

# Industrial Policy

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## Abstract

Industrial policy (IP) is one of the most controversial issues in economics. This chapter provides a concise but comprehensive discussion of this concept in the context of developing countries. The chapter begins by describing the different possible definitions of IP. Next it presents the economic arguments against and in favour of IP. The chapter then describes the characteristics of the various models of IP historically adopted by developing countries and discuss them in a comparative perspective. The performances of IP in the different historical periods, regions and countries are compared and some explanations for their different results are suggested. Next, the chapter discusses how the changes occurred in the rules of world trade and in the international division of labour have influenced the design and implementation of IP. Finally, elements of the

so-called “new industrial policy” are discussed. The last section summarizes and provides some suggestions for future research.

**Keywords:** industrial policy, East Asian Tigers, Latin America, Africa, import substitution industrialization, developmental state, public-private dialogue

## **Introduction**

Industrial policy is one of the most controversial issues in development economics. There are several reasons for this. First, there is no agreement on the exact definition of industrial policy. This is obviously quite problematic, because the accepted definition determines the answers to such important questions as whether the use of industrial policy is theoretically justified, what its objectives should be, which measures should be considered part of it, and what its effects have been in both developed and developing countries. Second, the theoretical justification of industrial policy—at least in its most basic version—is based on the existence of some type of market failure. This implies that industrial policy needs to be analyzed in the context of models of imperfect competition and incomplete markets, and thus requires a set of mathematical instruments that, until quite recently, were not common among economists. Third, the analysis of industrial policy is at the crossroads of different research fields, including economic history, development economics, and political science. Finally, and not surprisingly, it is a highly sensitive political topic.

The last decade has witnessed renewed interest in the use of industrial policy as an instrument to favor structural change and foster economic growth and development. This is especially true with regard to developing countries. Interestingly, the emerging discussion now focuses on how industrial policy should be designed rather than whether it should be used (Aghion 2012; Rodrik 2004).

This change of perspective is quite impressive considering that twenty years ago the term “industrial policy” was virtually absent from political and economic discourse and development strategy documents. There are two main reasons for this change. The first is the criticism that has been growing in the last decade against the Washington Consensus approach, motivated by its quite disappointing results as a strategy for economic development. The second is that the debate concerning the pros and cons of industrial policy is now far less ideological than in the past. In fact, new issues (as well as old ones) are at the center of the current debate, but the discussion is now better informed because of the availability of more extensive empirical evidence and improved theoretical analysis.

This chapter is intended to provide a concise but comprehensive discussion of the concept of industrial policy. The chapter focuses on the history, characteristics, results, and evolution of

industrial policy in developing countries. The chapter begins by comparing the different possible definitions before describing how approaches changed over time: the early Developmental State as a golden age; the Washington Consensus era abandonment; and the current return of industrial policy. The chapter then considers the performance of industrial policy in different regions and countries, and describes how external conditions have changed in the last decade and shaped the characteristics of the new industrial policy.

## **Defining industrial policy**

There are several possible definitions for industrial policy. It can be safely argued that part of the disagreement among economists and policy-makers regarding its pros and cons is indeed due to a lack of clarity about its definition. This is why the starting point of any discussion must be—or should be—a discussion of what it is meant by industrial policy. More specifically, what are its objectives and what measures are part of it? Some scholars associate industrial policy with the set of government policies directed to developing the manufacturing sector only. For instance, the World Bank (1993) considers it as “government efforts to alter the industrial structure to promote productivity-based growth,” and Pack (2000) defines it as including “actions designed

to target specific sectors to increase their productivity and their relative importance within manufacturing.”

