2

Making industrial policy work for development

Justin Yifu Lin and Volker Treichel

E conomic development is a process of continuous technological innovation, industrial upgrading, and structural transformation – which makes it inherently beset with market failures. Before the 2009 crisis, industrial policy as an instrument to promote industrial upgrading was widely dismissed by economists who were not convinced of its analytical foundations and cited its poor track record. Even those who recognized the presence of market failures and the associated case for state intervention generally rejected industrial policy, as they were concerned that the attempt to pick winners was more likely to fail – and fail at high cost – than to correct perceived market failures effectively. Most economists believed that the State should focus on maintaining macroeconomic (fiscal and financial) stability and on creating a business environment characterized by the absence of distortions, thereby establishing a level playing field for all economic agents.

The view post-crisis has shifted considerably. To a significant extent, both economists and policy-makers have perceived the crisis to be the result of unregulated free markets, causing many economists to take a fresh look at the role of the State in economic management. An idea gaining traction among economists is that broad-based interventions to support industrial upgrading and diversification are crucial to facilitate structural transformation and spur sustainable growth. This chapter discusses the evolution of the understanding of the process of fostering economic growth and, based on a review of economic history, the role that industrial policy has played in facilitating growth in the past. It then derives principles that industrial policy will have to follow in order to be able to effectively support growth and development.

2.1 Fostering economic growth in developing countries: The evolution of development thinking

The development of viable theoretical and practical approaches to facilitate growth in developing countries has been one of the top concerns of policy-makers and economists for some time.

Inspired by the desire to align their countries' economic performance with that of the advanced countries, and given the apparent success of the Soviet Union's industrialization at the time, many developing country leaders in the 1950s and 1960s instituted development strategies built on structuralism. At that time, structuralism was the prevailing economic development framework. Essentially, it contended that developing countries could overcome their underdevelopment or "backwardness" most rapidly by developing the same advanced industries as those in the high-income industrialized countries. The rationale behind this strategy was often noble, as leaders of developing countries wanted the economies of their countries to compete on the global technological frontier as quickly as possible.

However, this turned out to be a fatal mistake. Rather than facilitating economic growth, the structuralist paradigm actually hindered development because it was a strategy that defied the concept of comparative advantage and advised countries to give priority to capital-intensive heavy industries, even though capital was scarce in those economies (Lin, 2009). The strategy implied very high production costs compared with those in countries that developed similar industries but in keeping with their comparative advantage. The firms in the capital-intensive industries that faced such high production costs could not survive in an open, competitive market – unless the government was willing and able to grant them strong protection through large-scale subsidies or other forms of protectionism. The common denominator of these strategies was that the government targeted industries that were flourishing in countries whose per capita income was far higher than its own. Consequently, the developing country was unable to produce the goods at a cost advantage and therefore unable to compete in these industries.

Examples of these comparative advantage-defying strategies include Indonesia launching a ship construction industry in the 1960s, when its GDP per capita was only 10 per cent of that of its main competitor at the time, the Netherlands. Another example is the attempt to build an auto industry in Zaire (now the Democratic Republic of the Congo, DRC) in the 1970s, when the country's GDP per capita was only 5 per cent of the level in the industry leader (table 2.1).

To implement this comparative advantage-defying strategy, developing country governments had to protect numerous non-viable enterprises in the priority sectors. The measures to which they resorted to reduce the investment and

Latecomer country	Industry, decade	Leading producer at time	Real GDP per capita		Income
			Latecomer country	Leading country	 ratio of follower versus leader (%)
China	Automobile, 1950s	United States	577	10897	5
DRC	Automobile, 1970s	United States	761	16284	5
Egypt	Iron, steel, chemicals, 1950s	United States	885	10897	8
India	Automobile, 1950s	United States	676	10897	6
Indonesia	Ship building, 1960s	Netherlands	983	9798	10
Senegal	Trucks, 1960s	United States	1511	13419	11
Turkey	Automobile, 1950s	United States	2093	10897	19
Zambia	Automobile, 1970s	United States	1041	16284	6

Table 2.1 The economics of unrealistic ambitions

Source: Authors' calculations based on data from Maddison (1995).

operational costs of non-viable enterprises included granting those enterprises a market monopoly, suppressing interest rates, overvaluing domestic currency, controlling prices of raw materials, and imposing high tariffs on imports. Such interventions caused widespread shortages in credit, foreign exchange, and raw materials. Consequently, governments also had to allocate resources directly to those enterprises through administrative channels, including through national planning in the Socialist countries and credit rationing and investment and entry licensing in non-Socialist developing countries. For ease of implementation, many countries also relied on state-owned enterprises to develop the targeted industries.

The protectionist measures that many governments implemented incurred various types of costs. As the prices of imports and of import-substituting goods increased relative to the world price, this discrepancy pushed these economics to consume a mix of goods that was inappropriate in terms of economic efficiency. Markets fragmented as the economics produced goods at too small a scale, again resulting in loss of efficiency. Also, protectionism lessened competition from foreign firms and encouraged monopoly power among domestic firms whose owners were politically well-connected. Moreover, protectionism created opportunities for rent-seeking and corruption, which raised input and transaction costs. Rentseeking connected with the establishment of non-viable enterprises also made it difficult to end state interventions in support of these industries, including subsidies.

