Rationales and Impacts of China's Industrial Policy since 1978

Course: ECO435

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1. Introduction

Industrial policies are the policies adopted by the state to achieve specific economic and social goals. Appropriate industrial policies can boost productivity and productivity growth, especially pro-competitive ones. When there are market distortions, industrial policy can promote the improvement of market structure and market mechanism. By tilting the resource allocation and optimizing the resource structure, the evolution and development of the industrial structure can be accelerated (Pack & Saggi, 2006). With the absence of industrial policies, innovative companies often operate in different industries to cope with low-price competition in the market, resulting in a high degree of concentration in the industry, and the monopolists have weak innovation motivation. (Aghion et al., 2015). In this context, industry policies that encourage companies to conduct business, such as implementing tax holidays or other tax subsidy programs, will reduce the degree of concentration in the target industry and enhance the industry's innovation capabilities.

However, some scholars believe that China's industrial policies have limited roles and effects and even hinder industrial upgrading and innovation. They insist that China's industrial structure policy focuses on identifying key industries that need to be vigorously supported in a certain period. However, the government basically fails to predict key industries successfully in the past (Ai ginger et al., 2020). Besides, the explicit scale orientation of China's industrial policy coupled with implicit ownership discrimination has resulted in excessive resources flowing to large state-owned enterprises that do not have an advantage in efficiency, while private SMEs have difficulty to get support

The article examines the impact of industrial policy on productivity by examining China's industrial reform after the founding of China in the past seventy years. If China's industrial policies are more pro-competitive, then the industrial policy would have a more significant positive effect on productivity improvement. For example, the industrial policy encourages

young companies to improve competitiveness and plays a more active and conspicuous role in developing productivity by granting subsidies or tax exemptions.

2. Chinese Industrial Policy Process

Industry plays an essential role in the development of China. Firstly, Industry contributes high-added value and income to the national economy. China's industrial added value has increased 1000 times from 1952 to today, significantly from 12 billion RMB to over 30 trillion. Secondly, in the post-reform era, the production industry is exposed to competition and ultimately promotes the firm's upgrading, which increases productivity. Improving productivity is critical for China's economic growth. Thirdly, industry is also the source of national defense strength. With the vast-size and advanced industrial foundation, the country could produce weapons, and the defense forces would be enhanced.

Since the country's founding, China has gone through different stages of development, and the Chinese industrial policies are developed gradually according to the context of the times. The first is the first thirty years since the foundation of the People's Republic of China, then the next twenty years of reform and opening, and the third is for the twentieth century. In this essay, we will discuss industrial policy and its effects in different stages in chronological order.

2.1 Thirty Years after the Founding

The People's Republic of China was founded in 1949. And immediately after the foundation, the state devoted itself to constructing a socialist planned economic model for a long time, to start its industrialization. The government directly regulated the proportion of structure among industries and allocated all the resources and raw materials among industries.

During the first fifteen years since the foundation of New China, CCP set industrial construction and heavy industry development as the policy center of this stage. The reason for such a policy arrangement was that the iron and steel industry is an essential pillar of national

economic development. The government invested 2.16 billion yuan in heavy industries such as iron and steel during the first five-year plan, and this decision extensively restored the production of the existing enterprises that survived successive years of wars, and numerous new enterprises were also established (单丹, 2008). Moreover, the heavy investment and experts' assistance from Soviet Union contributed to technological progress significantly. Based on these, during the first-five-year plan period, the heavy industry was well established. First, this industrial policy directly adjusted the structure and layout of the steel industry. Secondly, the market demand for steel products had further expanded due to the need to restore the national economy and speed up economic construction. Judging from the actual effect, the above policies effectively promoted industrial production and operation at that time, established a standard order, adjusting the relationship between enterprises, promoted the rapid recovery and development of industrial production, and played a positive role in the rational allocation of resources.

However, in the second five-year plan period, China experienced an improper industrial policy known as the "Great Leap Forward." At that time, the central government went against objective conditions and propagandized, "Take steel as the key link, make a leap forward in all fields." The government aimed at catching up with Britain in 7 years and catching up with the United States in 15 years, which then proved to be too radical. Due to the lack of construction experience and insufficient understanding of economic development, the Great Leap Forward resulted in a severe imbalance of the proportional relationship of the national economy. After realizing the drawbacks of the Great Leap Forward, the government began to adjust its industrial policy. During the "Fourth Five-Year Plan" period (1971~1975), the government began to adjust the economic development strategy to improve economic efficiency. During the "Fifth Five-Year Plan" period (1976~1980), the government gave a lot of preferential policy support and initially established a relatively complete industrial system. Overall, industrial

policy in this period was highly targeted. The planner makes the decision for the economy instead of the market, with bureaucratic resource allocation replacing market coordination (Naughton, 2021).

