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Differences in the Vision of State Leaders and Their Role in the Outcome of Industrialization: A Comparison of Meiji Japan and Post-Colonial Africa

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Abstract

Industrialization is important for structural change because it promotes economic growth and development. However, not all economies have been able to achieve industrialization. This paper adds a new interpretation of this difference through a comparison between East and Southeast Asia, in particular Meiji Japan, and the Sub-Saharan African economies. A key to understanding differences in the level of industrialization between these countries is the industrialization vision of state leaders and the Ministry of Industry. These visions tend to be formulated unrealistically in the early stages of industrialization because they are not usually based on the reality of the industrial sector. How smoothly the country would be able to fill in any gaps between the formulated vision and reality is critical and classified as a problem of state learning. Supposedly, the economies that can manage this gap reduction as smoothly as possible in early stages would be able to achieve industrialization in a shorter period of time while the economies that cannot do so would need to spend a longer time to achieve full industrialization. The experience of Meiji Japan can shed light on this learning process for further consideration.

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1. Introduction

Industrialization, in particular manufacturing, matters to the structural changes associated with development, and eventually economic growth. Almost all advanced economies have experienced industrialization, through a structural transformation from an economy that is dominated by the primary sector to a one where the dominant sector is manufacturing. Hence, industrialization has attracted the interest of many researchers, policymakers of developing economies and practitioners of development cooperation agencies (Kaldor 1966; Kaldor 1967; Peneder 2002; Felipe, Leon-Ledesma, Lanzafame, and Estrada 2007; Szirmai 2012; Buera and Laboski 2012; Pacheco-Lopez and Thirlwall 2013; UNIDO 2013; Felipe, Mehta, and Rhee 2014; Szirmai and Verspagen 2015; Cantore, Clara, Lavopa, Soare 2017; Romano and Trau 2017; Haraguchi, Cheng, and Smeets 2017; Felipe 2018; ADB 2020).

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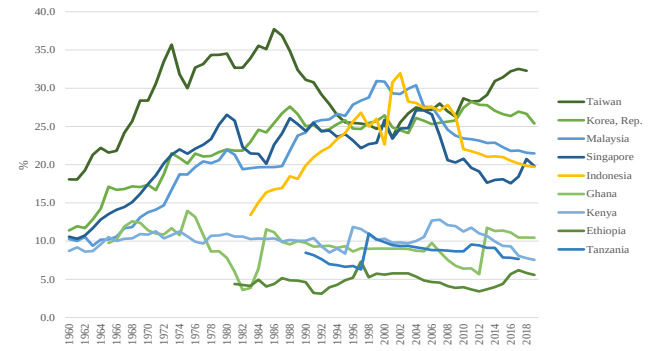
Meanwhile, developing countries exhibit considerable differences in their industrialization processes. Some economies in the Asia Pacific, such as Indonesia, Malaysia, Singapore, South Korea, Thailand, and Taiwan, have succeeded industrialization. On the other hand, there are economies that have failed to industrialize or have been struggling to industrialize despite large sums of resources devoted for this purpose. Therefore, industrialization remains one of the core issues for developing economies.

Gap between industrialization of many Sub-Saharan African economies and South Asian countries is particularly significant. When one compares the ratio of manufacturing value-added (MVA) to Gross Domestic Product (GDP), differences between industrialization of East Asia, Southeast Asia, and Sub-Saharan African economies become more vivid (Figure 1).

Figure 1. Comparison of the percentage of manufacturing value-added to Gross Domestic Product among selected Asian and Sub-Saharan African economies from 1960 to 2019



Source: Author processed data from the World Development Indicator and from National Statistics in the case of Taiwan.

Setting a threshold for success, failure and stagnation of industrialization is not straightforward. Nevertheless, 20% MVA ratio to GDP could be considered as a good indication based on the data in Table 1. The countries listed here are categorized as High Performing Asian Economies (HPAEs) as in the World Bank's East Asian Miracle (1993) report and selected Sub-Saharan African countries. According to Table 1, the average MVA/GDP ratio of HPAEs from the 1960s to 2010s are 28.9% (Taiwan), 23.4% (Thailand), 22.8% (South Korea), 21.1% (Malaysia), 22.2% (Indonesia) and 20.8% (Singapore) respectively. The lowest ratio is the 20.8% of Singapore, used as the threshold tentatively in this paper. The successful Asian economies have experienced reaching more than 20% in the MVA/GDP ratio in their history of economic development.

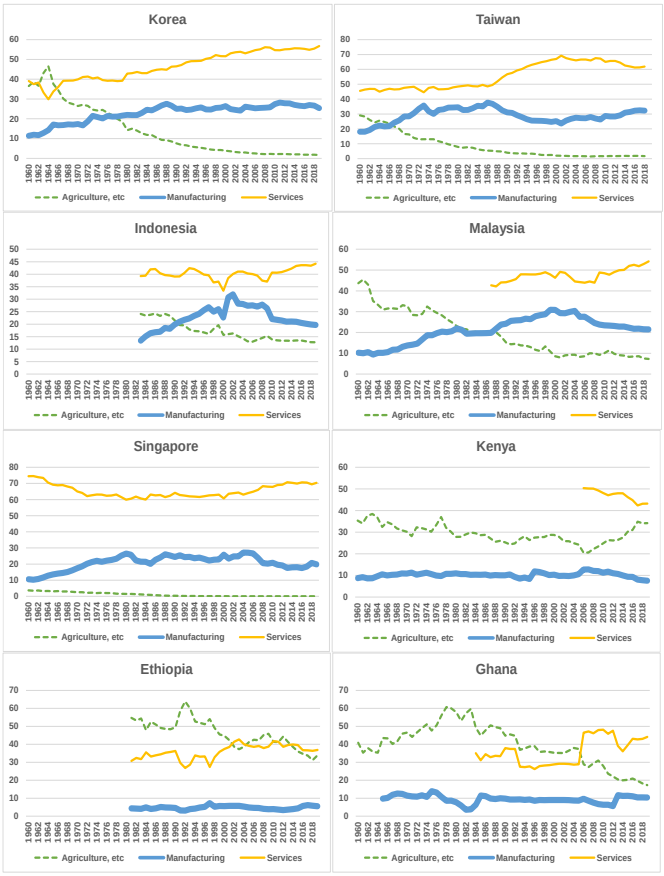
Table 1. Comparison of the percentage of manufacturing value-added to Gross Domestic Product among the selected HPAEs and Sub-Saharan African economies from 1960 to 2019

