Resurrecting the Industrial Policy as Development Policy Based on Korean Experiences

Towards a Pro-Market Industrial Policy

Jwa Sung-Hee & Lee Sung-Kyu

Key Points

- The purpose of this paper is to demonstrate that the key economic policy paradigm of the Park Chung-hee administration in Korea was based on a 'heavy-chemical industrialisation policy', not 'export-led growth policy' as insisted by mainstream economics academia.
- It also aims to suggest a new theory of industrial policy based on both the General Theory of Economic Development and Korea's experiences of successful industrial policies. A pro-market industrial policy is a prerequisite for a country's economic leap forward, and this is evident in Korea's experiences of successful industrial policies.
- It is suggested that the market, the corporation and the government need to complement each other in order to contribute to a leapfrogging economic development, and the government should carry out 'industrial policies by promoting the corporate growth through the principle of economic discrimination based on reward and penalty', thereby reinforcing the market's discrimination function.
- In Korea's experience, the economies based on the principle of economic discrimination achieved success while those based on egalitarianism and the ideology of economic democratisation ended in failure or achieved only minor success. Therefore, the presented theory of industrial policy based on the principle of economic discrimination advocated by the General Theory of Economic Development is consistent with Korea's past experiences with industrial policies.

Introduction

If asked 'What is the most important economic policy that has led Korea's economic development?', most Korean economists would answer that it is export-led growth. However, the most popular policy among underdeveloped and developing countries in the 1960s and 1970s was an 'infant industry protection and promotion policy' to support and nurture industries at the infant stage. This sort of policy has a point in part. This is because it is obvious that economic development through *industrialisation* can only be achieved by cultivating and developing new manufacturing industries in an agricultural society. Also, given the situation of the then underdeveloped countries where manufacturing industries were still at the immature or infant stage and vulnerable to competition from industrialised nations, it seems fair that the nations needed to support these infant industries until they gained some competitiveness by protecting them from import competition. This viewpoint can be considered logically flawless. This type of strategy is called 'import substitution industrialisation'.

However, import substitution industrialisation had achieved few successes around the world at that time while many limitations were being exposed in the process of implementing such a strategy. In particular, it produced various adverse effects, such as difficulty in selecting beneficiary companies to support—namely, the problem of selecting winners in advance—and the corruption caused by cosy relations between government and business under the protection and support of the government. However, the import substitution policy was highly popular in underdeveloped or developing countries as there was no alternative to such a strategy.

In Korea, however, the Park Chung-hee government that rose to power after the 16 May 1961 military *coup d'état* transformed 'import substitution industrialisation' into an 'export-led growth strategy' through many twists and turns. In order to raise new industries, factories had to be built and this required foreign capital. Under this quite 'realistic judgment', the Park Chung-hee government had no choice but to encourage exports in order to earn foreign currency. It was a judgement based on an objective and practical assessment of the reality that was inevitable at that time. It is also well known that the foundation for Korea's economic growth was laid through the government's efforts to nurture the labour-intensive export industry and the achievements that followed.

Based on the success of export-led growth, the Park Chung-hee government concentrated all its policy competencies on 'fostering the heavy-chemical industry' from 1973, which was the final goal of industrialisation at that time. Here, it is important to note that, although the government aimed at nurturing the heavy-chemical industry, this amounted to fostering *capital-intensive* and higher value-added industries, which actually was no different from 'import substitution industrialisation' or a strategy of 'fostering infant industry', rather than the promotion of labour-intensive export industries. However, at that time, as mentioned above, many reported *failures* of infant industry promotion policies around the world led to strong opposition to the government-led industrial policy, not only in Korea but also in world economic circles. Thus, from the beginning, the Korean government's policy of fostering the heavy-chemical industry was faced with many objections from domestic and foreign academia. Meanwhile, some have insisted that the 'October *Yusin*' (Refomation), the most politically controversial event of the Park Chung-hee era that was implemented in the same period, was inevitable for the success of the heavy-chemical industrialisation.[1] This argument, regardless of whether it is true or false, has produced the misunderstanding that the policy of promoting the heavy-chemical industry began with an impure political motive. Furthermore, with the sudden death of President Park Chung-hee, who designed the policy, right before the completion of the projects under it, Korea lost the opportunity for the strategy to be evaluated fairly. The succeeding Chun Doo-hwan government (the Fifth Republic of Korea), along with the World Bank, declared the heavy-chemical industrialisation policy in Korea had failed.[2] As a result,

[1] This idea was asserted by Oh Won-cheol (2006), who served as a senior secretary in charge of the heavy-chemical industry at the time. Kim Hyeong-a (2005) made the same argument. However, the then chief secretary, Kim Jeong-ryeom, and the then secretary of the heavy-chemical industry, Kim Gwang-mo (2015), insisted that, although the October *Yusin* (declared on 17 October 1972, with the *Yusin* Constitution passed on 27 December the same year) might have contributed to the heavy-chemical industrialisation of Korea, it is not true that the October *Yusin* had been planned for this purpose in the light of related facts. Furthermore, President Park Chung-hee made no mention of the heavy-chemical industrialisation in the Declaration of *Yusin*.

[2] Some example documents include: The announcement of the Subcommittee of Commerce and Industry of the Special Committee for National Security Measures on 19 August 1980; and the Korea Development Institute's Economic and

Korea's heavy-chemical industrialisation policy has become a subject of 'avoidance' rather than a subject of research. Moreover, few studies have discussed the merits and demerits of the policy and its success principle in Korean mainstream economic academia.

For this reason, the interpretation that the core of Korea's economic development strategy was the 'export-led growth policy' has become dominant in academia, and mainstream economists still maintain this view. Moreover, since this interpretation is consistent with the confidence in free trade and the advocacy of anti-industrial policies in market-oriented mainstream economics, this position has been embraced by mainstream economists without reservations. That is, Korea's policy of promoting the heavy-chemical industry was against the principles of mainstream economics and thus stigmatised as a failure, which increasingly led to its neglect by academia. As a result, it has become normal for none to hesitate in insisting that the core of Korea's past economic development strategy was export-led growth. In addition, it has become commonly accepted that the 'export-led growth strategy' was the right choice for Korea at the time and that implementing the heavy-chemical industrialisation strategy was the wrong decision owing to its severe side effects, despite some of its achievements. Furthermore, mainstream economists have taken a vague attitude towards Korea's heavy-chemical industrialisation strategy; they cannot expressly deny the significance of the strategy because of what it accomplished but are reluctant to willingly assert that the policy was necessary at the time.[3]

Based on the new General Theory of Economic Development, this study intends to show that it was the 'heavy-chemical industrialisation policy' that led the economic policy paradigm of the Park Chung-hee government, not 'export-led growth' as insisted by mainstream economic academia. To this end, this study seeks to logically prove this assertion using two approaches. The first is to point out that the prevailing perception of Korea's past key

Social Policy Council documents for the establishment of the 5th Five-Year Economic Development Plan ('The Measures to Reestablish the Basic Tasks of the Industrial Policy and Support Measures', 1982). The World Bank was also critical of the policy from its launch. The organisation encouraged the reconsideration of the policy in 1974, and maintained the same stance after the establishment of the Fifth Republic of Korea. For a detailed overview of this subject, see Park Yeong-gu (2008, Chapter 12).

[3] Regarding this, refer to the Korea Development Institute (1995), the Compilation Committee for the 60-Year History of Korean Economy (2010, Volume 1), and Sakong and Koh (2010).

economic development strategy as export-led growth is distorting the interpretation of the policy paradigm of the Park Chung-hee government era. In doing so, this study intends to logically demonstrate that the industrialisation achieved during the era can be attributed to the adoption of heavy-chemical industrialisation and its subsequent success. The second approach is to introduce the 'General Theory' of Economic Development and present a *new theory of industrial policy* for developing countries to seek an economic forward based on Korea's experiences of the successful industrial policy.