2.2 Industrial Reform after 1978

China underwent a "reform and opening up" policy in 1978. The most notable feature of China's policy orientation was to institute a market-oriented system to open to the world during that period and concentrate on economic construction.

The policy that supports export processing was one of the most effective of the many industrial policies in this period. Under this system, China was opening up at a high speed. One of the primary reasons was that China offered special preferential treatment to export processing enterprises. Initially, the raw materials and products imported for the processing and production of export products were encouraged by tax incentives, which attracted a large number of foreign enterprises, bringing technology and management experience to China, while China provided cheap labor. After that, the tariff revenue as a proportion of the value of imported goods peaked in the 1980s (around 16%). In 1987 the Chinese government furtherly extended duty-free policies, and all imports of raw materials, components, and parts became duty-free. By 1994 tariff revenue as a percentage of the value of imported goods had fallen to a low of 3% (Branstetter & Lardy, 2007). The massive decline in the proportion can be directly reflected in the expansion of foreign direct investment and the fact that China's export processing industry is snowballing (Branstetter & Lardy, 2007). With the high development of the manufacturing industry, China had preliminarily solved the problem of escaping from poverty and would be able to achieve higher-level goals. During the seventh five-year plan of "1986-1990", China tried to adjust the industrial structure from extensive to intensive and supported the adjustment with related industrial policies. China proposed the strategy of developing sustainable development and, on this basis, formulated an industrial policy

dominated by specific industries, and these policies helped to accomplish a higher level of development.

This stage spanned the "Sixth Five-Year Plan" to the "Ninth Five-Year Plan." During this time, China's market economy had been gradually founded, and industrial policy was still essential but not the only driving force influencing the economy. Market participants represented by enterprises are performing a progressively significant role. The Chinese government gradually opened up the market from the original complete control of the economy. It propelled economic growth and directed the overall upgrading of the industrial structure.

2.3 Step into the New Era after 2000

China's accession to the WTO in 2001 opened a new industrial phase. In this stage, China concentrated on establishing a unified, open, competitive, and orderly market economic system, and such a market system would play an essential role in resource allocation. Meanwhile, it was also proposed to solve the problem of unbalanced and insufficient development and strive to enhance the quality and efficiency of development. These policies coincided with the situation in China, and the next fifteen years witnessed China's fast growth in the economy. For example, it could be measured by Gross Domestic Product (GDP); China's economy expanded seven times in these fifteen years. However, for further development and economic growth, the industry's quality needs to be further enhanced, as high-end manufacturing industries need to be highly developed. Investment is not the key to growth, but scientific (technology). To overcome the middle-income trap and to avoid being subject to patent issues, China gradually strengthened operational industrial policies concentrating on the most advanced industries, and industrial innovation policies received rising attention. For instance, the National Development and Reform Commission issued a "Made in China 2025" document in 2015.

The MIC25 strategy documents highlighted the importance of the manufacturing industry in the national economy and recognized the manufacturing industry as a vital tool for rejuvenating the country. Following these industry policies, China has focused its development on emerging industries, especially on the most advanced information technology and new materials, which were significant to the country's digital and high-tech development. According to national conditions and reality, China government had put forward a "three-step" development strategy. The first goal was to build a large production country within ten years. Its primary task was to realize industrialization by 2020 and become a world manufacturing power. Industrial informatization and environmental protection technologies development were essential to the first goal. Then the second step was to make substantial breakthroughs in the major fields, strengthening the overall competitiveness of the manufacturing industry by 2035. And in some profitable industries, leading positions in innovation would then be formed, realizing a comprehensive advancement of industrialization. And the third step was to strengthen its status as a major manufacturing country by 2050, and China will have a world-leading manufacturing industry at that time. This strategy was a crucial driving force for industrial development. The government delivered financial assistance and artificial needs for future technological development. For instance, the government used favorable policies or tax incentives to quickly convert ideas in specific fields into products suitable for the general public. Nowadays, more than 530 industrial parks throughout China have been constructed, and these parks would boost the development of high-end manufacturing industries, build substantial technology barriers in these areas of industry such as big data, new materials, cloud computing, artificial intelligence, new energy, innovative and linked cars, etc.