	Average MVA/GDP ratio in each decade						Average
	1960s	1970s	1980s	1990s	2000s	2010s	
Taiwan*	22.0	32.5	34.6	27.2	26.4	30.4	28.9
Thailand*	14.2	19.0	23.3	26.9	29.4	27.7	23.4
South Korea*	14.7	20.1	24.4	25.1	25.4	27.0	22.8
Malaysia*	10.8	17.8	20.7	27.0	27.9	22.5	21.1
Indonesia*			16.5	23.6	27.8	20.9	22.2
Singapore*	12.9	21.4	23.6	23.7	24.4	19.0	20.8
Ghana	11.4	11.1	8.0	9.2	8.6	9.5	9.6
Kenya	9.7	10.6	10.4	10.0	11.0	9.7	10.2
Tanzania				7.9	9.1	8.7	8.6
Ethiopia			4.6	4.8	5.0	4.6	4.7

NOTE: The countries marked * are HPAEs
Source: Author processed data from the World Development Indicator and from National Statistics in the case of Taiwan. Japan and Hong Kong are excluded from this table although these two economies are categorized as HPAEs by the World Bank (1993). Japan is an OECD economy and Hong Kong is a service-sector dominant economy with a very low ratio of MVA/GDP.

These differences reflect the progress of structural change in the East Asia, Southeast Asia, and Sub-Saharan African regions. According to Figure 2, Taiwan, South Korea, Malaysia, and Indonesia experienced this structural change in the mid-1960s, mid-1970s, mid-1980s and the early 1990s, respectively. Meanwhile, Kenya, Ethiopia and Ghana have not yet achieved it although these economies have pursued industrialization seriously in the 1960s and onwards. The level of MVA/GDP ratio in the African economies is much lower than that of the East and the Southeast Asian economies. The Sub-Saharan African economies have been hovering around or below 10% in the MVA/GDP ratio.

Figure 2. Comparisons of structural change among selected Asian and Sub-Saharan African economies from 1960 to 2019 (%)



Source: World Development Indicators and National Statistics of Taiwan processed by the Author

How should we consider industrialization in the Sub-Sharan African economies? Some would consider that the comparison between the successfully industrialized East and Southeast Asian and the Sub-Sharan African economies, as illustrated above, is slightly extreme and neither relevant nor fair because the geographical location, historical background, the degree of political stability and security situation, and human resources endowments are so different, and the disadvantages of the African economies are large. That might be true to some extent. Nevertheless, a sharp contrast would sometimes be useful for identifying differences between the two types of the economies, i.e. what worked and what did not. Moreover, it should be reminded that these Asian countries were in a dismal economic situation immediately after World War II and the situation of their development was not so much different from those Sub-Saharan African economies according to the Maddison Project Database. It should also be reminded that these Sub-Saharan African economies were countries that pursued industrialization seriously after independence.

This paper attempts to add a new interpretation to the differences in the track records of industrialization between the successfully industrialized and the failed economies. When we analyze the causes of the failures in some African economies, we see the problems of ambitious and unrealistic plans for industrialization, including errors in the selection of priority industries and technologies to be transplanted, strong expectations as to the state-owned enterprises (SOEs), and adoption of import substitution industrialization (ISI) in the past.

In this paper, it is assumed that a real problem deeply rooted in those failures would be the industrialization vision of state leaders and their Ministries of Industry. These visions tend to be formulated unrealistically in the early stages of industrialization and they are not based on the current nature of the industrial sector. Thus, there exists a gap between vision and reality. It is hypothesized that the degree of reality of the formulated visions and the pace of their modification to reality would affect the progress of industrialization in the country in later stages. How smoothly a country is able to fill in such gaps is very critical. This could be regarded as a state capability problem because while some economies could formulate realistic visions, others could not. This could also be regarded as a state learning problem because the current successfully industrialized economies were also not able to do so at the beginning of their development. Therefore, in this paper, this vision issue is argued from the perspective of learning by state leaders and the Ministry of Industry (MoI)[2].

The discussion proceeds as follows: In Section 2, the experiences of industrialization in the successfully industrialized and the failed economies are compared. We observe the cases of the Sub-Saharan African countries, especially Ghana and Meiji Japan on a trial basis. In Section 3, the causes of failed or stagnant industrialization and the nature of its problems are considered based on the findings of the previous section from the learning perspective. Section 4 considers what the learning process for the state leaders and the MoI looks like in the early stage of industrialization. Again, the cases of Ghana in the 20th Century and Meiji Japan in the late 19th Century are argued, followed by preliminary thoughts on that learning. In Section 5, the arguments are concluded together with suggestions on topics for future research.

[2] The Ministry of Industry is defined here as the central ministry mainly in charge of planning and implementation of the strategies and plans of industrialization. It could include not only industry but also trade and investment issues in a narrow meaning. But the Ministry could also include the relevant ministries and organizations in the areas of taxation and tariff policy in a wider meaning. However, the Ministry of Industry in this paper indicates the narrow definition

2. Comparisons between the successfully industrialized and the failed economies

What happened in the economies with experience of success, failure or stagnant industrialization? The cases of the Sub-Saharan African countries, especially Ghana in the Nkrumah era (1957-1966), and Meiji Japan (1868-1912), from the perspective of the orientation towards industrialization are interesting examples. These two cases are commonly characterized by intensive efforts of industrialization in the situation where almost no modern industry had existed before the start of the industrialization process. The industrialization efforts in Ghana in the era immediately after its political independence were led by a visionary leader. The Meiji period in Japan is a good example of an earlier but relatively clear story that was subsequently followed by some neighboring economies. It was a similar process driven by a new government's passion for state building, even though it occurred around 150 years ago. The need to get the basics right, which the state needs to do to achieve industrialization is not so different in either era. Thus, the case of Meiji Japan is relevant. Also, there is an accumulation of research, including the United Nations University (UNU) Project "Technology Transfer, Transformation and Development: The Japanese Experience" implemented by the Institute of Developing Economies (IDE) from 1978 to 1982 that can provide the necessary data for this comparison.

