 2008a. *Tokumei zenken taisi beiō kairan zikki*, Vol. 2. Translated by Syu Mizusawa. Tokyo: Keio University Press.

——. (1878) 2008b. *Tokumei zenken taisi beiō kairan zikki*, Vol. 5. Translated by Syu Mizusawa. Tokyo: Keio University Press.

Kuni, Takeyuki. 2013. "Naikoku kangyō hakurankai no rekisiteki igi." In *Kōza Meiji isin: Meiji isin no keizai katei*, Vol. 8, edited by Meiji Isin Sigakkai, Chapter 6. Tokyo: Yushisya.

Maeda, Masana. 1884. "Kōgyō iken yōsi" In *Meiji Taisyo nōsei keizai meityosyū*, Vol. 1: Kōgyō iken syoken, edited by Masana Maeda. Tokyo: Nōsan Gyoson Bunka Kyōkai.

Matsukata, Mineo, and Kinshiro Nishie, eds. 1982. *Matsukata Masayoshi kankei bunsyo*, Vol. 2. Tokyo: Institute for Oriental Studies, Daito

Bunka University.
MITI (Ministry of International Trade and Industry of Japan). 1954. *Syōkō gyōseisi*, Vol. 1. Tokyo: Syōkō Gyōseisi Kankōkai.
——. 1961. *Syōkō seisakusi: Zyūyō tyōsakai*, Vol. 4. Tokyo: Syōkō Gyōseisi Kankōkai.
——. 1962. *Syōkō seisakusi, Vol. 3: Gyōsei kikō*. Tokyo: Syōkō Gyōseisi Kankōkai.
MOF (Ministry of Finance of Japan). 1888. *Kōbusyō enkaku hōkoku*. In *Meiji zenki zaisei keizai siryō syūsei*, Vol. 17-1, edited by Hyoue Ouchi and Takao Tsuchiya. Tokyo: Meiji Bunken Shiryō Kankōkai.
Nagai, Hideo. (1961) 2001. "Syokusan kōgyō seisaku ron: Kanei zigyō wo tyūsin to site." In *Keiseiki no Meiji kokka: Bakumatu isin ronsyū*, Vol. 8, edited by Sadao Tamura. Tokyo: Yoshikawa Kobunkan.
Nakahara, Kunihei. (1907) 1994. *Inoue haku den*. Reprint, Yamaguchi: Matsuno syoten.
Nakamura, Takafusa. 1983. "Meiji isinki zaisei kinyū seisaku tenbō: Matsukata deflation zenki." In *Matsukata zaisei to syokusan kōgyō seisaku*, edited by Mataji Umemura and Takafusa Nakamura, 3-34. Tokyo: United Nations University.
Nakaoka, Tetsuro. 2006. *Nihon kindai gizyutu no keisei*: Dentō to kindai no dynamism. Tokyo: Asahi Shinbunsya.
Nawa, Toichi. 1937. *Nihon bōsekigyō to genmen mondai kenkyū*. Osaka: Daido Syoin.
Nihon Siseki Kyōkai, ed. 1932. *Okuma Shigenobu kankei bunsyo*, Vol. 4. Tokyo: Tokyo Daigaku Syuppankai.
——, ed. 1983. *Okubo Toshimichi bunsyo*, Vol. 5. Tokyo: Tokyo Daigaku Syuppankai.
Nihon Tekkōsi Hensankai. 1981. *Nihon tekkōsi: Meiji hen*. Tokyo: Satsuki Syobō.
Nōsyōmusyō, Nōmukyoku Hensanka, ed. 1957. *Nōmu tenmatu*, Vol. 6. Nōrinsyō.
Oe, Shinobu. (1966) 2001. "Okubo Seiken ka no syokusan kōgyō seisaku seiritu no seizi katei." In *Keiseiki no Meiji kokka: Bakumatu isin ronsyū*, Vol. 8, edited by Sadao Tamura. Tokyo: Yoshikawa Kōbunkan.
Soda, Osamu. 1978. "Kōgyō iken no seisaku siten." In *Meiji Taisyō nōsei keizai meityosyū: Kōgyō iken syoken*, Vol. 1, edited by Masana Maeda. Tokyo: Nōsan Gyoson Bunka Kyōkai.
Suzuki, Jun. 2013. "Kanei kōzyō to minkan kōzyō." In *Kōza Meiji isin, Vol. 8: Meiji isin no keizai katei*, edited by Meiji Isin Sigakkai, Chapter 5. Tokyo: Yushisya.

Takahashi, Korekiyo. (1936) 1976. *Takahashi Korekiyo ziden*, Vol. 1, edited by Tsukasa Uetsuka. Tokyo: Chuō Kōron Sinsya.

Tsuchiya, Takao. 1944. *Meiji zenki keizaisi kenkyū*, Vol. 1. Tokyo: Nihon Hyōronsya.

——. 1968. *Nihon keizaisi gaisetu*. Tokyo: Tokyo Daigaku Syuppankai.

Uemura, Syoji. 2010. "Meiji syoki kōgaku kyōiku kikan no seturitu: Kōgakuryō ni tuite." *The Social Science* 40(3): 21-47.

——. 2015. "Meiji zenki ni okeru gizyutusya no keireki to tōkei kansatu." *The Social Science* 44(4): 1-48.

Umetani, Noboru. 1984. "Nihon ni okeru kōgyōka to kyōiku to no kankei." In *Nihon kindaika no syosō*, Chapter 8. Kyoto: Shibunkaku.

Waseda Daigaku Syakai Kagaku Kenkyūzyo, ed. 1959. *Okuma bunsyo*, Vol. 2. Tokyo: Waseda Daigaku Syakai Kagaku Kenkyūzyo.

Yamaguchi, Kazuo. 1963. *Meiji zenki keizai no bunseki*. Tokyo: Tokyo Daigaku Syuppankai.

Yamazawa, Ippei. 1984. *Nihon no keizai hatten to kokusai bungyō*. Tokyo: Toyo Keizai Shinpōsya.