Other definitions include a broader set of objectives, such as enhancing productivity, competitiveness, and overall economic growth. For instance, according to Pack and Saggi (2007), industrial policy is “any type of selective intervention or government policy that attempts to alter the structure of production toward sectors that are expected to offer better prospects for economic growth than would occur in the absence of such intervention.” According to Curzon Price (1981), it comprises “any government measure to promote or prevent structural change.” Since one important cause of structural change is international trade, industrial policy is sometimes referred to as policies to “defy” the country comparative advantage and develop its “latent” advantages (Amsden 2001; Chang 2002). It should be noted that these definitions also include measures that are not specifically (or only) directed to industry or manufacturing. Industrial policy may in fact be directed to other sectors which the government expects to have high growth potential, such as non-traditional agricultural products or high-value service activities like software development and tourism (Rodrik 2007; Altenburg 2011). Finally, industrial policy is sometimes given the more ambitious objective of shaping structural change in ways that are socially inclusive and environmentally sustainable (UNIDO 2011).

The more general the objective, the larger the set of measures that are considered part of industrial policy. For instance, according to Cimoli, Dosi, and Stiglitz (2009: 107–43), industrial policy includes targeted industrial support as well as policies related to trade, regulation, innovation and technology, education and skill formation, and sectoral competitiveness. The various combinations of these measures characterize the different industrial policy packages. It follows that each industrial policy model could be ideally located on a continuum ranging from hard to soft, where the hard end includes interventions that distort prices while the soft end includes interventions that deal with coordination problems (Harrison and Rodríguez-Clare 2010). Somehow different is the approach of Rodrik (2007), who defines industrial policy as a process involving a “dialogue” between the state and the private sector to generate information for identifying and removing the binding constraints to development.

While it is important to acknowledge these different possible definitions, this chapter considers industrial policy as framed by the peculiar role of the manufacturing sector within development.<sup>2</sup> Thus, industrial policy is the set of government measures—targeted at specific industries or firms—intended to support the development and upgrading of industrial output. This definition

of industrial policy includes the large set of policies described by Cimoli, Dosi, and Stiglitz (2009).

## **Arguments for and against**

The economic literature on the justification, limits, and effects of industrial policy (IP) is quite extensive. Therefore, this section will briefly present only the main arguments. The theoretical justification for IP is based on the fulfillment of three conditions (Harrison and Rodríguez-Clare 2010): some market failure is present (e.g., industry-level externalities, dynamic increasing returns, the presence of a public good, etc.); the firm/sector is potentially competitive in the international markets; and the discounted future benefits of intervention exceed the costs of the distortion. There are two main arguments against the use of IP in developing countries. The first is that, even in the presence of highly imperfect markets, there is no reason to suppose that the government has better access to information with respect to the market. Since government information is necessarily limited, good selectivity is impossible, which implies—for instance—that the “picking winners” strategy is deemed to fail (see, e.g., Pack and Saggi 2007). A second argument against IP comes from the literature on rent-seeking and corruption (see, e.g.,

Krueger 1974; 1990). The basic idea is that since any government measure (e.g., import licences, investment permits, etc.) creates rents, firms find it profitable to (legally or not) invest their resources to obtain them. This is a wasteful activity that also distorts allocation of resources because it makes competition between firms unfair.

There are three main types of market failures. The first arises from the existence of an *informational externality* related to the difference between the private and the social benefit in exploring the profitability of a new activity (see Hausmann and Rodrik 2003). The (partial) socialization of investment risk through government intervention makes private and social return to converge. The second type is a situation of investment *coordination failure*,<sup>3</sup> which emerges when—because of a lack of required investments in related activities—the private sector investment is sub-optimal. The third type of market failure is due to the existence of a *positive* (export, technology, or demand) *externality*.

All these arguments are based on the idea that the optimal industrial policy should be determined by comparing the magnitude of market failures and government failures. A different perspective on this issue is the view that the debate on the pros and cons of industrial policy should go beyond the discussion about the respective roles of the State and the Market. In fact it is crucial

to acknowledge that industrial policy has a very specific domain of intervention, namely, industry and manufacturing. Thus, the justification of IP can be found in the fact that manufacturing has a special role in the development process: it is a historical regularity that sustained economic growth is associated with industrialization, in terms of growth in manufacturing employment and value added (Maddison 2001; Szirmai 2011). The strategic role of manufacturing in modern economic growth is usually ascribed to the presence of increasing returns and technological spillover effects, high capital intensity, strong and numerous forward and backward linkages, high elasticity of demand, and higher employment potential with respect to the other sectors. These factors have been used—in a variety of combinations—to justify industrialization, considered as a necessary stage of economic development. The next section discusses the characteristics and the historical evolution of industrial policy as the instrument used by the governments of developing countries to achieve industrialization.