2.1 Sub-Saharan Africa

Some Sub-Sharan African economies started industrialization efforts seriously in the 1960s and 1970s after independence and experienced the policy changes of industrialization as the swing of the pendulum. Typically, they pursued state-led industrialization combined with nationalism in the first phase, influenced by the Soviet Union's experience of achieving industrialization in the short term. They developed medium-term industrialization strategies and set the targets of for industrialization. In one country, those strategies aimed of pushing industrialization in a wide range of industries. Others adopted industrial targeting. However, those efforts did not reflect the reality of the industrial sector at the time and became too ambitious. To implement them, the involved governments set up SOEs and increased public investment in industrial activities. They adopted ISI strategies. Initially they achieved a higher rate of economic growth.

The orientation of those industrialization efforts was forced to change in the second phase because of fiscal problems, trade deficits and shortfalls in foreign reserves. Some of the economies tried to enhance their protection policies against those disturbances while others tried to partially liberalize their economies. However, a soft landing was not easy for many African economies because of the deeply rooted serious damage caused by too ambitious efforts of industrialization in the first phase. As a result, they could not resist the deterioration of their macroeconomic environment and were forced to move toward a market-oriented industrialization in the third phase in line with the recommendation of the International Monetary Fund and the World Bank. And, many African economies also experienced the swing of the pendulum of expected leading actors in the industrialization between the state and the private sectors (Ndulu, et al. 2015).

2.2 The Example of Ghana

This country started its industrialization in the Nkrumah era by pursuing nationalism and African socialism. It pushed state-led industrialization and placed its hope in that industrialization to SOEs because it was thought that there were no entrepreneurs that they could entrust their hopes of industrialization in the private sector to. The new government distrusted the private sector and relied on the state sector, and an ISI policy was adopted. However, those efforts just produced poor performance (Asante, Nixson, and Tsikata 2000).

Ghana in this era was relatively favored with endowments of natural resources and human capital and had inherited a relatively better administrative system and foreign reserves as a legacy of the British Colonial era, compared with other West African economies. However, those advantages had not been used productively for accumulating know-how about industrial activities and inherently the country could not meet the requirements of running modern industries. And on priority industries: "Ghana didn't take advantage of its comparative advantage. Its comparative advantage was lots of fairly cheap labor, but most of the industries that the state went into were very capital-intensive, so it was very dependent on capital equipment imports, and there was no comparative advantage there. While there were really good provisions for screening investments by the Ministry of Finance in terms of viability, they were totally ignored and most of the projects weren't actually screened at all" (Omtzigt 2008).

In addition, there was the fundamental mismatch between demand and supply in the domestic market, over-specification of those modern factories that were established, and lack of experienced civil service personnel and entrepreneurs with a strong background of firm management and engineering. They relied on western engineering firms in conducting feasibility studies prior to the establishment of modern factories but could not judge the relevance of the results of those studies properly (Aryeetey 2008; Killick 2010; Aryeetey, and Fosu 2008). Furthermore, it is not sure the extent to what Nkrumah was strongly interested in industry in a real sense although he pushed industrialization and set its ambitious goals. Finally, the country's efforts to industrialize became stuck, and Nkrumah was forced to step down from the presidency in 1966 during his trip to China.

2.3 Meiji Japan

By contrast, what happened in a successfully industrialized country? Here, we can use the experience of Meiji-era Japan. Meiji Japan adopted a "enrich the country, and strengthen the military" policy, the so-called *fukoku-kyouhei*, struggled to install modern industries, and finally achieved the First and Second Industrial Revolution around 1894 and 1904 respectively. As its first step, Meiji Japan dispatched the Iwakura Mission consisting of around fifty top political leaders and central ministry officials to the United States and Europe for one year and nine months from 1871 to 1873 to study the reasons behind the strength of the western powers such as modern political and administrative systems and society. This was four year after the Meiji era started. Observing industrialization in the western economies was one of the top priorities of the mission. The observations made by the mission affected the formulation of the industrialization vision by state leaders after this trip.

The formulated vision was too simple initially, that is, it was about building modern industries in Japan through simply copying of western industries and technologies (Kume 1878; Nakamura 1983; Nakaoka 2006). By contrast, the major export items in the early Meiji era were silk yarn, marine products, tea, ceramics, and copper products, not the manufactured products of more modern industries. This meant that Meiji Japan had almost no modern industries in the beginning although some efforts to introduce modern factories had already started before the Meiji era. However, there were few private industrial entrepreneurs who could take the risks aggressively and start up un-experienced businesses. Against this situation, Meiji Japan decided to establish many state-run model factories in the areas of silk yarn, machines tools and equipment, cement, glass, and so on, and invited many foreign advisors to advise the government with higher salaries than the high-ranked political leaders. These factories showed demonstration effects of western industrial technologies to private sector industrial entrepreneurs and contributed to technological transformation across the nation. However, almost all the operations failed financially. Finally, those factories were disposed of by the state to the private sector after 1880 (Nakaoka 2006).

Meiji Japan also attempted to launch a modern steel mill in 1874. But they were forced to repeat many trials and errors and failed, to give the task up in 1882 and finally to hand it over to private industrial entrepreneurs in 1885. The successful operation of a steel works run by the state had to wait until the Yahata Steel Works started its operation in 1901 (MITI 1954; Suzuki 2002).