This study develops its analysis in the following order. The first section emphasises the necessity of a new interpretation of Korea's industrialisation process. The second section examines the problems with the traditional trade theory based on comparative advantage and the necessity for economic development of import substitution policies promoting infant industry. The third section explains the General Theory of Economic Development by focusing on the theory of 'the trinity of economic development', which involves the market, the firm and the government. The fourth section presents a 'new theory of pro-market industrial policy' to promote an economic leap forward, and examines examples of the success and failure of Korea's industrial policies. Finally, the fifth section summarises key assertions and lessons of the paper.

Problems with the Trade Theory Based on Comparative Advantage and the Necessity for Economic Development of Import Substitution Promoting Infant Industry

Problems with the traditional trade theory of comparative advantage

Today, the world's mainstream economic academia regards 'industrial policies to foster specific industries' as 'policies that should not be adopted by governments'. Moreover, the World Trade Organization (WTO) has stipulated that such policies are 'practices that promote unfair trade' and prohibits them. The traditional theory of comparative advantage by market-oriented mainstream economics argues that the industrial specialisation of each country can be most efficient when it is based on *static* comparative advantage determined by differences in endowed resources among countries. In particular, Adam Smith famously noted that 'the division of labour (i.e., industrial specialisation) in a country is determined by the extent of the market'. According to this theory, if demand in the world market increases, each country specialises in the industries enjoying comparative advantage, that use relatively larger amounts of the resources that it holds in relative abundance. Why is this so? When trade takes place and the market grows, countries that abound with land, compared with other resources and other nations, should specialise in agriculture, and those that are relatively rich in labour should specialise in labour-intensive industries in order to increase efficiency in the allocation of resources, save production costs and secure international competitiveness and comparative advantage.

Therefore, from this point of view, the industrial specialisation process of a country should be led by the market assessment of the static comparative advantage determined by given endowed resources among nations. Accordingly, the government should not implement any industrial policies that oppose the principle of comparative advantage, such as promoting heavy-chemical industry. In view of this, it has naturally been argued that Korea, in the 1960s, needed to pursue economic development by focusing on agricultural and labour-intensive industries. The premise was that the country held more land and labour than capital or technology and such a viewpoint gained credence at that time. From the same perspective, domestic and overseas mainstream economic academia have insisted that promoting export *industry* rather than agricultural industry, the policy implemented since the 1960s, and that promoting the heavy-chemical industry rather than labour-intensive industry as was followed in the 1970s in Korea, were 'anti-market policies' that ran counter to the natural industrial specialisation process led by the market based on comparative advantage. What is noteworthy here is that this study distinguishes between *'export industry promotion' as an industrial policy* and *'export promotion' as a trade policy.* The former refers to policy that fosters specific industries, including the heavy-chemical industry, to promote exports, while the latter refers to a policy of boosting exports that is uniformly applied to all industries. The classical theory based on static comparative advantage implies that the former tends to go against the country's comparative advantage and to distort the relative price system and the allocation of resources, while the latter tends to be consistent with the existing comparative advantage and so with the relative price system and resource allocation.

Against this background, one can understand how mainstream economists adhered at the time to the argument that the industrial policy and economic development strategy, which sought to nurture the heavy-chemical industry in order to advance an export industry structure and then export capital-intensive and technology-intensive goods, was never consistent with accepted economic theory (i.e. the theory of comparative advantage). Accordingly, one can further see why Korean mainstream economic academia believed that the way for Korea, which had static comparative advantage in land and labour in the 1950s and 1960s, to maximise efficiency in the allocation of resources was to continue her specialisation in agriculture and labour-intensive industries and export the products.

Consequently, in the 1960s and 1970s, economists in general and opposition political leaders in Korea insisted that the country should specialise in agriculture or labour-intensive industries rather than pursue capital-intensive industrialisation. Relying on the theory of comparative advantage, mainstream economists both within and outside Korea have depreciated the achievements of the heavy-chemical industrialisation policy.

In addition, the taboo on government-led industrial policies has been almost universally accepted internationally.

Of course, as Korea's heavy-chemical industrialisation policy proved successful, mainstream academia introduced a new concept—so-called 'dynamic comparative advantage'—to explain that comparative advantage is not permanent but changeable: there can be alterations in the endowed resources of a country over time or gained from the nation's efforts. In hindsight, this approach may help explain the *ex post* outcome of the taboo policy, but it fails to provide effective explanations of which industries convey this advantage or how to develop them in advance from the policy perspective. Thus, the traditional theory of comparative advantage supported by mainstream economists can contribute little to the economic development of developing countries in a practical sense. Rather, it can be more effective for underdeveloped (or some developing) countries to choose an industry to promote, as Korea did with heavy chemicals, that will create a rapid leap in economic development rather than rely on *laissez-faire* based on market-based comparative advantage. Otherwise, underdeveloped or developing countries that need to foster and develop new industries for their future will remain backward, unable to advance.

Nonetheless, the classical industrial specialisation and trade theory based on comparative advantage argues that a country can achieve economic development simply by opening its markets and permitting free trade, as the market itself works to establish an efficient industrial structure and allow trade to occur. For this reason, in Korea export-led growth, which is consistent with the classical trade theory based on comparative advantage, has been easily accepted by mainstream economic academia; while the heavy-chemical industrialisation strategy, which ran counter to that theory and entailed the government's direct market intervention, naturally has lost its footing in mainstream economics. However, Korea has taken a rapid economic leap forward through its industrial policy for fostering heavy-chemical industries, boldly going against the traditional theory of comparative advantage.

Major issues with import-substitution industry promotion policies

Practical challenges in enforcement

Compared to export-led growth strategies, import-substitution policies promoting infant industry are less likely to gain theoretical validity, in spite of the necessity for these policies. Furthermore, few successful cases have been reported in reality, with the critical problem that it is extremely difficult to enforce such policies in a real-world setting. The enforcement of this type of policy inevitably goes through two steps: determining which industries offer future promise, and deciding which individuals or firms will be entrusted with developing the infant industries and manufacturing products. That is, governments should know which firms to support in advance.

In the first step, as it is impossible to make accurate predictions about the future, it is difficult for a government to determine which industries offer promise. Moreover, there is no guarantee that the government can outperform the market in selecting promising industries. For these reasons, it is highly likely that the government will invest in 'the wrong industries' and experience failures. Of course, it is possible for underdeveloped or late-coming developing countries to learn how developed countries have achieved the transition from labour-intensive industries to capital-intensive or knowledge-based ones by studying the history and progress of those countries' economic development and benchmarking their strategies. However, no success is guaranteed when entering new industrial fields that have not yet been pioneered, even for developed countries. Far more serious challenges arise in the second step. Governments need to select and support the companies that will lead the chosen industries, but they have no idea which company will perform best in businesses that have never been conducted in their countries. That is, governments are faced with the problem of 'selecting winners in advance', which is as challenging as predicting who will win a 100-metre dash before the race actually takes place. These are not types of problem that can be solved when many government officials or scholars put their heads together. In this case, therefore, the success of the industrial policies is up to fate. For these reasons, both domestic and foreign mainstream economic academia have excluded government-led policies to promote infant industry from their list of available policy options.

International political and economic issues

Import-substitution industry promotion policies can also distort the allocation of resources and cause unfairness in international political and economic spheres. First, if one adheres to the principle of division of labour based on the theory of comparative advantage, it can be argued that international resource allocation will be distorted whenever any country adopts an industrial policy and provides a variety of support to specific domestic industries. This industrial policy can also compromise the fairness of international trade as it allows the country's exports to enjoy an artificial advantage in international competition. This is referred to as 'unfair trade practices', and various international organisations have adopted regulations and conventions to prevent them. For example, the WTO has set rules to prevent such practices, and individual countries also try to include terms prohibiting these practices in bilateral trade agreements.