## **Industrial policy in historical perspective**

Industrial policy has a long history. Governments of both developed and developing countries have widely adopted targeted interventions to support industrialization. For instance,

governments played an active supporting role in the industrialization of the UK, the U.S., Germany, and Japan during the nineteenth and twentieth centuries (Landes 1970). Following the end of the Second World War, governments of newly independent countries started to intervene in the economy to favor industrialization as a strategy to spur their catching-up process. Government intervention took different forms, from complete economy-wide plans to various combinations of trade policies, production subsidies, direct credit allocation, and use of state-owned enterprises (SOEs). In this, developing countries were actually doing what developed countries did during their development process (Reinert 1999).

This section provides a brief historical overview of the experiences of developing countries in East Asia, Latin America, and Africa during the last fifty years. The section begins by describing some aspects of industrial policy during the Developmental State period, in particular its content in the different countries, the results flowing from it, and why these results varied widely. Next, we discuss how the Washington Consensus approach influenced the use of industrial policy in developing countries.

### ***The Developmental State period***

The literature on the historical experiences of developing countries with industrial policy is extremely vast.<sup>4</sup> Therefore, this chapter can provide only a brief description of the actual content of industrial policy in those countries, emphasizing similarities and differences while recalling that countries have sometimes implemented similar measures in very different ways. Measures are grouped in the domains of intervention included in the definition above (in the section on “Defining industrial policy”). While this categorization provides clarity, it should be noted that industrial policy is something more than and different from the sum of the government interventions in the different domains.

#### *Trade policy, import substitution, and export promotion*

Trade policy affects the degree of international competition to which firms are exposed. This contributes to the profitability of different production activities and thus plays an important role in influencing firms’ investment decisions. Trade policy was a key part of the import substitution industrialization (ISI) pursued by several countries between the 1950s and 1970s. There are several reasons why ISI policies were popular. The first and most important is that

industrialization was believed to be necessary for development and that infant domestic industries needed (temporary) protection. The idea was that free trade would increase the economy's dependence on the export of commodities that were expected to suffer declining prices over time (Prebisch 1950).

While initially the use of a protectionist trade policy was commonplace, some countries soon started differentiating their strategies. In South Korea import protection was already coupled with export promotion in the 1960s. Import protection was high, prolonged, and selective, but at the same time, export performance was used as the disciplinary device for both firms and bureaucrats (Amsden 1989). Firms were given subsidies and the right to sell in the protected domestic market under the commitment to export. In Taiwan the government extensively used tariffs and quantitative restrictions, while exporters were given preferential tax treatment and access to credit on favorable terms. Latin American governments largely used protectionist trade policies as part of their ISI strategy, but they were not coupled with incentive schemes to promote export and domestic competition.

The implementation of active export policies has been—with the partial exception of Brazil—much more limited. Immediately after independence, African countries also started a process of

industrialization through import substitution. In most of the cases, governments offered protection to domestic firms with little discrimination between activities, no time limit, and no requirements of international competitiveness (Mkandawire 2001).

*Targeted sectoral measures, development banks, and fiscal incentives*

A basic assumption of the ISI strategy was that some sectors were strategic for the economic development of the country. This was the justification for a number of measures that governments provided to targeted sectors. While almost any government has selectively supported targeted sectors, the degree of selectivity and the degree of direct State intervention have been very different. For instance, India followed the example of the USSR and adopted a strategy based on massive public investments in heavy industry, the state-imposed coordination of investment decisions in both the public and the private sectors, and the bringing of certain strategic industries and firms under public ownership (Singh 1995). In East Asia, on the other hand, it was common for governments to identify priority sectors to be selectively supported but, in contrast to what happened in many countries, the economic initiative remained mostly private sector-led.