In sum, we need to say that the initial version of the vision was formulated based on the passions, expectation, and desires of the state leaders, not based on the reality of the industrial sector at the time. However, not all the state-led industrialization efforts failed. For example, the effective naval arsenal was developed for military industry related purposes but was outside the industrialization efforts of *shokusan kougyou* (MITI 1954). So it is necessary to ask how did the state leaders and the MoI[3] react to the existence of this gap. It is supposed that Meiji Japan succeeded in filling the gap in the early stage of its industrialization. The reduction of this gap in the short term led to the achievements of the First and the Second Industrial Revolution during the Meiji era. It is said that a basic orientation on what kinds of the key industries they wanted to have was maintained on circumstantial evidence. But the orientation and style of the modernization of the domestic industry were adjusted as follows within the state leaders and the government officials as industrialization progressed.

First, they put a higher priority additionally on the support of light industries such as the cotton spinning and woolen cloth industries, which contributed to a decrease in the imports and an increase in exports (Ando 1999a; 1999b). In this context, Meiji Japan initiated the establishment of state-run model factories for cotton spinning, the purchase of cotton spinning equipment with 2000 spindles (the so-called 2000 Spindle Plan), and thereafter disposed of that equipment to private industrial entrepreneurs around 1877 for purpose of import substitution. However, many of operations failed because of a lack of the basic knowledge of the requirements of modern industries and of human resources with a strong background of engineering (Kinugawa 1937; Takamura 1971a). They also came to recognize the importance of indigenous industries which had been ignored during early industrialization.

Second, they changed the government's stance toward industrialization from a direct to an in-direct intervention. They came to rely upon private industrial entrepreneurs more, and to support them. Third, Meiji Japan reconsidered the relevance of the style of a simple copy and paste of western industrial technologies to Japan, but kept a strong interest in learning about western industrial technologies. They woke up after the failures of the state-run model factories and the fiscal difficulties of the state budget had been revealed and came to consider the path towards industrialization more realistically, one not based on passion and desires.

Other factors outside of the government were also essential parts of the story such as the emergence of entrepreneurship in the private sector as an expected leading actor of industrialization. Without this factor, the government would

[3] There were various ministries in Japan in this era that were engaged in the initial industrialization efforts such as the Ministry of Finance, the Ministry of Engineering (*koubu-shou*), and the Ministry of Interior. The Ministry of Agriculture and Commerce was established in 1881, and was the origin of the current Ministry of Economy, Trade, and Industry (METI). Therefore, this paper uses MOI simply as the MoI in the Meiji era.

not have considered private sector entrepreneurs. After the 2000 Spindle Plan failed in the cotton spinning industry, the Osaka Cotton Spinning Company (Osaka Boseki) was established by private industrial entrepreneurs in 1882 and achieved success in its operation based on lessons learnt from the failure of that plan. Many entrepreneurs followed this success afterward and Meiji Japan came to move to the First Industrial Revolution around 1894 (MITI 1954; Kinugawa 1937; Nakaoka 1986; Nakaoka 2006; Takamura 1971b). Though, this paper does not cover these issues due to limitations of space.

3. Preliminary analysis of the fundamental causes and the nature of the failures

What was the crossroad of these success and failures of industrialization in these economies? In general, many people would tend to raise three points on the reasons of the failures in African countries. The arguments here are made on a trial basis based on these limited cases. Additional arguments would be expected in future research.

First, if we follow the neo-classical economists, the failures of African economies after independence can be explained by the poor functioning of a market mechanism caused by excessive government intervention and ineffective ISI strategies which hampered the functioning market mechanism (Chen 1979; Balassa 1981; Krueger 1978). Second, if we follow Lin (2012) and Lin and Monga (2013), it could be concluded that goal setting including industrial targeting failed in those African countries because the government tried to push industries defying comparative advantage instead of promoting those with latent comparative advantage. It would suggest that priority industries could have been identified technically based on the identification of existing tradable goods, the existence of domestic private firms, the new entrance of domestic firms, and the potential opportunities if they follow the Growth Identification and Facilitation Framework (Monga 2012). Third, the impacts of nationalism and socialism, the swing of policies from left to right and vice versa between market-oriented and state-led industrialization, in other words the roller coasters of economic management and political instability in African countries should be discussed.

These analyses would be true to a large extent. However, the failures would not be explained fully by these three causes only. Those arguments seem to overlook the existence of state leaders and MOI and the industrialization visions formulated by them. It is the state leaders and MoI who are responsible for industrial targeting and the choice of strategies on import-substitution vs. export-oriented industrialization. It is the vision of industrialization that guided the state leaders and MoI in their consideration of the policy and strategy choices, although the winds of the nationalism and socialism did affect the direction of industrialization.

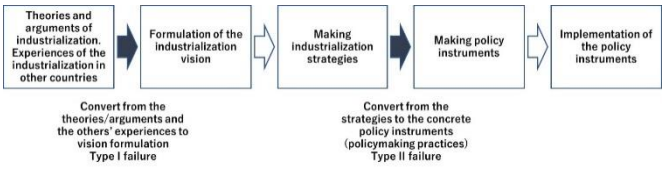
A more important point is what kinds of vision did they formulate upstream that underly the orientation induced by nationalism and socialism. If this view were to be correct, the things we need to shed light on would be: first, the vision of industrialization formulated by the state leaders and the MoI; second, the width of the gap between the formulated vision and the reality of the industrial sector; and third, the timing and pace of the reduction of this gap. However, if we attributed the failures to nationalism and socialism, the failed and stagnant stories would finish as just an old story that had occurred once upon a time and would never happen in African economies in the future.

When it comes to the impacts of political instability and insecurity, their serious damage to industrialization in the past in Africa cannot be denied. However, it should be remembered that state-led industrialization with ambitious targeting combined with nationalism and socialism and ISI had been initiated in many African economies before political instability occurred. Thus, it would not be realistic to attribute all the failures to political instability and insecurity.