However, the history of the economic policies in the Western developed countries in the 18th and 19th centuries shows that almost all of them implemented 'industrial policies' to protect and foster the industries of their own countries. Today, however, developed countries do not allow underdeveloped and developing countries to do so. This has triggered criticism from these countries that advanced countries want to maintain their comparative advantage by intentionally keeping developing countries from adopting the industrial policies they themselves adopted. The German economist F. List, who was active during the period when Germany struggled to keep pace with the economic development of the UK and the USA, complained that these developed countries were 'kicking away the ladder'. Even now, this sentiment still lingers. The problem is, however, that no clear way has been developed to increase the probability of success for an industrial policy.[4] Therefore, to revive industrial policy in general as an

[4] There is an interesting example of this phenomenon. Professor Chang Ha-Joon at the University of Cambridge has long advocated industrial policies and pointed out that the current developed countries had enforced policies to protect infant industries during their industrial revolution periods, echoing List (Chang, 2002). Chang, however, fails to offer any theories or policies to address the challenges to the enforcement of such industrial policies outlined above.

economic development policy today, it is imperative to overcome these practical challenges in enforcement as well as the theoretical objections.

Necessity of import-substitution industry promotion policies for rapid economic development

The controversy over policies to nurture import substitution industries is related to the fundamental viewpoint toward changes in and development of the economy. Such policies are closely related to the definition of *economic development.* Existing mainstream economics approaches the issue of 'economic development' by simply incorporating it into the concept of 'economic growth' and from the perspective of 'allocation economics' that seeks the most efficient allocation of given resources based on comparative advantage. Let us assume that a country has comparative advantage in agriculture and that it succeeds in increasing agricultural productivity through many efforts. In allocation economics, the country's achievement is considered 'economic growth' or 'economic development'. Figuratively, this implies that if a society that currently produces 10 carts manages to manufacture 100 carts in a period of the same length by more efficiently utilising given resources, this accomplishment is considered 'economic development'. In such case, the productivity, income and living standards of the society ought also to increase tenfold, if increasing efficiency does not either saturate the market for carts or drive the price down. However, this is far from the concept of 'an economic leap forward'.

In its true sense, 'economic development' is not a linear change—the increase in the production of carts from 10 to 100—but rather a *non-linear process* in which, for example, a *farming* society that has been committed to farming achieves a leap forward into a more highly developed society by overcoming the limitations in its endowed resources. In the General Theory of Economic Development, the change process in which a farming society that has produced carts becomes one that manufactures trains and automobiles, and then aeroplanes and spaceships, and evolves into a higher-order economy is called 'a non-linear order transformation process'. A theory of economic development, in its true sense, is about identifying the principle of this 'emergent process'. This kind of economics, called 'development economics', goes beyond allocation economics. From this viewpoint, 'economic development' in its true sense takes place only when an economy emerges as a more complex order. Therefore, 'given' endowed resources, as well as the theory of comparative advantage, always need to be overcome. On the other hand, allocation economics identifies a linear increase in productivity, in which the production of carts increases from 10 to 100, with economic development. Therefore, it encourages the society to continue to produce more carts, implicitly within the context of agrarian economy, or implies that the *laissez-faire* market, in a somewhat mystical way, will prompt a spontaneous transformation to building trains, automobiles, and aeroplanes as time goes by, rather than permitting the government to plan or manage the transition. This is nothing more than saying that the agricultural society should avoid any government-led industrial policies and continue to specialise in agriculture to develop its economy, which is an empty argument.

Surprisingly, throughout the world's history, almost every developed country adopted policy efforts to develop new industries during their industrial revolution periods. Moreover, no farming society has grown into a developed country by focusing only on farming in accordance with the theory of comparative advantage. Likewise, it is difficult to identify a country that has succeeded in industrialising solely by the power of the market without its government being involved. What is even more surprising is that, despite the disregard of industrial policies in academia today, there is no country that implements *no* kind of industrial promotion policy. However, ironically, while almost every country has enforced industrial policies of one type or another, few successes have been reported.

This phenomenon has two major implications. First, unlike the theories of economics taught in college lectures, no country can achieve 'an economic leap forward' in a real-world setting without fostering new industries and undergoing the transition from a cart-manufacturing economy to a train-, automobile-, or aeroplane-manufacturing economy. Second, no clear way has been developed to foster and develop new industries with international competitiveness. Therefore, we think the major task of 'development economics' is to find the 'general success formula for industrial policies', and so is the purpose of this study based on the General Theory of Economic Development.

The General Theory of Economic Development

What is the General Theory of Economic Development? This section explains the theory in detail using the holy trinity of economic development, which comprises the market, corporations and government.

The market's economic discrimination function and the general principle of economic development

The General Theory of Economic Development (Jwa, 2017a) is based on the new interpretation of the economic development experiences of Northeast Asian countries such as Japan, Korea and China as well as Western industrial revolution, and is grounded critically on a new definition of market function.[5] The General Theory of Economic Development is grounded on a new definition of market function. First, the theory gives the following new definition of 'market':

> **<Definition 1>** The market is a device motivating economic development through economic discrimination and a necessary condition for economic development.

'Economic discrimination' means merely 'considering economically different elements as different from each other' and does not imply any political or social discrimination. In contrast, 'economic egalitarianism' is 'considering economically different elements as the same', which impedes motivation by denying differences in performance. Therefore, economic egalitarianism is the opposite of economic discrimination. Thus, while economic discrimination is a necessary condition for economic development, economic egalitarianism is a condition sufficient for economic stagnation. This principle is not an outcome of abstraction by deductive reasoning but an inductive conclusion derived from observation of the real market. Why is this so? In the real world, the market is a social system and device that helps only

[5] Jwa (2017b) presents a new interpretation of the history of Korean economic development by applying this theory. The market-friendly industrial policy examined in this study is also based on the book.

those who help themselves, in accordance with the principle of award and penalty. How is the market observed in the real world? To illustrate, a consumer purchases only from companies that produce the products that satisfy them most and, as a result, only the best companies survive in the market. Banks prefer to engage with only top-ranking companies and individuals. Investors in the stock market always select and support only excellent companies. Accordingly, corporations also always select and employ highly talented people while these talented individuals prefer only outstanding companies. These examples illustrate the market's function of economic discrimination in the real world. Accordingly, the market continuously motivates economic subjects by performing the function of discrimination, thereby leading them to voluntarily pursue economic development and prosperity. This general principle suggests that an economy in which the economic discrimination function works well in the market will grow and develop more rapidly.

The market's discrimination function can be interpreted as an economic expression of the Western idea captured in the proverb 'heaven helps those who help themselves'[6] and the concept of the 'award and penalty' advanced by the School of Law during the Qin Dynasty.[7] Only the society in which economic subjects who work diligently and excel over others are better treated can achieve greater wealth and prosperity. This idea is not only indicative of the common sense of the world that humankind has learned in the course of many years of evolution, but it is also based on the law of evolution.[8] In a society where the principle of economic discrimination is universally respected and practiced, economic subjects display in their spirit a high level of self-management, self-reliance and creativity, which is why this type of society and state is more likely to transform itself from a 'cart-manufacturing economy' into a 'spaceship-manufacturing economy'.

---

[6] The proverb appears to have originated from the Parable of the Three Servants (Talents) in Matthew 25, of the Holy Bible.

[7] This idea was advanced by Guanzi, Han Feizi and other scholars in the School of Law during the Warring States period of China. They placed greater importance on the rule of the law than on the rule of virtue, and believed that strictly rewarding those who performed good deeds and punishing those who committed wrongful deeds was the basic principle by which to rule the state.

[8] The theory of evolution proposes that a given environment selects the fittest. The fittest refers to an entity that exhibits the characteristics or performance that the environment prefers. Accordingly, the environment is analogous to God who helps those who help themselves and practises the law of award and penalty.

Market failure and failure of economic development attributable to free riding

In reality, the process of economic development is more complex than it seems. The processes by which individuals, companies, countries and even civilisations develop involves the transition from a cart-manufacturing economy into a much more complex economy that includes the manufacturing of aircraft or spacecraft by imitating or following 'success know-how'. In a few words, the evolution of humanity can be defined as 'a process for propagating implicit knowledge or success know-how'. However, the essential characteristic of the implicit knowledge or success know-how market is that one can easily get a 'free ride' on the knowledge and success know-how of others.[9] Why is this so?