Control of the financial sector was another key aspect of the Developmental State approach to development. In many cases, the State nationalized the banks and other financial institutions and created national development banks to influence the private sector investment decisions (Soludo, Ogbu, and Chang 2004). The development bank provided discretionary credit lending to specific sectors and firms, playing a crucial role in funding technological accumulation and export growth (giving exporting firms access to long-term subsidized capital) (Amsden 2001). Governments used development banks to condition the firms' behavior by providing loans conditional on the fulfillment of certain requirements that were sometimes even firm-specific. These conditions were particularly severe in South Korea and Taiwan (Rodrik 1995; Lall 2003; Amsden 1989), while they were much less clear and demanding in Latin American countries.

### *Competition and regulation policies*

Governments have used several measures to influence the market structure of their domestic economy. For instance, in South Korea, beginning in the 1960s the government reduced domestic competition for selected firms in exchange for their commitment to export (see Amsden 1989). In India, the government used a strict licence system to regulate the entry into selected sectors to avoid large firms competing with small ones in the same market. The

objective was to preserve some market share for small household firms and avoid rising economic inequality associated with industrialization (Kapur, this volume). In other cases, governments intervened to reduce monopolistic situations so as to decrease costs (of inputs and services) for manufacturing firms and favor their competitiveness in international markets.

### *Innovation and technology policies*

The role of the State in the knowledge accumulation process has been preeminent in many countries (Katz 2000; Cassiolato, de Matos, and Lastres, this volume). Governments made an effort to stimulate the domestic production of technological knowledge (Alcorta and Peres 1998). The commitment of governments to technological development has been particularly strong in the East Asian Tigers (South Korea, Taiwan, Hong Kong, and Singapore). From the early 1960s, the South Korean government supported domestic technological upgrading in several ways. The import of technology was strongly subsidized and public funds to finance domestic technological innovation were created. Similarly, in Taiwan import and diffusion of advanced technologies among domestic firms was subsidized, and science parks and technology clusters were created to improve technology accumulation. Governments of East Asian Tigers acted as venture capitalists and pioneers, especially in high-technology sectors such as informatics, semiconductors, and

telecommunications, when the private sector was unable to develop the necessary capabilities. In fact, accumulation of technological capabilities in East Asia was also stimulated by high-quality government demand (for South Korea, see Amsden 1989; for India, see Singh 1995).

### *Education and skill formation policies*

Education and skill formation policies are a necessary complement to technology and innovation policies. For instance, education policies were crucial in the experiences of Germany and Japan at the end of the nineteenth century. Similarly, they have been a fundamental part of the development strategy of latecomers after the Second World War. But the experiences of East Asia and Latin America have been considerably different in this respect. The East Asian Tigers invested heavily in education and technical training, implementing numerous public policies with the objective of improving the scientific education indicators and creating an education system strongly biased in favor of technical degrees (Kim 1993). The Indian government intervention in supplying high-quality education (especially engineering) has been a fundamental ingredient of its industrial policy. Latin American governments tried to support high skill formation as part of their ISI strategy, with Brazil among the most active in this area. While the general education

level increased, the improvement in technical and scientific education in the region was much more modest than in East Asia.

### ***The results of industrial policy during the Developmental State period***

The debate on the effects of IP during the Developmental State period is still open. The reason is that IP is predicated to be the cause of both impressive successes and spectacular failures. While there are theoretical arguments in favor of it, the critical question remains: Does industrial policy work in practice?

This question is not easy to answer, given the high heterogeneity among the different regional and national experiences. In some cases, the government played a direct leading role in the industrialization process. There was widespread public ownership of industry: public investment was extensive and a number of firms were nationalized. In other cases, the government merely provided incentives to the private sector, which acted as the prime engine of the industrialization process. Furthermore, the same policies have been used by different countries in very different ways.

Analysis of the effectiveness of industrial policy can be grouped into three categories (Harrison and Rodríguez-Clare 2010; Rodrik 2007). The first group of studies focuses on the analysis of one specific industry that has received some kind of support. Most of these studies analyze the effect of protectionist trade policies, and generally show that protection leads to higher growth but that the net welfare effects are negative (see, for example, Head 1994; Luzio and Greenstein 1995).