Therefore, in this paper, the real problems deeply rooted in the failures are considered to be the reality of the industrialization vision and the timing and the pace of the reduction of the expectation-performance gap. Ambitious and unrealistic industrialization in the early period after independence created serious damage to those African economies and made them suffer during the long-lasting economic and political instability observed from the 1970s to 1990s, thereby making them spend a longer period to achieve industrialization than the successfully industrialized economies. However, it is a fact that there are still many developing countries that tend to develop their national and sectoral development plans from a description on the goals and targets of industrial development. Therefore, this issue is still relevant in today's context.

To explain these failures, at first, we consider the flows from vision formulation to policy implementation as follows (see Diagram 1).

Diagram 1. Flows from the vision to policy making and implementation



Source: Author

The government in any economy usually develops an industrialization strategy describing the targets of industrial development, the priority industries, the types of technologies and production stages to be installed in the key industries (e.g. blast furnaces in the steel industry and engine production in the automotive industry), the expected main actors to lead

development of the priority industries, and the basic direction of strategies such as import-substitution vs. export-led industrialization. Subsequently, the government would design and implement concrete policy instruments.

In this paper it is considered that two more steps should be added to allow for the proper interpretation of the failures that have occurred in the history of the developing economies. The first is the formulation of the industrialization vision. State leaders and MOI usually formulate the industrialization vision prior to the development of strategy. The vision is usually expressed in a written document and the transcript of the budget speech on the one hand, and in an oral format such as a presidential address on the other. In general, the vison is composed of four parts: what kinds of industries they want to have in their country in the future; what kinds of technologies they want to have out of the various options; whom they want to place their hopes for the development of the priority industries in the country on, such as domestic firms vs. foreign firms, or private firms vs. state-owned enterprises; and which market they want to target (domestic or external).

The second is building on the theories of economic and industrial development and the experience of other economies' industrialization. The industrialization vision is usually not formulated by the state leaders and the MoI from scratch. They are influenced by theories and arguments about economic and industrial development policy and the experiences of other economies. For example, in Ghana, Nkrumah adopted a kind of Big Push strategy and made massive investments in a wide range of industries (Killick 2010). Many African economies including Ghana were influenced by the Soviet experiences of industrialization. In East Asia and Southeast Asia, South Korea, Taiwan, and Singapore, which are categorized as successful industrialized economies, learned from the Japanese experience. South Korea and Taiwan also learned from their experiences of each other.

Where were the failures in this flow? The first possible pattern of failure occurred in the connection between the influence of actual economic and industrial development, the experience of other economies and the formulation of the industrialization vision. The state leaders and the MoI may make a mistake in the conversion process from the theories and the other economies' experiences to their vision of industrialization. This is called the conversion failure of the vision formulation, or simply a Type I failure in this paper. Ideally, the vision would be formulated, reflecting the reality of the industrial sector in the country at the time. The priority industries also need to be set realistically. However, the vision is often formulated in the country in the early stages based on the expectations, desires and illusions of the state leaders and MOI, not based on the realities of the industrial sector. As a result, the formulated vision tends to be unrealistic and ambitious, and sometimes a huge gap between vision and reality is be created. If the upstream vison is not realistic, the downstream such as strategy development and its implementation will inevitably fail.

The second possible pattern of failures can occur in the process between the development of the industrialization strategy and the design of concrete policy instruments. This is called the conversion failure of the policymaking practices, or simply a Type II failure. In this paper, the policymaking practices are defined as a series of observations on how the state leaders and MoI understand the situation of the industrial entrepreneurs. Ideally, concrete policy instruments need to be designed and implemented that reflect the actual situation of the entrepreneurs who are likely to play a leading role in industrialization. Moreover, these policymaking practices need to be understood from the views of the entrepreneurs engaged in industrial activities. However, in the early stage concrete policy instruments would often be designed and implemented far from the real situation of the industrial entrepreneurs and be based on the expectation, desires, and illusions of the state leaders and MoI from the state view. Inevitably, these policy instruments would tend to be uncertain, unpredictable, and inconsistent. Finally, they often do not meet the expectation of the industrial entrepreneurs and are not welcomed by them as a result. Rather they are seen to hamper their activities. However, Type II failure is not dealt with in this paper due to limitations of space.

Type I failure is very critical in the early stages of industrialization. Based on the comparison between Ghana and Meiji Japan, it can be hypothesized that the economies that can manage this conversion process in the early stage of their industrialization will succeed and upgrade their income classification from a low-income economy to a lower middle-income economy and from a lower middle-income economy to a upper middle-income economy in a short time.

On the other hand, those economies that could not handle this conversion process smoothly in the early stage would experience failures or stagnation of industrialization in the longer period, for example, several or more decades if those economies tried to push industrialization in a coercive manner. These can be observed from the evidence of the history of industrialization as shown in Table 2. The years spent by the economies whose ratio of MVA/GDP has not yet reached 20% are much longer (46 years in Ethiopia, 56 years in Kenya, 57 years in Ghana and Tanzania, 59 years in Uganda, and 60 years in Senegal) than those economies achieving industrialization (such as 11 years in Taiwan, 12 years in South Korea, 14 years in Singapore, 26 years in Indonesia, and 31 years in Malaysia). The longer period in the Sub-Saharan

African economies resulted from inappropriate efforts to achieve industrialization based on unrealistic visions. This caused deep damage to those failed or stagnant economies and made them suffer damage for a longer period even after policy orientations may have changed.

The nature of these failures should be considered as a state capability problem, considering that there are some economies formulating realistic industrialization vision while other economies are not. Furthermore, this would be considered as a learning problem of the state, for those successful economies that were not able to practice vision formulation properly in the beginning of industrialization compared with what they are doing today. The current industrialized economies would have acquired know-how as time passed and finally could become what they look like today.