In some cases (mainly in Eastern Europe and the Soviet Union), the industrial development brought about by the comparative advantage-defying strategy appeared to be successful initially because large-scale investment through massive state mobilization of resources increased the growth rate and improved productivity indicators. But firms in the capital-intensive sectors depended on the government's subsidies and protection for their survival; when the State could no longer mobilize resources for further investment, the economy stagnated. Moreover, investment in the capital-intensive sectors generated little employment, and the labour force remained mostly in the rural sector.

Critics interpreted the failure of the old structuralist policies to deliver structural transformation, economic growth and prosperity as an indication that government interventions in the economy were bound to fail because of the inevitable distortions of prices and incentives and the resulting misallocation of resources. These views, in turn, prompted a shift in development thinking toward the free market approach that became known as the Washington Consensus, which promoted economic liberalization, privatization, and the implementation of rigorous stabilization programmes. In terms of growth and employment generation, however, the results of the policies presented as alternatives to the failed old structuralism were controversial at best (Easterly, 2001 and 2005). Many economists and the public in many countries quickly perceived the Washington Consensus as a set of neoliberal policies that were imposed on hapless countries by the Washingtonbased international financial institutions. These policies ended up leading many countries to crisis.

Why did the Washington Consensus, which attempted to correct the mistakes of the old structuralist approach, fail to foster structural transformation and sustained growth in low-income countries in Africa and elsewhere? What have been the primary features of processes that *do* help generate successful and sustained growth? How can developing countries create the conditions to facilitate the flow of technology and unleash growth, even in the context of suboptimal microeconomic policies, weak institutions, and sometimes uncertain private property rights? Why do some countries catch up with developed countries and others do not?

The report of the Commission on Growth and Development offers important insights into these questions. Launched in April 2006, the Commission brought together 22 leading development practitioners from government, business and the policy-making arenas, mostly from the developing world. It was chaired by Nobel Laureate Michael Spence and Danny Leipziger, a former World Bank vice president. The Growth Commission's report (2008) concludes that "[f]ast, sustained growth does not happen spontaneously. It requires long-term commitment by a country's political leaders, a commitment pursued with patience, perseverance and pragmatism." According to the report, the key principles of growth are: (i) full engagement with the global economy; (ii) macroeconomic stability; (iii) high saving and investment rates; (iv) market allocation; and (v) leadership and governance. The report represents an important step forward as it provides new insights that have helped policy-makers to better understand the economic dynamics of catching up and to avoid some of the pitfalls that plague economic development. One of the most important conclusions of the Growth Commission's report is that there is no universal set of rules to guide policy-makers. The Commission recommends less reliance on simple formulas and the search for elusive "best practices" and instead champions greater reliance on deeper economic analysis to identify the binding constraints to growth in each country.

The key recommendation of the Growth Commission, therefore, was for each country to identify and focus on one area that presents the biggest obstacle to growth, much in line with research by Hausmann, Rodrik and Velasco (2008). The approach proposed by Hausmann and colleagues offers a decision-tree methodology to help identify the binding constraints to growth relevant for individual countries. The implication is that different countries require different policy choices to facilitate growth, identified on the basis of country-specific Growth Diagnostics. Furthermore, the overarching principles that support growth (for example, sound monetary policy, property rights, openness, and free markets) need to be calibrated to the country-specific context, including the right institutional framework and policy mix.

While the Growth Diagnostics approach is an important advance, one of its major weaknesses is that it depends on surveys of firms in the existing industries. It is possible, however, that some of these industries in their current form exist only because of the old structuralist policies and are not really consistent with the country's comparative advantage. At the same time, other industries that are consistent with the country's comparative advantage may not have developed because the government failed to provide proper facilitation. Consequently, the binding constraints identified in a survey of the existing industries may actually not be relevant as they may reflect a suboptimal structure of the economy. More fundamentally, as discussed in greater detail below, one of the most important roles for industrial policy is to facilitate "first movers", companies that are willing to enter new sectors in line with the country's comparative advantage and that offer significant potential for growth and employment creation. Addressing the binding constraints of growth identified through a survey of existing industries will not include measures to facilitate the emergence of first movers that are new to the economy.

New Structural Economics (Lin, 2012) integrates the insights of structuralism and neoclassic economic analysis concerning the growth process. It starts with the observation that the main feature of modern economic development is continuous technological innovation and structural change. The optimal industrial structure in an economy – that is, the industrial structure that will make the economy most competitive domestically and internationally at any specific time – is endogenous to its comparative advantage, which in turn is determined by the given endowment structure of the economy at that time. Economies that try to grow simply by adding more and more physical capital or labour to the existing industries eventually run into diminishing returns, and economies that try to deviate from their comparative advantage are likely to perform poorly.