A second group analyzes whether (more) supported industries exhibit faster growth. Here also, most of the studies have focused on trade protection. The evidence is mixed<sup>5</sup> and no study is able to show a causal link between protection and economic results. In general, trade protection seems to have been granted to protect a special group or to generate tariff revenues rather than as part of an industrialization strategy (see Goldberg and Maggi 1999; Lee 1996). At the same time, the historical experiences of the East Asian Tigers clearly show that trade protection is not per se harmful to growth. On the contrary, one of the keys for the success of these countries has been the mix between openness and protection (e.g., opening some markets to international competition while keeping others closed) (Amsden 1989).

Finally, a third group of studies attempts to evaluate the effects of IP using the cross-country approach. Again, most of the studies have focused on trade policy. Interestingly, some of these studies find a positive correlation between import tariffs and economic growth across countries during the late nineteenth century (O'Rourke 2000; Chang 2002)—as occurred in the U.S.—which emerged in the nineteenth century as economic leaders in conjunction with high domestic tariffs.

In an attempt to summarize the evidence, it would be fair to say that the results of IP under the Developmental State are mixed. While the results were remarkable for East Asian countries,<sup>6</sup> they were mixed in Latin American countries and were almost everywhere a failure in Africa. This said, there are few doubts that government intervention has been crucial for most of today's developed countries during their economic take-off. For instance, it is rather difficult to identify cases of current export successes that did not involve government support at some early stage. Among these, the most notable are POSCO in South Korea, EMBRAER in Brazil, the salmon industry in Chile, and the ICT revolution in India, with the first two being clear examples of import substitution under public ownership, the third a case of the success of a quasi-public agency acting as a venture fund, and the last—at least in part—the result of decades of

investment in high education (Rodrik 2007; Singh 1995). Still, beside these successful cases, there are numerous—and in some cases enormous—failures.

### ***Why results differ across countries***

At the end of the 1970s, the divergence in the growth rates between East Asia, Latin America, and Africa began to increase significantly. The orthodox view explains it as the result of two different development strategies: a successful, market-friendly, export-led model in East Asia as opposed to a failing, state-led ISI strategy in Latin America and Africa. In this account, the role of the State in the “Asian Miracle” was very marginal: the government set the rules to favor export growth and allowed the markets to work freely. Those economies were then able to automatically take off. Selective industrial policy was absent, and other types of government interventions—when in place—were if anything an obstacle to growth (World Bank 1993; Pack and Saggi 2007). Instead, Latin American countries had poor economic performance because they implemented the ISI strategy and used industrial policy extensively to support their industrialization process. This is the view that has long prevailed within thinking on international development.

An alternative view argues that the Developmental State was common to all three regions. The reason industrialization results have been so different is that East Asia adopted a different model of the Developmental State with respect to other developing countries and it evolved over time. In fact, different countries have implemented similar policies in radically different ways. It is now a shared view—emerging from the vast literature on the East Asian Tigers—that the recipe for their success was the effective combination of incentives with discipline (Amsden 2001; Hausmann and Rodrik 2003). The former were provided through subsidies and protection, while the latter was obtained through direct and indirect government control of economic activity (for instance, using export performance as a selection and monitoring device for both entrepreneurs and bureaucrats). Another peculiarity of the Development State in East Asia was its “embedded autonomy” (Evans 1995). It was a “strong State” and thus able to promote industrialization because it was (at least partially) autonomous from social forces that might oppose industrial policy. At the same time, the State created some beneficial interactions with the entrepreneurial elite that allowed it to promote industrialization.

According to Lall (2003), the main characteristics of the East Asian economic model are: strict selectivity and time-limited government intervention; the temporary use of public enterprises to enter risky sectors; massive investment in skill creation and infrastructure; centralization of

strategic industrial decisions in competent authorities; and highly selective use of foreign direct investment.