All transactions in the market presuppose agreement on all transaction terms between those involved in the transaction, such as the quantity and quality of the goods to be traded, the conditions for delivery of the goods, the various contracts required for the transaction and the various sanctions to guarantee fulfilment of the contracts. However, this agreement process requires the expenditure of time and effort, and sometimes monetary costs, to obtain and confirm information. These conditions make the process imperfect, and the costs arising from the process are called 'transaction costs'. The more complex the nature of the traded goods and the more difficult it is for the related parties to trust each other, as there is a distance between them as in international transactions, the higher the transaction costs. If transaction costs are too high and the parties cannot reach agreement, the market transaction cannot take place and the goods become free goods that are subject to free riding and eventually disappear from the market. The more complex the characteristics of the goods are and the more imperfect the

[9] The term 'free riding' used here is another expression of an 'external economy' and, from the aspect of evolution, it is another expression of reproduction. In this study we prefer the term 'free riding' as it expresses how economic development is regarded in the General Theory, which proposes that it is the 'intentional behaviours' of humans intending self-development, and not unintentional behaviours such as simple spreading of the external effect discussed in mainstream economics, or the evolutionary reproduction process. The General Theory sees economic development as a result of humans' intentional efforts at self-development for their own success by actively responding to or changing the incentive system of the given surroundings. The theories of economic development must address the issue of how the institutional environment that regulates human behaviours should be changed into one that is development-friendly, for economic development is fundamentally a matter of human consciousness.

related information is, the higher the transaction costs become and the more pervasive free riding becomes.

It is difficult to establish the price of the implicit knowledge goods of success know-how in the market as they create high transaction costs due to the complexity of their nature. Accordingly, in many cases market transactions for the goods hardly ever occur. Knowledge already created is subject to free riding, in a similar way to free goods, and as a result knowledge that has not yet been created cannot come into existence. In such cases, the market's selection and discrimination functions are not completely performed. This leads to market failure attributable to free riding. If free riding on others' knowledge becomes pervasive, outstanding workers and companies cannot be properly rewarded for their performance. This, in turn, leads to the loss of incentives for individuals and enterprises to work harder for their success in the market, that is, economic development. Therefore, economic development failure will occur if the market fails to perform its function of discrimination, by allowing free rides based on implicit knowledge and success know-how.

> **<Definition 2>** If economic discrimination fails through positive transaction costs and 'free riding' caused by them in the implicit knowledge or know-how market, economic failure will result.

This is a common phenomenon, not only for the individual and corporation, but also for the national economy and civilisation. The practice of free riding aiming at gaining success know-how or implicit knowledge without paying a fair price impedes the development of top-ranking workers and enterprises. If free riding in the implicit knowledge market becomes pervasive, its spread will lead to the dumbing-down of knowledge, just as bad money drives out good money.

In reality, the failure of the implicit knowledge market and the failure of economic development resulting from it are caused by imperfect information, which is the root cause of positive transaction costs. It is generally very difficult for humans, who are strangers to each other in this vast world, to know who performs what and how well the task is performed. The effort, money and time that we must spend to identify these unknowns are called 'transaction costs' in economics terminology. The market cannot avoid positive transaction costs, which can only weaken its ability to develop the economy. This problem becomes more serious in the implicit knowledge market, causing society to face great difficulties in emerging from a cart-manufacturing economy into a spacecraft-manufacturing economy. Mainstream economists believe this is due to imperfect information. In fact, all problems arise from the fact that humans are not God and know little about the world. This may be the reason why in the past humankind took more than 10,000 years to break away from an agricultural society or a cart-manufacturing economy.

Correcting market failure: the role of the corporation and government in preventing free riding

Joint-stock company system

Despite its lack of awareness about the world and the imperfection of information, humankind finally discovered a way to overcome the limitations inherent in human abilities. This is manifested in the organisation of the corporation, a device that maximises the motivation of employees to work by preventing free riding through economic discrimination based on their performance within the organisation. Unlike the market, the ‘corporation’ is a device in which people, previously unknown to each other, gather together to form an organisation and face or interact with one another as a team. This construct facilitates their mutual understanding of what task each person performs as well as their respective levels of competency, thus enabling the reduction or elimination of transaction costs for economic discrimination. Thus, the corporation is more efficient than the market in identifying individual performance and providing rewards accordingly. Also, the more imperfect the information, the more efficiently the corporation functions as a resource allocation system. Thus, an enterprise is an effective device that enables discriminatory rewards for each member’s performance. In the end, the corporation is a device that expands the network of the market by fulfilling the function that the market cannot provide through economic discrimination. Furthermore, the corporation promotes the division of labour by extending the area of the so-called market economy.

The corporation's function—to reduce transaction costs and improve the efficiency of discrimination—originate from its *organisational* characteristics, which are different from those of the market. A market transaction is a horizontal and democratic relationship based on agreements between parties. However, decisions on the use of resources within the corporate organisation are based on a hierarchical command system with the head of the organisation at the top. Of course, firms can minimise transaction costs by replacing horizontal transaction relationships with a hierarchical command system. However, they must also bear the additional costs of the management and operation of the organisation. So, within the limits of positive organisational costs, the corporation can more efficiently perform the function of economic discrimination in the market.[10]

Historically, the corporate organisation was a one-man business or a family enterprise, such as for example a smithy where goods such as carts were produced before the Industrial Revolution. Joint-stock companies have existed for many centuries, but they really came into their own, occasionally with government backing, in the early nineteenth century. As the corporation's capital size and risk-bearing capacity increased, capitalist mass production finally started. The company law enacted in 1844 in the UK is known to be the predecessor of the modern joint-stock company system. In this process, the government actively promoted corporate activities in the name of industrial policies. In this way, the joint-stock company emerged as the economic subject responsible for organising production resources within the entire capitalist economy as well as its production activities, which contributed to the achievement of the Industrial Revolution. The General Theory of Economic Development particularly emphasises the critical role that the corporation plays in the process of economic development. The development of the capitalist economy can take place only through the

[10] Today, in the name of social democracy and economic democratisation, a movement has sought to 'democratize' management. This movement takes for granted the participation of labour unions in management or requires the decision-making power of unions to be strengthened. This has led to rising demand for a horizontal decision-making system for the distribution of resources within the organization of corporations, as well as for transactions in the market. If such demand becomes excessive, it will have a negative impact on economic development by weakening the corporation's function of discrimination.

growth of the corporation. Therefore, it is reasonable to define the modern capitalist economy as a ‘corporate economy’.[11]

> **<Definition 3>** The corporation is an effective device that enables discriminatory rewards depending on the individual’s performance. Moreover, the development of the capitalist economy can take place only through the growth of the corporation. Therefore, it is reasonable to define the modern capitalist economy as a ‘corporate economy’.

The role of government in economic discrimination

Nonetheless, the problem of free riding among companies still exists. As the subjects who are engaged in a market economy, corporations are also exposed to the *free riding* of their rivals on their own implicit knowledge or success know-how, owing to the market’s failure in discrimination. The success know-how of the most successful companies is subject to free riding by their rivals, which may have entered the market later. This condition makes it impossible for companies that were once successful to remain eternal winners in the market. As a result, the market structure does not allow outstanding companies to be crowned ‘leading companies’ or to survive for an extended period of time. Just as bad money drives out good money, the spread of free riding among companies precludes the possibility of economic advancement, as these outperforming companies disappear and only mediocre companies remain in the market.

Another economic subject that could address this problem is the *government*, another public organisation. Although the government shares the organisational characteristics of the corporation, what distinguishes the former from the latter is that government is an ultimate exogenous coordinator of the national economy that sets rules within the market. If the corporation is a device that internalises the implicit knowledge market that fails in discrimination due to free riding, the government is a device that internalises the private economy that fails to advance economically due to transaction costs. Through this function of internalisation, companies can mobilise and cultivate excellent, talented individuals and resources, through

[11] Simon (1991) insists that it is more appropriate to define the capitalist economy as an ‘organisation economy’ than as a ‘market economy’. This study, however, specifically considers the structure as a ‘corporate economy’.