Table 2. Comparison of the structural change among the selected Asian and Sub-Saharan African economies

Economies	Start year of industrialization (a)	More than 20% of MVA/GDP		Years spent (b-a)
		First Year reaching (b)	MVA/GDP (%) of that year	
East and Southeast Asia				
Indonesia	1966	1991	21.0	26
Malaysia	1958	1988	21.8	31
Singapore	1959	1972	20.2	14
South Korea	1962	1973	21.5	12
Taiwan	1953	1963	21.3	11
Sub-Saharan Africa				
Ethiopia	1974	-	5.6	46
Ghana	1963	-	10.4	57
Kenya	1964	-	7.5	56
Mauritius	1960	-	11.0	60
Senegal	1960	-	15.7	60
Tanzania	1961	-	7.7	57
Uganda	1961	-	15.5	59

NOTES:

a. Statistic data source: The World Development Indicator (WDI) was basically used. Data from Taiwan was downloaded from the website of the National Statistics of Taiwan organization (https://eng.stat.gov.tw/ct.asp?xItem=37408&CtNode=5347&mp=5)

b. The start year of industrialization indicates the year of the first administration after the independence and the symbolic events in the case of Indonesia, Kenya, Singapore (the status of full internal self-government and joining the Malaya Federation), Ethiopia (the Derg), Senegal and Tanzania and the first year of the first multi-year national development plan in South Korea, Taiwan, Ghana, Mauritius, and Uganda, and the year of the symbolic concrete policy measures for the industrialization such as the Pioneer Ordinance in Malaysia.

c. The First Year and the ratio of MVA/GDP: In the case of African economies, the latest figures available on WDI are used;

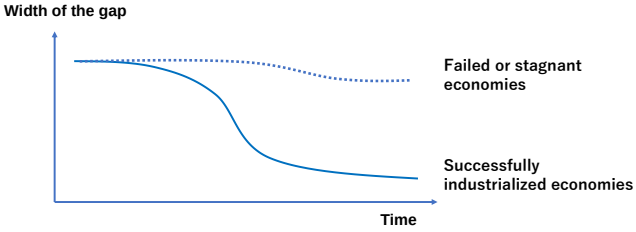
d. The year spent is calculated from the start year to the present in the case of the African economies which have not yet reached 20% of MVA/GDP ratio. The yea of 2019 is used except for Tanzania, which is calculated as of 2017; and

e. If we apply the threshold of 20% mentioned already, Mauritius has not reached 20% of MVA/GDP ratio while the successfully industrialized and industrializing East and Southeast Asian economies have experienced reaching around 20% of MVA/GDP as shown. Mauritius achieved the structural change in 1980, when its MVA/GDP exceeded the agricultural sector value-added to GDP, according to WDI. Therefore, Mauritius can be categorized as a successful case in the context of this paper.

4. The learning process in early industrialization and the case of Meiji Japan

The learning process is the process of filling the gap between the formulated vision and the reality of the industrial sector. As stated repeatedly, a gap usually exists and can be large in the very early stage of industrialization in any economy. In the case of a smooth learning process, as industrialization progresses the vision would come to be adjusted towards a more realistic one. The gap between the ideal and actual situations would be reduced as shown by the solid line in Diagram 2. On the other hand, in the case of a failed or stagnant economy, the gap would be reduced more slowly as shown by the dotted line.

Diagram 2. Process of gap reduction in the learning process



Source: Author

What kinds of learning factors are necessary in the early stage of industrialization? The cases of Meiji Japan and Ghana can give us a clue to our consideration of the possible factors. That is, what did Ghana not have but Meiji Japan did when they started their industrialization process? These factors can be considered to have three components; the initial conditions determining the initial level of the learning when the two countries started industrialization and the pace of their learning afterward; the learning factors determining how smoothly the two countries progress their learning; and the triggers accelerating or decelerating their learning processes.

4.1 Learning process: The Case of Meiji Japan

Meiji Japan was favored in having better initial conditions, for example, the legacies from the Edo era (1603-1868) such as: (i) human resources with a high literacy rate and strong ability in arithmetic as a potential source of government officials; (ii) stability and continuity of the public administration system; (iii) the bureaucratic system, the quality of the bureaucrats; (iv) the existing foundation of *mono-zukuri* (manufacturing); and (v) the experience of a market economy matured in the Edo era. With these

advantageous initial conditions, Meiji Japan made learning factors functioned well.

First, the state leaders were interested in modern industries in general and specific industries very much, and were eager to learn from the experience of the western economies with an aggressive appetite for learning. Second, they could build a consensus on the basic direction of industrialization among the state leaders and the MOI in the early stage through visits aboard including the Iwakura Mission. Third, they recognized the importance of accumulation of the industrial knowledge and skills within the government including the creation of a pool of engineering technocrats. To this end, Meiji Japan took the necessary actions promptly with a self-help spirit. They dispatched young Japanese to study abroad and established the Imperial College of Engineering in Tokyo in 1877 and many professional schools at the local level. In addition, they put a high priority on their hands-on experience of various on-site industrial activities. Engineering technocrats were deeply involved in the start-up, operation and maintenance of the modern industrial factories, for example, Ishikawa Seiryu (1826-1895) in the cotton spinning mills and Oshima Takato (1826-1901) and Noro Kageyoshi (1854-1923) in the steel works. By so doing, these people experienced manufacturing and contributed to the accumulation of industrial knowledge and skills within the government and technological formation in those infant industries.

Fourth, they came to obtain a sense of economic rationality as a criterion in state decision making through trial-and-error processes such as experiencing failures of the initial industrialization policy from the top down. The state leaders were moved toward industrialization initially based on their passion. The thought of a simple copy and paste of the western industrial technologies to Japan in the very initial stage is a typical example. However, many arguments came to be gradually made based more on a sense of economic rationality. For example, several steps including a feasibility study were taken in the government and the Imperial Diet prior to the final decision about investment for the start of the Yahata Steel Works in 1901. This knowledge accumulation within government facilitated nurturing a sense of economic nationality.