The first element is particularly important. Governments in East Asia provided stable and predictable incentive schemes and were able to withdraw support whenever they wished. As in any other country, industrial policy did create inefficient firms; yet here, unlike what happened elsewhere, the State was able to withdraw support whenever a firm's performance was not satisfactory. The selecting devices for receiving targeted support were the exporting performance and the domestic competition. Finally, it should be acknowledged that while there are similarities, there are also important differences between the experiences of the different East Asian Tigers. For instance, government intervention was widespread in South Korea and Taiwan, and much less relevant in Singapore and Hong Kong. Moreover, while both South Korea and Taiwan invested heavily in the development of domestic innovation capabilities, for Singapore and Hong Kong the main technology policy was always to attract foreign direct investment (see Lall 2000).

The Developmental State was much less successful in Latin America. The industrialization strategy and the specific industrial policy adopted were indeed very different from the ones in

East Asia: this difference can be summarized by saying that firms in Latin America received incentives similar to those provided to firms in East Asia, but they faced much less discipline. An interesting example is how regulation and competition policies modified the domestic market structure. These policies were common to many developing countries but their results were quite different in the two regions. While in East Asia these policies created an environment favorable to the exploitation of economies of scale and increased firms' efficiency, in Latin America they mostly only generated a protected domestic market for inefficient local firms. Other relevant differences between the two models can be summarized as follows: Latin America adopted an "anti-export" version of the ISI strategy; there was a lack of government capabilities; and investments in education, science, and technology innovation were much more limited than in East Asia.

In Africa, attempts at industrialization generally fared poorly. While there are some success stories (such as Mauritius, Botswana, Madagascar, and Kenya), in most cases ISI strategy was a failure. UNCTAD (2007) identifies two possible interpretations. The first argues that the Developmental State could not succeed because of the inability of the African States to design and implement an effective industrial policy. In contrast, the second interpretation emphasizes that the Developmental State collapsed because of the inability of the ISI to adjust to changes in

external conditions. To these one can add the political dimension. Robinson (2009) argues that industrial policy has been successful only when those with power wanted industrialization to succeed, or have been forced to act in this way by the incentives generated by political institutions. Apparently, these conditions were not always met in Africa.

### ***The debt crisis and the Washington Consensus***

The process of differentiation between the three regions reached its climax in the 1980s. While East Asia continued its rapid growth, Latin America entered the “lost decade” caused by the external debt crisis, and Africa entered a long period of economic difficulties.<sup>7</sup> At the beginning of the 1990s, Latin America had become the laboratory for the implementation of the most orthodox version of the Washington Consensus policies (see Stallings and Peres 2000), while in much of Africa, Structural Adjustment Programs (SAPs) were in place.

This was a dramatic change for the two regions. The implementation of the Washington Consensus in Latin America was characterized by economic reforms—including trade liberalization—that eliminated the ISI apparatus and drastically reduced the measures to support industrialization. Something very similar happened in Africa, where through the SAPs the World

Bank exhibited its “deep-rooted anti-industrial-policy position:” one of the objectives of structural adjustment was indeed to eliminate the ISI apparatus and any selective industrial policy measures (Mkandawire and Soludo 1999). While IP was eliminated from the political and economic discourse in both regions, governments nonetheless continued to implement it under other names (Melo 2001). In the meantime, the rules of the game and the economic environment changed, posing new challenges to the industrialization attempts of developing countries.

## **New rules, competitors, and challenges**

To better understand the current difficulties of developing countries in their attempt to industrialize, one must first consider how the world economy has evolved over the last three decades. There are two most relevant differences with respect to the past: new rules of the game and a new international division of labor.

The rules of world trade have changed significantly. The growing number of multilateral, bilateral, and regional trade agreements has increasingly restricted the policy space available for using trade policy as an instrument to promote industrial development, especially for non-Least

Developed Countries (non-LDC). For example, protectionist trade policies are now prohibited by the World Trade Organization (WTO) for all non-LDCs. The WTO rules are also progressively forcing countries to reduce export subsidies (and also the establishment of export processing zones) and subsidies for the use of domestic (rather than imported) inputs. Local content requirements and quantitative restrictions on imports are now banned too (Tussie and Quiliconi, this volume).