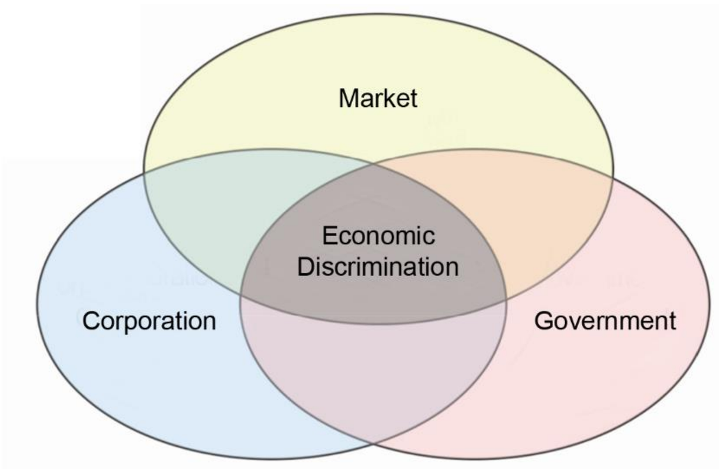
economic discrimination, more efficiently than the market can. In turn, this movement can contribute to the development of the economy and the cultivation of outstanding workers and companies, destined to be crowded out by the free riding of future rivals. The government can perform the function of discrimination by supplying public policies and economic systems. In addition, it can lead all economic subjects to the path of success by motivating them through economic discrimination.

> **<Proposition 1>** *Where the implicit knowledge or success know-how market fails in economic discrimination because of positive transaction costs and free riding, the corporation and the government function as a device that compensates for the defect. Their role in economic discrimination enables an economic development.*

The trinity of economic development

Owing to the problem of free riding in the market, economic development fails as bad companies drives out good companies. Who, then, is responsible for preserving good companies and how are they preserved to achieve economic development? Companies are able to retain outstanding talent—the 'good money' in our metaphor—and achieve economic advancement. However, since free riding arises among companies and drives out good ones, it is difficult to see outperforming companies emerge and survive in the market. If the government can foster these excellent enterprises, the economy can advance. Thus, while the market is involved in the achievement of explosive economic development by performing the function of discrimination inherent in it, and while the corporation corrects the market's failures in discrimination, the government should correct failures to preserve good companies in the corporate ecosystem and thereby enable rapid economic development. The theory that explains this process is the 'theory of the trinity of economic development' (see Figure 1).

Figure 1: Economic discrimination and the trinity of economic development



<**Proposition 2**> *If the market, corporations and the government successfully perform their respective roles in economic discrimination as they function as an integrated body, the synergy leads to economic development. This is the core of the 'theory of the trinity of economic development'.*

From the perspective of the theory of the trinity of economic development, economic development can only occur when the market, corporations and the government carry out the function of economic discrimination as an integrated body. The role of politics is also significant in this process. Politics can contribute to economic development only by ensuring that the market, corporations and the government can operate as one body in performing the function of economic discrimination. Thus, if politics produces egalitarian or anti-discriminatory economic policies and systems, economic stagnation inevitably occurs.

'New Theory of Pro-market Industrial Policy' for Rapid Economic Development

Discriminatory corporate promotion by government based on market performance

This section aims to present a new 'pro-market industrial policy' based on the General Theory of Economic Development introduced in the previous section.[12]

Main debates on industrial policy centre on three issues: why is an industrial policy necessary? who will benefit from support? how is the support provided? The first issue asks why government intervention is necessary: why should governments intervene in the economic development process rather than let the market work? The General Theory of Economic Development holds that, although the market chooses winners through market performance, it cannot provide sufficient rewards to the winners to guarantee 'an economic leap forward', owing to the problem of free riding. Accordingly, it is impossible for the market alone to achieve economic development. This is the main reason why many underdeveloped countries fail to develop into advanced countries by adopting only market-centric approaches. This places emphasis on the role of governments, and the 'new' role of governments for economic development is to support those who have been selected as winners by the discrimination function of the market but still lack first-level capability, and thus help them reach the top level. That is, the government role is to support market winners through 'nudges'. This study refers to such support as 'pro-market intervention' or 'intervention for an economic leap forward'.[13] This strategy can increase the probability that the winners will acquire top-level competency, so is considered a 'market-complementing' or 'market-strengthening' government intervention. So, for a country to achieve spectacular economic development, both the market and the government need to complement each other. While binary debates on market *versus* government often move on to variants of the two options, for

[12] For details, see Jwa (2006, 2008 and 2017a, 2017b).

[13] Recently, pro-market intervention by governments in the market through 'nudges' has drawn attention. For details, see Thaler and Sunstein (2009). Governments could use the same approach for industrial policies. Regarding this, see Jwa (2008).

example big market *versus* small government, small market *versus* big government, the General Theory of Economic Development recognises the need for *both* to function for economic development. For an economic leap forward, a policy is needed under which both the market and the government give preference to companies selected as winners through the market's economic discrimination function, and help them perform more efficiently. Such a policy can be called, from the perspective of the General Theory of Economic Development, 'industrial promotion by economic discrimination based on reward and penalty'.

> **<Proposition 3>** *The market and the government should complement each other to achieve an economic leap forward. The government needs to implement 'industrial promotion by economic discrimination based on reward and penalty' to reinforce the market's discrimination function.*

The second problem with industrial promotion policies by governments pertains to which sectors to support: the beneficiaries of support. That is, it is about determining the target of a policy among industries, firms and the functions of production factors. Depending on who is to benefit, the policy may be called an *industrial targeting* policy, a *firm targeting* policy or a *functional targeting* policy. Let us examine each in turn.

First, as traditional industrial targeting policy predesignates its target as 'industry', referring to it as promotion of a specific industry. However, 'industry' is nothing more than a concept created for convenience, to define the market supply functions needed to derive price parameters in economics; it is neither an economic subject that responds to incentives nor a suitable target for economic policy. This is because economic policy is essentially government action intended to change the behaviours of economic subjects by altering the incentive structure; so, not being economic subjects, industries are not a suitable target for economic policies. In addition, under the democratic system support for a particular industry as a whole always acts counter to economic discrimination owing to the influence of interest groups and the political nature of governments. Thus, industrial targeting is likely to take the form of a '1/n support policy' that is uniform and egalitarian in pursuing *economic equalisation*, rather than *economic discrimination.*

To take my third example next, mainstream economics, rather than industrial policy, advocates the targeting of 'production factors' that foster the capital supply market, encourage investment in education and promote research and development (the 'production function' of the neoclassical school). Although there is always demand for such policies, their drawback is that they cannot allow effective implementation of performance-based discrimination owing to uncertainties about what to target for support and how to support where the targets are many and hard to specify for practical purposes. Often, such policies fail to choose the companies and individuals that perform the desired functions most effectively and can eventually degenerate to '1/n [egalitarian] support policies' by 'equally' supporting all companies and individuals that perform the targeted functions irrespective of market performance. For this reason, functional targeting policies are highly likely to fail to achieve the intended objectives. In fact, this problem arose in Korea during the transition from specific industry support to production-factor functional promotion in the late 1980s.

Turning now to my second example, the General Theory of Economic Development regards only 'firms' as subject to discrimination policy, as economic subjects responding to policy incentives provided by governments. Accordingly, support policies should target 'firms', not industries or the functions of production factors; ultimately, a policy of promoting specific firms can be the most desirable industrial policy.[14] Even so, there still remains the thorny issue of selecting specific industry or sector in choosing which firms to support, for which we can only suggest that governments might study the successful experience of neighbouring countries, or of countries that developed earlier, in selecting industries to foster. It should respect firms' choices of industry or sector as much as possible rather than choose a firm then seek to change its direction.