Fifth, the state leaders and ministries concerned were very responsive to negative economic signals such as the condition of the macroeconomic environment and their market exposure. They were forced to correct their vision in response to the fiscal and trade deficit problem. They were exposed to the international market and competition though participation in various international exhibitions, the organization of exhibitions in Japan, the provision of various samples of Japanese products to foreign markets and the collection of reports from abroad by the commercial attaché of Japanese embassies. From this exposure, they could know the position of Japanese manufacturing in the international market objectively from various angles. In addition, within Japan, the expression of different opinions in the government was allowed. For example, the record of those arguments on the relevance of the direct intervention of the state in the initial industrialization policy and the investment plan of the steel works are available. The functioning of these learning factors contributed to the adjustment of vision to reality in a shorter period than that of other countries.

Last, the functioning of the triggers needs to be emphasized. This urged the state leaders to learn lots of things aggressively. First, Meiji Japan confronted threats of colonialism by western military powers and state survival and was motivated strongly by the urgent need for state modernization. Second, there existed a national consensus on these urgent needs and the orientation of industrialization among the people to avoid threats of colonialism. Third, experienced private sector industrial entrepreneurs came to emerge. These played a critical role in technological formation thereby contributing to reducing the gap between the formulated vision and reality with support from the public-run experiment and inspection facilities at the central and local levels of government (MITI 1954; Nakaoka 1986; Uchida 1986).

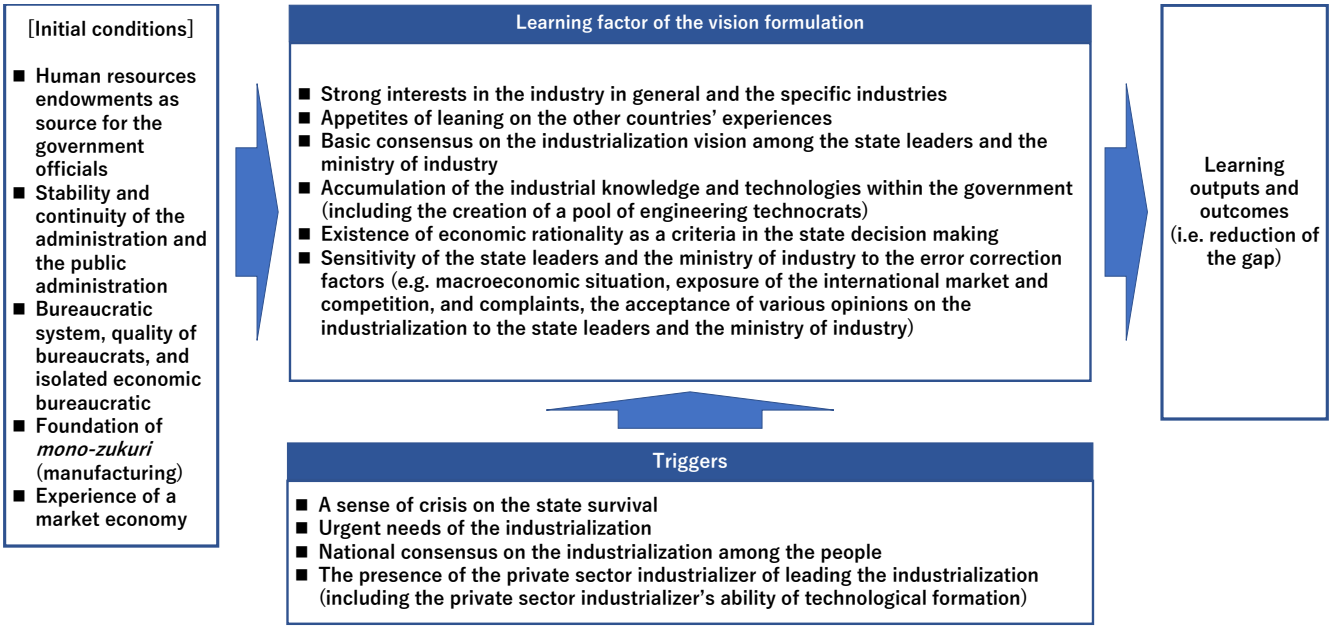
4.2 Learning process: Case of Ghana

What did Ghana not have in its early industrialization stage compared with the case of Meiji Japan? In this part, preliminary thoughts are presented as hypotheses for further consideration.

First, it cannot be considered that Ghana was favored by good initial conditions although these were relatively better than those of other West African countries before political independence (Killick 2010; Tignor 2006). As Killick (2010) states, the educational level of Ghana in the late 1950s was double that of the next high-ranking country and three times the unweighted mean of the other countries. However, Ghana was not always endowed with a big enough pool of skilled human resources because of the long history of the colonial regime under the United Kingdom, while Meiji Japan could inherit the legacy of around 260 years of the Tokugawa Shogunate before the Meiji era - such as political stability, a relatively well-established administration system and the experiences of well-developed market economy and *mono-zukuri*. Under the colonial regime Ghana had been a basically mono-culture economy heavily reliant on natural resources. A solid foundation of *mono-zukuri* had thus not been built in Ghana by independence. The market economy had not been experienced by the Ghanaian people because the colonial economy had been subordinated to the British Imperial economy. This must be considered to have been a very big disadvantage for Ghana when starting industrialization.

Second, with respect to the learning factors, we are not convinced about the extent to which the state leaders of Ghana were strongly interested in industrialization and specific

Diagram 3. Preliminary thoughts on the initial conditions, learning factors and triggers in vision formulation



Source: Author.

industries and eager to learn about other countries' experiences in the context of enriching the nation as the ones in Meiji Japan were. Certainly, they pursued building a modern state to be economically independent. Here modernization implied industrialization. However, it might have been excessively politically motivated. Nkrumah would sometimes pursue industrialization to enhance his power and authority (Killick 2010).