These changes have caused some concern, because trade policy—including import protection and export promotion measures—was a fundamental instrument of industrial policy during the Developmental State period.<sup>8</sup> In practice, developing countries are nowadays not allowed to use the measures employed by advanced economies during their industrialization period.<sup>9</sup>

While the rules have changed significantly, this does not mean that trade policy can no longer be used. The WTO rules still allow all countries to use trade policy interventions in the form of selective subsidies to promote domestic research and development (R&D), regional development, and environment-friendly activities. Moreover, governments can selectively promote science and technology activities, in particular by subsidizing private and public R&D. This indicates that there is still some room for policies to support industrialization, but

governments should design industrial policy, particularly trade policy, so as to take the new constraints explicitly into account.

A second important change concerns the characteristics of the global economic environment, particularly a new international division of labor. The level of competition in global markets has increased enormously with the emergence of new world-level economic powers such as China, India, and Brazil. As world leaders in labor-intensive manufacturing, these countries have significantly reduced the market for other emerging countries traditionally specialized in those products. This new competitive environment requires that industrial policy include a different set of instruments and measures from the ones used in the past. Since industrialization can no longer be expected to be obtained through infant industry protection or nationalization of foreign firms, IP should be designed to support diversification and production upgrading of firms. Indeed, the new international division of labor obliges firms from developing countries to meet increasingly stringent standard and quality requirements in order to participate in global value chains. It is clear that to achieve this objective, an updated IP is required.

The world economy has dramatically changed since the Developmental State period, and since the decades of the Washington Consensus. The main issue is no longer to understand if and how

“old” policies will fit the “new” world. The magnitude of the changes that have taken place in these decades has created the need for a new approach to industrial policy.

## **Elements of the new approach**

The concept and application of industrial policy have evolved over the last two decades. Recently the literature has moved from discussing whether or not governments should use industrial policy to discussing how to design and implement it effectively. There is an increasing consensus among scholars on the elements that should characterize this new approach to industrial policy (Rodrik 2007; Lin and Chang 2009; Di Maio 2009; Asche, Neuerburg, and Menegatti 2011).

### *Public-Private Dialogue*

The dialogue between the government and the private sector is crucial in order to identify distortions, bottlenecks, and weaknesses to be addressed by IP. The central role of the private sector in the design and implementation of IP suggests the need for a proper consideration of its

specific characteristics. Dealing effectively with the private sector implies the acknowledgment of its heterogeneity within and between countries. After having put much effort into learning about the strengths and weaknesses of governments, we should now learn more about the private sector, which ultimately is the target/recipient of IP. It follows that a highly tailored assistance to entrepreneurs is needed in an increasingly complex environment where the challenges are context-specific, country-specific, and even firm-specific.

#### *Awareness and information*

To be effective, industrial policy needs to provide a set of monetary and non-monetary incentives to induce firms to enter new sectors and improve their current production. To this end, the first step is to make entrepreneurs aware of the availability of support measures, their content, and the way to access them. It is not uncommon for industrial policy to fail simply because local entrepreneurs are unaware of its existence. It is also crucial that its results—even if negative—be made public, in order to make credible the commitment of a government that has declared itself willing to support the manufacturing sector. In particular, it is important that any positive results of IP be properly disseminated, in order to provide a signal to entrepreneurs that it may be useful to apply for the support measures despite the cost.

*Coordination*

Industrial policy includes measures belonging to different domains of intervention that cannot be considered in isolation: complementarities need to be taken into account. It matters not only what measure is implemented, but in what context and in what policy mix. It follows that a comprehensive policy framework is needed to implement IP effectively. While this consideration may appear obvious, it should be noted that policy coordination across governmental agencies often faces enormous challenges in developing countries because of political economy considerations and lack of human and financial resources and capabilities.

*Transparency and accountability*

Industrial policy should be clear as to which specific measures are included and who is responsible for what. This serves two purposes: it reduces the possibility of rent-seeking activities, and it clarifies responsibilities as well as incentives for bureaucrats. Industrial policy has a strong selective component that can be justified only if the process behind its design and implementation is transparent and the government is considered responsible for it.