3. Purposes, Reasons, and Effect of Applying Industrial Policies in China

After discussing the evolution of industrial policies in China throughout its history, it is clear that industrial policies have both positive and negative effects on China’s economy. Then,

questions arise: what are the rationales behind those policies? What are the outcomes of different policies? And more importantly, which factors make the "good" industrial policies? To answers questions, we introduce the work done by Pack and Saggi (2006) as the framework. Industrial policies could not yield a socially optimal result if the market is efficient. However, some of the most important national policy objectives (equality of opportunity for all citizens, pollution control, climate change, etc.) are often not reflected in market prices (Stiglitz et al., 2013). Also, the positive externalities, such as knowledge spillover and informational externality could justify the use of industrial policies (Pack & Saggi, 2006). Therefore, in the following paragraph, we will examine China's industrial policies based on the theories listed above, together with China's political and economic status in different eras.

In the pre-reform era, Chin's industrial policies focused on heavy industry. Instead of choosing industrialization driven by the development of light industry operated by the private sector, the government chose to implement Soviet-style state capitalism started after the introduction of the first "Five-year plan" (1955). The industrial policies in this period did not fully utilize China's comparative advantages in cheap labor forces, which has been criticized a lot. After the study, we found several reasons that could explain China's implementation of these "un-satisfied" industrial policies. The first reason is the negative externality caused by national security concerns. The Korean War between 1950 and 1953 generated conflicts between China and other developed counties (especially the U.S.). The nuclear blackmail (Truman, 1950) and the wide military equipment gap forced China to support the heavy industry to enhance its military force in a short time but not focus on the labor-intensive light industry in which China had the comparative advantages. Second, the ideological and military clashes have driven U.S. sanctions on China since 1951 (U.N., 1951), and this sanction was not eased until 1973. The sanction caused an incomplete market that prevented China from accessing raw materials, technology, and FDI in the global market. To acquire the know-how

and investment necessary for industrialization, China has no option but to adopt Soviet-style political and economic institutions to initialize industrialization. Nevertheless, due to information constraints, a government cannot continuously select the correct sectors that have comparative advantages without the market. As Klimenko (2004) shows in his paper, with informational constraints, the industrial policies led China to specialize in sectors in which it does not have comparative advantages (e.g., The Great Leap Forward). Also, the industrial policy as a part of economic institutions which is controlled by the group with de facto political power (Acemoglu et al., 2004), could be only beneficial for a small group of people instead of the general population, causing the market failure and slowing the economic growth.

In the post-reform era, with marketization, China's industrial policies focused more on the export processing industry, which has comparative advantages in a cheap labor force. However, to what extent we should credit economic growth to industrial policies is still highly debatable. We believe China's industrial policies in the post-reform era have had some positive effects on the economics of China in terms of properly treating the knowledge spillover and information externality. On the other hand, we believe that these industrial policies caused several negative externalities, which used to be masked by rapid economic growth.

As discussed in section 2, China's industrial policies give special privileges to the firms involved in export processing. Furthermore, the 22 Regulations gave additional benefits to foreign investments that are considered "export-oriented" projects or "technologically advanced" projects (Branstetter & Nicholas,2007). These industrial policies chose to develop a labor-intensive industry with comparative advantages, which can be considered an excellent example of government interventions with market participation. More importantly, in this case, the government compensates foreign investments for their introduction of technology. China's economy could benefit from the knowledge spillover, which the market could not optimize (Stiglitz et al., 2013). Also, due to the informational externalities, no entrepreneur would be

willing to make the sunk investment to discover the profitable sector, as the investment could not increase their return (Stiglitz et al., 2013). Since China rapidly changed its economic institution with very limited reform experience, entrepreneurs' concern about business uncertainty highly decreases their investment incentives. The industrial policies could compensate foreign and domestic companies for taking the risk of entering the market, generating positive externality which stimulates the "learning" of whole economy. From exporting perspective, the information asymmetry between China and other countries at the beginning of the reform could cause market failure. The privilege given to the "exported-oriented" project could help China to gain a reputation in the global market (Mayer, 1984), which is beneficial for all the businesses of China.

However, China's industrial policies in the post-reform era generated some negative externalities, which are often ignored due to the rapid growth. In 1981 and 1987, the government-imposed constraints on village-owned companies, avoiding competition between urban and rural industries. From 1983, there was a significant decrease in the income of rural citizens for three years, forcing them to find a job in the cities. The easing constraints on migration were also introduced, providing a large number of cheap labors to urban areas (Wen, 2012). However, these labors were not entitled to any social benefits in the urban areas due to their non-hukou population identity (Yep et al., 2019). The policies created cheap labor forces in the cities, which are the comparative advantage of China in the labor-intensive industry that contributed a lot to the economic growth. Nevertheless, from another perspective, industrial policies worsen the social inequality between urban and rural populations, and the market could not correctly solve this negative externality. Instead, it required further government intervention to correct the market failure.