The third issue governments face in promoting industry pertains to how the support is provided. As discussed above, the market is a *device for discrimination*, which selects winners and allocates resources to its chosen winners. In fact the market is implementing industrial policy at every

[14] Interestingly, Devarajan (2016) has recently argued that one of the reasons for the failure of industrial policies to date is that they have targeted industries rather than 'firms'.

moment by picking and supporting winners, i.e. discriminating in their economic favour. However, the discrimination function can fail owing to the free riding of market participants. Where this occurs, government intervention and its industry promotion policies, through discrimination policies, should give preference to market winners to achieve an economic leap forward. In the end, the General Theory of Economic Development holds that the core of industrial policies is that governments select companies that achieve excellent market performance and support them discriminatingly, just as the market does every day, though imperfectly.

In addition, governments should implement such discrimination policies on a regular basis, not on a one-off basis, to promote competition among companies and restrict moral hazard or rent-seeking activities. For example, by regularly reviewing the market performance of beneficiary companies it selects for support, it is possible to maintain the dynamics of motivation while sustaining and maintaining competition among firms at high levels. In doing so, the companies can be prevented from enjoying permanent benefits from the initial selection. Finally, so firms will accept the selections of governments without objection, the criteria for evaluating and selecting beneficiary firms must be institutionalised in a fair and transparent way and enforced strictly. It is only when these criteria are fair and transparent that a firm promotion policy can perform its role of establishing accepted rules for the game.

Based on the discussions thus far, we present 'a manual for successful industrial policy' in accordance with the principle of reward and penalty:

1) Economic policies should target firms rather than industries, and the targets of these policies should be individual companies, not functions, sectors or industries.
2) Study the success experiences of developed or neighbouring countries when selecting industries to foster.
3) The government should respect the choices of each firm as far as possible rather than seek to manage these. The firms will choose industry and government will select the firms.

4) Companies should not be selected for support in advance but by reference to *ex post* market performance, which will work as criteria for selection. Companies that outperform others should benefit from the support.
5) As a lead policy actor, the government should establish the market system so that support can naturally be given to companies with excellent performance in accordance with the principle of economic discrimination.
6) The government must fairly evaluate companies and review its selected beneficiaries each market period. To prevent the selected companies from enjoying permanent benefits from the initial one-off selection, it is necessary to maintain competition among companies, which can help prevent moral hazard and rent-seeking activities and avoid the conventional negative consequences of industrial policy such as monopoly or cosy relations between politics and business.
7) The entire policy-making process should be implemented fairly and transparently and institutionalised so that the corporate promotion policy can be recognised as the right rules for the game. Thus firms will willingly accept and participate in the process, which can help maximise the motivational effect.
8) The government should expand the market's function of supplying production factors to companies based on economic discrimination, rather than on egalitarianism. It must always apply the 'discrimination principle' based on *reward and penalty* to the implementation of policies such as supply of capital, education and manpower, and research and development policies.[15]

Examples of success and failure of industrial policy in Korea

This section evaluates Korea's past industrial policies in light of the 'new principle of industrial policy' presented above, namely discriminatory corporate support based on market performance.[16]

[15] The government's policies to foster private sector capacity are, in principle, classified as industrial policies. Therefore, in all cases the principle of economic discrimination must be applied for the success of these policies.
[16] See Jwa (2010) for details.

Successful industrial policies: discriminatory support based on market performance

In light of the eight principles discussed above, the following are some of the successful industrial policies implemented in Korea in the past.

The first was the 'export industry promotion policy' of the 1960s and 1970s. The government discriminatingly supported companies with excellent export performance and induced outstanding companies to acquire and merge with companies with poor export performance. At the same time, it supported small and medium-sized enterprises (SMEs) with substantial export records, and encouraged these to acquire and merge with SMEs making few or no exports, so that the latter were removed from the market. In addition, the government discriminatingly supported factories having higher productivity than others in the process of transforming *saemaeul* (new village) factories into export companies. In this way, it supported excellent companies by applying the principle of discrimination to the industrial support policies implemented in the 1960s and 1970s.

The second successful policy was the promotion of the heavy-chemical industry during the 1970s, which was discussed in the first section of this article. The government required companies to procure substantial investment on their own, thereby allowing only the firms that succeeded by surpassing others in export competition to expand into the heavy-chemical industry. It then supported these companies through matching fund programmes. At that time, the companies and SMEs that were excluded from the export support programme were given no support, or opportunities to take part in exchange for equity, and neither were companies located in certain regions.

A third successful policy was the promotion of the electronics, information and telecommunications industries during the 1980s. The Korean government, while strengthening regulatory policy against large companies, allowed some of these—including Samsung, Hyundai, LG, Maxon, SK and KT—to expand into the electronics, information and telecommunication industries, to increase the efficiency and the potential for policy success. Although preferential treatment to SMEs was considered politically and morally desirable in the social atmosphere of the time, the government adopted the principle of discrimination rather than egalitarianism and gave opportunities only to large corporations that had already proved successful in the market.

The fourth was the promotion of the film industry during the 1990s. By that decade, the film industry had been excluded from SME-sanctuary (see following sub-section), and large-scale capital and investment was permitted in this industry. Regulations easing entry to the film industry led to integrated management of production, distribution and screening, and economies of scope were finally achieved in this sector. In addition, gradual easing of the screen quota system, which had limited imports of foreign films, created a competitive environment for the domestic film industry. From the mid-1990s onward, several large corporations advanced into the film industry but most, including Samsung, Daewoo, Hyundai and Dongyang, experienced failures and only Lotte and CJ have achieved success in films. This outcome has become a case study demonstrating that large corporations are not always successful in the film industry.[17]

The fifth successful policy was the Saemaeul Undong, meaning 'New Village Movement', that started in the early 1970s. Surprisingly, the Saemaeul Undong was promoted with a strict performance-based incentive system based on reward and penalty. The movement provided greater support and aid to local communities with good performance. In contrast, those with no or poor performance were excluded from benefit. This strict discrimination strategy strongly motivated villages to improve performance. As a result, by about four years after the introduction of the movement, the average household income of rural communities in Korea had reached the same level as that of urban communities. In a short period of seven years, 98% of 34,000 villages were transformed into 'successful, self-reliant villages'.[18]

In these policies, the Korean government adhered to the 'principle of discrimination' not only under *reward and penalty* but also based on market performance. The policy of supporting only outstanding firms and villages resulted in the success of these policies.

[17] See Jwa and Lee (2006) for details of the successful progress of the Korean film industry.
[18] For the detailed success principle and history of the Saemaeul Undong, refer to Jwa (2014 and 2018).

Failed industrial policies: egalitarian policies

In trying to implement industry promotion policies, as with other policies, governments' wrong judgement can lead to wasted budgets or performance that compares badly to the resources and efforts invested. The following are examples of some failures of Korea's past industrial policies.

The first was the policy of promoting the film industry of the Park Chung-hee government in the 1960s and 1970s. At that time, the film industry was designated and protected as a 'sanctuary' for SMEs, which meant film production businesses were small-scale. In those days the film business sector was subdivided into production, distribution and screening, and cinemas monopolised demand, which impeded the growth of film production companies and further reduced the scale of their businesses. This led to the failure of the film industry, which could not achieve economies of scope. Nonetheless, the government adopted a policy of favouring companies that performed relatively well, through the allocation of distribution rights for imported foreign films. However, the criteria for evaluating 'performance' focused on the number of films, rather than the final net profit or the artistry of the films. The quantity of domestic film production businesses grew, but quality failed to develop. What is interesting is that, like other successful industrial policies enforced by the Park Chung-hee government, the film industry promotion policy was based on economic discrimination, but in this case it failed owing to the selection of unsuitable performance evaluation standards.[19]

The second example was the policy of promoting venture industry under the Kim Dae-jung government. The government sought to foster the venture industry as a new industrial force to restore balance to a domestic economy that was biased towards large conglomerates. This idea was not based on the principle of discrimination, but on the administration's 'economic democratisation' ideology, which emphasised egalitarianism. The government attempted to imitate the industrial policies enforced during the Korean development era, but the principle of discrimination, which is the most important success factor in industrial policies, gave way to the political

[19] For further examination, see Jwa and Lee (2006).

ideology of egalitarianism or political logic of anti-discrimination. While the government conducted various evaluations in the process of selecting beneficiary venture companies, these focused only on the business owners' educational background and careers, and failed to assess true business capabilities. In particular, after selecting the beneficiary businesses, performance evaluations that ought to have determined whether support would continue or cease were not conducted properly. As a result, the companies selected enjoyed continuing benefits after the initial selection, and moral hazard and rent-seeking activities became pervasive among them.