*Evaluation*

A crucial component of a successful industrial policy is a monitoring and evaluation mechanism. The evaluation of policy measures can be very complicated because it is difficult to decide what has to be measured and how to measure it. Yet there is no doubt that policy evaluation is crucial, because it provides information that can be used to improve the policies. Without evaluation, there is no mechanism for adjusting and correcting the policies in response to changing circumstances.

*Industrial policy as a process*

Industrial policy is not only a set of measures, but a process through which the government learns which policy mix is optimal given the current and expected future economic situation (see Rodrik 2007). This is why, while the past and current experiences of other countries can provide some insights, each country must find its own way in designing its industrial policy. The dynamic nature of the determining optimal policy implies that its content and objectives need to

be continuously re-evaluated and updated—considering the results obtained—under the constraints provided by the available resources and capabilities.

While these are general elements that should characterize IP, the new approach also explicitly recognizes that policies cannot abstract from the current economic situation of the specific country—in other words, from its production structure. This obviously means that IP should be designed to consider the available capabilities both in the government and in the private sector. As a minimizing failure rule (safety rule), current available capabilities should guide the type and extent of IP to be carried on. In addition, IP should be modeled in accordance with the characteristics of entrepreneurship in the specific country. To be successful, the new approach needs to consider all these elements together.

## **Conclusion**

After a long hiatus, IP is making its way back onto developing countries' agenda. In recent years, a large and increasing agreement is emerging that strengthening industry, particularly manufacturing, is the condition required to benefit from world trade and foster economic growth

and development. This renewed interest in industrial policy follows from that, and IP is once again being viewed as a potentially effective instrument in inducing structural change and the growth of manufacturing.

Industrial policy is back but the world economy and the rules of the game have changed. This implies that a new approach is needed. The recent literature agrees that there is no single recipe for the optimal industrial policy. Rather, the emerging consensus is that effective industrial policy needs to be a mix of common practices and country-specific measures in which past experiences and domestic experimentation are both essential components.

While the economic literature on IP is vast, there is still much to be learned in terms of both theory and empirics. One aspect concerning theory that needs to be further explored is the political economy of industrial policy. The history of a country, its economic characteristics, and the political environment all determine what type of industrial policy is feasible and possible to implement. While some contributions have already opened this Pandora's box, there is still much to learn about how the political equilibrium and other country-specific characteristics interact with industrial policy. As for the empirics, a promising approach is the use of randomized controlled experiments. Even if there are still very few such analyses, this approach—if coupled

with the precious knowledge coming from detailed case studies and cross-country comparative analysis—could significantly improve our understanding of the characteristics of an effective industrial policy. This would be a very important achievement since, now more than ever, a better understanding of the theory and empirics of IP would contribute to designing better strategies for development.

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<sup>2</sup> Szirmai (2011) provides empirical evidence on the fundamental role of the manufacturing sector in the process of development.

<sup>3</sup> Rodrik (2004) notes that direct support is not always necessary to solve this type of market failure.

<sup>4</sup> Key references include Amsden (2001); Lin and Chang (2009); Cimoli, Dosi and Stiglitz (2009); Rodrik (1995, 2004, 2007); Wade (2003); Soludo, Ogbu, and Chang (2004).

<sup>5</sup> It is very instructive to see how different are the conclusions reached by Krueger and Tuncer (1982) and Harrison (1994).

<sup>6</sup> There is extensive literature suggesting that the Developmental State has been quite successful in inducing industrialization in East Asia, where the level of industrialization in the 1950s was lower than in Latin America (Amsden 1989, 2001; Wade 2003).

<sup>7</sup> On the origins and causes of the African debt crisis, see UNCTAD (2007).

<sup>8</sup> Similarly, the TRIPS agreement is making it increasingly difficult for developing countries to access advanced technology since it forbids copying and reverse engineering, two activities that have been important for technology accumulation in developing countries during the Developmental State period (see, e.g., the South Korean case) (Amsden 2000).

<sup>9</sup> Note that these concerns may be somewhat misplaced. In fact the evidence on the positive effect of trade restrictions on manufacturing growth is at best mixed. For instance, the results of protectionist trade policy per se on domestic technological accumulation has in general been quite poor in most developing countries (Rodrik 2004).