The main goal in the formulation of economic policy is to ensure that the economy grows in a manner that is in keeping with its comparative advantage. In this way the economy will be competitive, profits will be optimized, and capital accumulation will be maximized. As capital accumulates, however, the economy's factor endowment structure evolves, resulting in a gap between the current and the optimal industrial structure. Firms then need to upgrade their industries and technologies accordingly in order to maintain market competitiveness.

Obviously, for firms to make the right decisions regarding investment in industries that are consistent with the economy's comparative advantages, relative prices need to be correct. This requires a competitive market system. In developing countries, where this is usually not the case, it is necessary that governments act to create or improve various market institutions so as to create and protect effective competition in the product and factor markets.

As a case in point, in the process of industrial upgrading, firms need to have information about production technologies and product markets. Often, first movers can be pioneers and provide this type of information, but they may face a set of specific challenges. On the one hand, first movers may fail, but in that process they can provide valuable information to other prospective entrants. On the other hand, first movers may succeed, encourage other firms to enter, and gradually reduce the rent accruable to them. They may also incur significant costs to train workers in new business processes and techniques, and these workers may then be hired by competitors. So, first movers may create external benefits for which they will not be compensated, a result that reduces the incentives for firms to be first movers.

Also, technological innovation, industrial diversification, and industrial upgrading are typically accompanied by changes in capital and skills requirements for firms, as well as by changes in their market scope and infrastructure needs due to the evolving nature of production that is embodied in the process of innovation. In other words, industrial upgrading and diversification are typically accompanied by changes in hard and soft infrastructure requirements. For example, with the change from agrarian production to manufacturing and from simple manufacturing to advanced manufacturing in the development process, the scale of production and market scope increase. The demand for transportation, roads, and power increases accordingly. Individual firms are not capable of internalizing their provision or deploying the kind of coordination efforts among firms in different sectors needed to meet those increasing demands. Even if some large companies were willing to finance a national road or a power network, coordination through the public sector would be necessary to ensure consistency, efficiency, and prevention of natural monopolies when the economy grows.

In order to operate, low-income country firms in small-scale, labour-intensive agriculture and manufacturing industries need only an unskilled labour force, an unsophisticated informal financial and manufacturing system, and hard infrastructure. But when the economy expands into modern manufacturing industries, firms need highly skilled labour, large funds for lump-sum investments in equipment, working capital and/or export financing, and new marketing arrangements. However, individual firms usually are not capable of internalizing the required changes in soft infrastructure. Here again, there is a need for the State to provide or coordinate some of these changes in different sectors of the economy so as to facilitate upgrading and diversification by individual firms.

Economic development is, therefore, a dynamic process marked by externalities and coordination requirements. While the market is the necessary basic mechanism for effective resource allocation at each stage of development, governments must play a proactive, facilitating role for an economy to move from one stage to another and to overcome the type of information, coordination, and externality issues that are inherent to the development of new activities and sectors. Governments must intervene to allow markets to function properly by:

- Providing information about new industries that are consistent with the country's comparative advantage as determined by changes in its economy's endowment structure;
- 2. Coordinating investments in related industries and facilitating the required improvements in infrastructure;
- 3. Subsidizing activities with externalities in the process of industrial upgrading and structural change; and
- 4. Catalysing the development of new industries by incubating them or by attracting foreign direct investment to overcome the deficits in social capital and other intangible constraints.

2.2 What are the principal tenets of successful industrial policy?

To derive the principal tenets of successful industrial policy, a review of successes in implementing industrial policy is necessary. There is considerable historical evidence that today's most advanced economies have relied heavily on government intervention to ignite and facilitate their economic take-off, which allowed them to build strong industrial bases and sustain the momentum of growth over long periods.

Chang (2003) reviewed economic developments during the period when most of the present-day advanced economies went through their industrial revolutions (between the end of the Napoleonic wars in 1815 and the beginning of the First World War in 1914). Contrary to conventional wisdom, which often attributes the industrial successes of Western economies to laissez-faire and free market policies, the historical evidence shows that the use of industrial, trade, and technology policies was critical to their successful structural transformation. The interventions ranged from the frequent use of import duties or even import bans to protect infant industries, to industrial promotion through monopoly grants and cheap supplies from government factories, to public–private partnerships and direct state investment, especially in Britain and the United States, in addition to various other subsidies (Trebilcok, 1981).

The US government has continuously offered strong incentives to private businesses and academic institutions to discover new ideas that are valuable for sustaining growth and has encouraged making such ideas non-rival. In addition, it has built infrastructure in key economic sectors such as transportation and provided financing to education and training in order to build the country's skills base in many industries. Chang (2003) observes that interventions by the US government have included support to industries such as computers and aerospace and to technologies such as the Internet, where the United States still maintains an international edge despite the decline in its overall technological leadership. He notes that these industries would not have existed without defence-related

预览已结束, 完整报告链接和二维码如下:

https://www.yunbaogao.cn/report/index/report?reportId=5_22635