The third example was the promotion of 'ten major growth engines' under the Roh Moo-hyun government. The industries designated as 'growth engines',[20] also called future-oriented industries, appeared promising and profitable; they remain difficult areas in which to succeed because technological breakthroughs and sizeable capital are required, and even the top companies in Korea are challenged. Nevertheless, the administration approached these industries with a strategy that apparently aimed at distributing these 'good' businesses equally among as many companies as possible. The government enforced the policy based on an *egalitarian* ideology, instead of the principle of discrimination, by favouring consortia of SMEs and preventing some large conglomerates from participating. As a result, the policy performed relatively poorly in comparison with the amount of effort and money that was invested.

The fourth example of a failed policy was the promotion of 'green growth industry' by the Lee Myung-bak government. It aimed to foster 1,000 'green SMEs' and provided support to them, which resulted in only nominal achievements. The government provided *equal support* to all SMEs, which were selected using very loose criteria that did little to check green credentials, and companies were included in the beneficiary group without reference to performance and capability, the opposite of economic discrimination based on market performance. This policy is a typical example of failed functional targeting.

[20]The ten major 'growth engine industries' included intelligent robots, future automobiles, next-generation semiconductors, digital TV and broadcasting, next-generation mobile communication, display, intelligent home networks, digital content/software, next-generation battery, and bio-drugs and bio-organs (organ cloning and transplantation).

The last three industrial policy failures were based on ideologies of egalitarianism and economic democratisation, rather than the principle of economic discrimination. Conversely, the film industry promotion policy failed because the wrong targets were chosen, even though support for economic discrimination was rightly adopted.

Lessons from past experience in Korea

However, the policies considered above are just some examples of failed industrial policies. For the past 30 years, Korea's economic policies have been reduced to support policies for 'vulnerable groups' and transformed into 'social policies', though they all claimed to be 'industrial promotion policies'. If a policy of economic development that ought to follow the principle of economic discrimination is reduced to an *egalitarian allocation policy*, it can hardly contribute to economic development. Today, most government industrial policies have ultimately become economically *non-discriminatory*, or equal distribution, policies. The economic trend growth rate in Korea has fallen to around *2%* per annum. This is due to anti-discriminatory or *egalitarian* industrial and corporate policies that have ignored market performance over the last 30 years.[21]

While the discriminatory SME promotion policy that was successful during the Park Chung-hee administration created the large conglomerate ecosystem that is still leading the Korean economy, the *egalitarian* SME policies enforced during the last 30 years have not produced a single manufacturing-centred large enterprise. The egalitarian SME policies have ignored differences in performance among SMEs and provided equal support (1/n support) to all of them, which is discrimination against those SMEs that exhibit higher performance. This system has removed growth incentives from the SME ecosystem and thereby created a 'lame' ecosystem. It is unfair to attribute these problems simply to the concentration of economic power on large conglomerates and monopoly. From the end of the 1980s, the number of strong mid-sized companies in Korea's corporate ecosystem steadily declined and at present is stagnant. SMEs, on the other

[21] Anti-discriminatory corporate policies counteract the motivation of companies to achieve growth.

hand, continue to grow in number despite falls in the growth index every year. This can be the result of a combination of policies to regulate against the growth of large enterprises and egalitarian policies to promote SMEs regardless of quality.[22] Moreover, it is a key proposition of the General Theory of Economic Development that an economy in which corporate growth is stagnant cannot achieve dynamic economic growth.

Moreover, the Saemaeul Undong, which was led by the Park Chung-hee government's discriminatory policy and changed the nation into 'self-helping' people, explicitly abandoned the principle of discrimination and changed to an egalitarian promotion policy from the 1980s, and especially after the democratisation of the 1990s. This transition influenced farmers to regress into people who do not help themselves, and blame others and society for their failures. Today, Korea is rejecting self-help: ordinary citizens and corporations, as well as farmers, blame their own failures on others, their society and even their country. This is a consequence of the anti-discriminatory or egalitarian economic policies and ideology that have prevailed throughout Korean society and removed incentives for self-helping growth.

From Korea's industrial policy experiences over the last six decades, one can learn the following lesson: government policies for promoting the public as well as the private sector, whether economic or social, lead to the waste of resources, damage the instinct to self-help and the independent spirit of beneficiaries, and prompt a downward standardisation of individual and national economy, if they do not follow the principle of discrimination based on differences in performance. This is also a key lesson of the General Theory of Economic Development.

The discussion thus far can be summarised as follows.

<Proposition 4> *The experience of Korea's past industrial policies is that those based on the principle of discrimination achieved great success, while those based on egalitarianism and economic democratisation ended in failure or achieved only nominal successes incommensurate with the investment. Accordingly, the 'theory of new industrial policy' based on the principle of economic discrimination which is*

[22] For detailed consideration of this, see Jwa (2006).

advocated by the General Theory of Economic Development is consistent with Korea's experience of industrial policies over the last 60 years.

Concluding Remarks

Korea's mainstream economics academia has attempted to describe the success formula behind the development era of Korea as a strategy of 'export-led growth'. This viewpoint involves various distortions in theory and policy. Although it complies with the market-oriented theory of comparative advantage, it fails to logically explain how an export-led growth policy can guarantee transition from a cart-manufacturing economy in a farming society to an automobile-manufacturing economy, or how such a policy can lead to rapid 'economic development'. This viewpoint of mainstream economics has also involved a major distortion to the interpretation of the success of Korean economic development by underestimating the government's active *industrial* policy efforts to achieve the advancement of the industrial structure from a cart, to an automobile, and ultimately to an aeroplane economy. Moreover, the 'export-led growth hypothesis' can lead to a misunderstanding that the advancement of the Korean industrial structure was achieved by exports alone, or the mysterious power of the global trade market. Finally, those with extreme perspectives have even indicated that Korea's economic growth should have reached a higher level than that which the country actually attained during the development era—annual average growth of 9% during the 1960s and the 1980s—had it not been for the government's 'unnecessary intervention' in promoting the heavy-chemical industry.[23]

However, the export-led growth hypothesis of mainstream economics fails to answer three questions. First, how did an economy with a comparative advantage in agriculture and light industry leap forward into a capital-intensive, or knowledge-based, economy solely by participating in the global export market and relying on the market? Second, why poor countries with a national average per capita income of less than US$10,000, which account for

[23] See the Compilation Committee for the 60-Year History of Korean Economy (2010, Volume 1), Sakong and Koh (2010), and Yoo (2004).

three-quarters of the world, have not yet entered the industrialisation stage despite the rapid globalisation of the international trade market that took place for more than three-quarters of a century after the Second World War. Finally, how can a country increase its exports and overcome fierce international competition, despite the great priority that such competition assigns to exports? If the export-led growth hypothesis cannot answer these questions, it is difficult to assign it theoretical and empirical validity, and the hypothesis will not be of practical use to underdeveloped or developing countries. The assertion that increased exports lead to growth of a national economy is only a redundant outgrowth of the statement that export itself is a subset of economic growth. In addition, if the hypothesis cannot provide information on how to increase exports or succeed in exporting, it can hardly contribute to economic development.