As China's comparative advantage in (unskilled) labor-intensive manufacturing was fading, China hoped to move toward a new comparative advantage in high-skill and technology-

intensive sectors (Naughton, 2021). We believe new industrial policies should be introduced to achieve this goal since the free market can only ensure static efficiency but not dynamic efficiency. Based on this theory, China should selectively support the industries that could generate knowledge spillover to sustain economic growth further. Then a question arises: could these projects be selected entirely depending on the market? Industrial policies would be unnecessary if the market could accomplish this job. After carefully considering China's scenario, we believe the industrial policies are necessary since they could solve the following problems.

First, advanced technology research nowadays has longer payback than before, such as Human Genome Project. It would be impossible to find potential investors whose expected holding period is around 5 - 10 years. From this perspective, the capital market may fail to finance projects with long payback periods. The financial market failure could let the country to give up long-term projects, which has a significant knowledge spillover effect (Pack & Saggi, 2006). Although China would take tremendous risks when it tries to support long-term projects (e.g., new equipment, next-generation IT, new materials, and new energy & new energy-saving) (Zenglein & Holzmann, 2019), it will be worthy to pursue the new industries which could generate high knowledge spillover.

Second, these giant projects require a high level of coordination which is hard to be organized purely through the market (Pack & Saggi, 2006). This concern is realistic considering the ideological conflicts between China and the West. Due to the conflicts, China could be in a situation where it may not be able to access critical intermediate goods, like the US-China "trade war" (Naughton, 2021). Therefore, to mitigate the risks, China's government can coordinate between x and y producers by facilitating information exchange.

In Chinese history, from 1949 to the resent, many internal and external constraints have been imposed on the economics of China, causing market failure. Different industrial policies

made in different periods are necessary for China's economic growth, although many negatively impact the economic growth and create negative externalities (increasing inequality, population). Instead of judging whether the government should have industrial policies, we believe the government of China should consider how it could make good industrial policies that could mitigate the market inefficiency due to externalities.

4. China's Industrial Policies and International Trading System

The discussion about whether China is following the rules of WTO is highly debatable. Some statement (Feenstra, 1998) criticizes that maintaining special privileges for export-processing firms violated the letter and spirit of WTO rules. We believe this statement is partially correct. Although the reform was successful in coastal areas like Guangdong, the inland areas were still relatively close to foreign competition. However, in practice, China's de facto level of openness was increased due to smuggling and "leakage" of goods and components.

We are analyzing China and the world's relative exposure index (Woetzel et al., 2019). We can observe that China is becoming less exposed to the rest of the world. Also, compared with the EU and the USA, China's tariff was 7.5 percent in 2018, much higher than the average tariff in the US and EU, which is around 3 percent - 4 percent. Based on this observation, China is still relatively closed compared to other countries.

From the policy perspective, although China highly decreased the constraints on foreign products, it still applied discriminatory product standards to protect the domestic market from foreign competition. The strict China Compulsory Certification (CCC) mark and the inconsistent and arbitrary enforcement of rules are inconsistent with the rules of the international trading system in practice.

5. Conclusion and Future Outlook

China's capability to make and implement industrial policy has significantly enhanced in the past three stages. From 1978 to the present, the evolution of China's industrial policy shows that the focus of its industrial policy has switched from facilitating overall industrial development to promoting key industries and adjusting the industrial structure, which could utilize the comparative advantages and mitigate the market inefficiency due to the externalities. Policies have also switched from mandatory to more instructive. Industrial policies have noticeable effects on industrial organization, industrial structure adjustment, industrial layout optimization, and industrial development mechanism reform.

First, China is actively promoting market-oriented reforms, emphasizing the decisive role of the market in resource allocation and, at the same time, giving play to the supervisory role of the government. It has fully mobilized the innovative spirit of entrepreneurs and provided a diverse, comprehensive, and coordinated dynamic mechanism for China's industrialization process. Also, China follows the trend of economic globalization and actively integrates into the global division of labor systems, thus promoting the process of industrialization. From establishing a special open zone to its accession to the WTO, China has attracted a considerable amount of foreign investment and introduced a large amount of advanced technology and management knowledge in China, enhancing its innovation capability.

However, China's industrial policy only sometimes yielded satisfactory results. The government's intervention could result in negative externalities and specializations in sectors without comparative advantages. Also, as China plays a more critical role in the international trading system, it could be consistent with the rules. Nevertheless, there is adequate evidence to support the statement that China used discriminatory industrial policies to protect the domestic market and that China is also gradually closing its economy to the rest of the world. Nevertheless, economic growth is one of many factors we need to consider in the international

trading system from a national perspective. National security and independence should also be well considered when China is trying to make industrial policies.

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