There did exist a certain consensus on the necessity for industrialization in general. However, this may have been a consensus relying on the charisma of the one specific person whose policies were aprioristic rather than empirical (Killick 2010). And consensus was not formulated through watching-and-seeing experiences but was mainly based on desk thoughts envious of the Soviet achievements in industrialization.

Thus, the necessity for the accumulation of industrial knowledge and experiences may not have been recognized fully among the state leaders in Ghana. The shortages of technical and managerial staff became a bottleneck. And problematic investments in the productive sectors were caused partly by excessive outsourcing of related feasibility studies to foreign consultants during the intensive industrialization period. The on-site experience of manufacturing by the government engineering people was lower, compared with Meiji Japan.

A sense of economic rationality as the decision-making criterion within the government was not nurtured. The comparative advantage was not considered in relation to industrialization. A strong preference was shown toward the new establishment of factories rather than the use of existing factories. And unviable projects were often established because of corruption (Killick 2010). Nevertheless, despite the mounting fiscal and trade deficits that acted as an error correction factor, state-led industrialization continued until Nkrumah's exile in 1966. Killick (2010) notes "the constraints on the development of the economy would have to be accepted as such and priority given to their removal" and mentioned that "Nkrumah's refusal to acknowledge the financial and foreign exchange constraints" was critical. Ghana reacted to this error correction factor after the industrialization efforts had collapsed, while the Meiji Japan made corrections in the direction of industrialization by reacting to fiscal and trade deficits and thus avoided the collapse of its industrialization policies.

Third, certain triggers did not function in Ghana, unlike in Meiji Japan. Ghana was not exposed to military threats relating to state survival after its independence. It obtained political independence and was thus free from colonialism. The motives of industrialization existed for obtaining economic independence, however, this was not backed by urgent needs that were directly linked with state survival as in Meiji-era Japan. The private sector which could have realized the technological formulation and reach the ambitious targets of the industrialization by themselves, while challenging the government was also not present. Rather, Nkrumah had a strong suspicion about private entrepreneurs, especially foreign investors while Meiji Japan recognized the role of the private sector in the long run.

Based on these cases, the initial conditions, learning factors, and triggers for the learning on the vision formulation and adjustment are shown in Diagram 3. If one country has good initial conditions, these would work on the learning process positively. If there were many functioning learning

factors, these would work on the reduction of any gaps in knowledge and performance. And if there were functioning triggers, those triggers would accelerate the learning process.

By the cumulative effects of those factors, the gap between vision and reality would be reduced in a shorter time. The smoother early industrialization stage resulting from this would be conducive to better performance of industrialization efforts in subsequent stages.

5. Conclusion

This paper attempts to explain why some economies have succeeded in industrialization, but others failed or have been struggling for a long time. Through a rough comparison between the East Asian, Southeast Asian, and the Sub-Saharan African economies on a trial basis, it can be observed that the issue of the formulation of the industrialization vision by state leaders and Ministries of Industry in the early stage of industrialization is a fundamental root cause in those failures.

Failure occurs because in general, the government tends to develop an industrialization strategy with ambitious and unrealistic targets of industrial development and of priority industries. However, in past arguments on industrialization the existence of the step of the formulation of the industrialization vision and its arguments seem to be overlooked, while arguments have been concentrated on industrialization strategy. As a result, arguments on the vision have been dropped. When the vision is initially formulated, a huge gap tends to be created between that vision and the reality of the industrial sector in the economy. In the successfully industrialized economies, this gap was reduced as industrialization progressed.

This situation should be regarded as a state capability problem because there are countries that can deal with this issue and others that cannot do so. In addition, this could also be regarded as a state learning problem because the industrialized countries in East and Southeast Asia could also not always do so from the beginning of their industrialization efforts. If economies can however manage the process of gap reduction in the early stages of industrialization, those economies would be able to achieve industrialization through structural change in a relatively short time. On the other hand, if economies cannot do so, they will not be able to achieve successful industrialization in the short term because the experience of an ambitious and realistic state-led industrialization would cause serious damage to the economy and make it suffer in the longer term.

The experience of Meiji Japan, in which the state leader vision was initially unrealistic but was adjusted to a more realistic one in a short period of time, gives us a clue on the learning mechanism needed to reduce these gaps. The learning mechanism consists of the following three components: the initial conditions such as the quality of human resources, the existence of experienced economic bureaucrats, and the experience of the manufacturing and market economy; the learning factors such as a strong interest by the state leaders and the Ministry of Industry in industrialization in general and the specific industries, their aggressive appetite for learning and the accumulation of industrial knowledge and skill within the government; and the triggers accelerating the learning process such as an urgent need for industrialization for state survival and the presence of experienced private industrial entrepreneurs.

The experience of Ghana indicates that the country did not follow the learning process smoothly. Further studies may be necessary to conclude if there existed a gap between the formulated vision and reality and how this gap was or was not reduced smoothly, and for how many years. However, when we examine the available information on Nkrumah's industrialization efforts and the actual industrial development, the existence of this gap is obvious.

What were the things that the Ghana of the development period did not have while Meiji Japan did? This is an interesting question. The unfavorable initial conditions must be a crucial explanatory factor. In addition, some non-functioning factors affecting the learning process can be seen, such as the weak interest of the state leaders and the Ministry of Industry in industrialization and the key industries in a real sense; the weak appetite to learn from other countries' experiences, a less aggressive attitude toward the accumulation of industrial knowledge and skills within the government, the lack of a sense of economic rationality as a decision-making criterion, and less sensitivity to error correction factors such as macroeconomic variables. Also, the triggers did not function as facilitators for state learning.

However, we need to stress that these comments are merely preliminary observations based on a rough comparison on a trial basis. It is necessary to expand the numbers of case studies of industrialization efforts by various economies, and to conduct comparative analyses by adopting more elaborated methodologies, thereby to identify the initial conditions, learning factors and the triggers necessary for state learning. In addition, the learning issues relating to policymaking practices (Type II failures) need to be examined.

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