Several key assertions presented in this article and their implications can be summarised as follows. First, this article asserts that Korea's past discriminatory government policies of corporate support were based on export performance and enforced in accordance with the principle of economic discrimination which is the universal function of the market. These past policies contributed to the country's economic leap forward by increasing exports and motivating export companies to attain growth. The article also asserts that *government-led discriminatory policies* to promote export industry and corporations based on the principle of reward and penalty, which complemented the discrimination function of the market, greatly contributed to the 'miraculous' increase in exports from Korea. In particular, we consider the discriminatory support policies based on market performance a 'great policy innovation' that transcended the limited scope of textbook export support policies.

Second, this article emphasised that the *discriminatory* corporate support policies and the policy of promoting the heavy-chemical industry based on export performance were able to achieve success because they respected the discrimination function of the market and market performance. That is, this article stressed that only industrial policies which select *ex post* winners for benefit based on market performance can secure success or at least greatly increase its possibility. For this reason, we named the new theory of industrial policy presented in this article a 'theory of pro-market industrial policy'. Mainstream economics regards the notion of pro-market industrial policy as a contradiction, but it does not contradict our General Theory of Economic Development which postulates that economic discrimination by both market and government policies can contribute to a country's economic leaps.

Third, this article argued that Korea's economic development was led by 'corporate growth' and therefore followed a 'corporation-led national prosperity and development paradigm'. This is a model in which a national economy grows as corporations grow. The policy efforts of the government to spur corporate growth through industrial policies drove Korea's economic development. Korea's corporate support policies succeeded in fostering companies with global competitiveness in a short period of time. This was achieved by amplifying the growth rate of enterprises by reinforcing the discrimination function of the market through concentrating resources on competent companies. The corporate support policies had two primary components: export promotion, which favoured and supported only companies with substantial exports, and the policy of promoting heavy-chemical industry, which allowed only the companies most competitive in export to advance in the industry. These policies favoured companies with excellent market performance in accordance with the principle of reward and penalty and the precept that heaven helps those who help themselves, restricted free riding and motivated all companies to strive for growth. These economically discriminatory policies induced Korean companies and ordinary citizens to strive to outperform others over around 20 years from the 1960s to the 1970s, leading to the achievement of the 'Miracle on the Han River'.

Lastly, latecomers who want to follow the success model of Korea are recommended to bear in mind the following lessons from the country's experiences. Even though economically discriminatory government industrial policies laid the foundation for Korea's success in industrialisation, these policies were not a *sufficient*, but a *necessary* condition for economic development. Only when the policies took into account the development of physical, social and human infrastructure for comprehensive national construction and economic development did they achieve success and contribute to economic development. Specifically, economic development requires the establishment of institutional and physical infrastructure for pro-corporate growth such as the development of a market economy and an open economy system, the establishment of a system of property rights and the protection of economic freedom, the enhancement of both general and science/technology education, and promotion of the financial industry and of industrial complexes. Of course, these systems and policies can achieve the intended goals only when they are introduced and implemented to follow the principle of economic discrimination based on reward and penalty.

References

Acemoglu, Daron and James A. Robinson (2012). *Why Nations Fail: The Origins of Power, Prosperity, and Poverty,* New York: Crown Publishers.

Chandler, Alfred D. Jr (1977). *The Visible Hand: The Managerial Revolution in American Business*, Cambridge, MA and London: The Belknap Press of Harvard University Press.

Chang, Ha-Joon (2002). *Kicking Away the Ladder: Development Strategy in Historical Perspective,* London: Anthem Press.

Committee for the 60-Year History of Korean Economy, (2010). *The 60-Year History of Korean Economy*, Sejong: Korea Development Institute (in Korean).

Devarajan, Shanta (2016). Three reasons why industrial policy fails. Future Development conference, Brookings Institution, 14 January 2016.

Hayek, Friedrich von (1984). Competition as a discovery procedure. In Nishiyama Chiaki and Kurt R. Leube (eds), *The Essence of Hayek*, Stanford, CA: Hoover Institution Press.

Jang, Ha-sung (2017). The Korean economy that the nation want: coordinates and goals. Paper presented at the annual meeting of Korea's Allied Economic Associations, Seoul, Korea (in Korean).

Jwa, Sung-Hee (1994). *The Operation of Korean Economy in the Globalized Era: Exploring a New Policy Paradigm*, Sejong: Korea Development Institute (in Korean).

Jwa, Sung-Hee (2006). *A New Wealth of Nations*, Seoul: Good Information Publisher (in Korean).

Jwa, Sung-Hee (2008). *Philosophical Foundation for Economic Development*, Seoul: Seoul National University Press (in Korean).

Jwa, Sung-Hee (2010). *Success Economics of Korea*, Seoul: Irwoldam (in Korean).

Jwa, Sung-Hee (2014). The success principle of Saemaeul Undong and its economic implications. In *Saemaeul Undong and Community Development Studies*, Vol. 10, Gumi: Kyungwoon University Saemaeul Academy (in Korean).

Jwa, Sung-Hee (2017a). *A General Theory of Economic Development: Towards A Capitalist Manifesto*, Cheltenham: Edward Elgar.

Jwa, Sung-Hee (2017b). *The Rise and Fall of Korea's Economic Development; Lessons for the Developing and Developed Economies*, Cham, Switzerland: Palgrave Macmillan.

Jwa, Sung-Hee (2018). Understanding Korea's Saemaul Undong: theory, evidence, and implication. *Seoul Journal of Economics* **31**, 2, pp. 195–236.

Jwa, Sung-Hee and Sung-Kyu Lee (2018). Myths and truths about Korea's industrialization strategy: searching for a new market-friendly industrial policy theory. *Review of Institution and Economics* **12**, 4, pp. 29-60 (in Korean).

Jwa, Sung-Hee and Tae-Kyu Lee (2006). *The Structural Change and the Development of the Korean Movie Industry with a Focus on Vertical Integration*, Seoul: The Korea Economic Research Institute (in Korean).

Kim, Gwang-mo (2004). *Park Chung-Hee's Devotion to the Heavy-Chemical Industry*, Seoul: Gipa Rang (in Korean).

Kim, Hyeong-a (2005). *A Double-Edged Sword,* Seoul: Ilchokak (in Korean).

Kim, Jeong-ryeom (1995). *The 30-Year History of Korean Economy: Kim Jeong Ryeom's Memoirs,* Seoul: JoongAng Ilbo (in Korean).

Korea Development Institute (1995). *The Korean Economy from 1945 to 1995: Performance and Vision for the 21st Century*, Sejong: Korea Development Institute (in Korean).

Oh, Won-cheol (1996). *The Construction of a Korean-Style Economy,* Seoul: KIA Economic Research Institute (in Korean).

Oh, Won-cheol (2006). *A Dauntless Spirit and the Miracle on the Han River: How Park Chung-hee Made an Economic Powerhouse*, Seoul: Dong Suh Book (in Korean).

Park, Gi-ju et al. (2014). *The Heavy-Chemical Industrialization of Korea and Changes in the Society,* The National Museum of Korean Contemporary History Collection Vol. 3., Seoul: The National Museum of Korean Contemporary History (in Korean).

Park, Yeong-gu (2008). *An Introduction to the Study on the Korean Heavy-Chemical Industrialization,* Seoul: Haenam Publishing Co (in Korean).

Rodrik, Dani (2008). Normalizing industrial policy. A paper prepared for the Commission on Growth and Development, available at http://j.mp/1RO8XcY, accessed 1 June 2016.

Sakong, Il and Youngsun Koh (eds) (2010). *The Korean Economy: Six Decades of Growth and Development,* The Committee for the 60-years History of Korean Economy, Sejong: Korea Development Institute (in Korean).

Simon, Herbert A. (1991). Organizations and markets. *Journal of Economic Perspectives* 5, 2, pp. 25–44.

Thaler, Richard H. and Cass R. Sunstein (2009). *Nudge: Improving Decisions about Health, Wealth, and Happiness* (Jin-Hwan Ahn, trans.), Seoul: Readers Book. (Originally published 2008.)

Yoo, Jung-ho (2004). *The Key to Survival: The Eradication of Government Control and the Pursuit of Market Economy*, Chaeksesang Collection Our Times, Seoul: Chaeksesang (in Korean).