

THE POLITICAL ECONOMY OF INDUSTRIAL POLICY

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1. Introduction

The “Great Recession” of 2007-2009 has stimulated new thinking about industrial policy (IP) in the wake of massive efforts undertaken by governments to stimulate their economy. Although this intervention ostensibly had the limited focus of restoring growth, such intervention has also been discriminatory and has led to calls for trade retaliation. This paper focuses on the evolution of thinking with respect to industrial policy (IP). Arguments about the appropriate role for governments with respect to the market are hardly new, going back to the time of Friedrich List and Alexander Hamilton, who called for a significant role for the state in helping countries to catch up with their more advanced counterparts.¹

More recently, economists have themselves caught up with the long standing interest by political economists such as Chalmers Johnson,² Frederic Deyo,³ Bruce Cummings,⁴ and Stephan Haggard,⁵ among many others, who have focused in depth on the policies of the East Asian “tigers” and examined the role of the state to promote development. Economists such as Dani Rodrik have more recently discussed the rationale for state intervention, focusing on market failures and others such as Justin Lin (former Chief Economist of the World Bank) and Ha-Joon Chang have debated the type of industrial policy strategies that countries might pursue. By contrast, most economists from the Anglo-Saxon countries have generally been skeptical of arguments for industrial policy, as reflected in the work of Howard Pack and Kamal Saggi, arguing that governments are likely to be poor at picking winners and are subject to regulatory capture.⁶ Resolving this debate is hardly a simple matter, and as analysts have noted, the lack of our ability to consider counterfactuals makes it problematical to assess the benefits or costs of particular industrial policies with any certainty.

This new interest in IP has been driven by several developments. First and foremost, the rise of China, a country which has pursued active IP, has been seen as a model by some countries. Second, in developed countries, concerns about deindustrialization and claims about the benefit of promoting “green industries” have driven the IP debate. Third, with respect to developing countries, the value of creating economic clusters, dynamic learning and spillover, and the importance of inserting themselves in global supply chains has bolstered an interest in IP. In addition to such goals, there has also been a focus on new tools of intervention, including government procurement, general standard setting, and the use of government pressure on companies to secure intellectual property to bolster specific sectors. Fourth, the evolution of the WTO over the last 15 years has also led analysts to explore the extent to which international and regional institutions might restrict the ability of countries to pursue IP.

Does the new IP debate fundamentally change the rationale for intervention? Are the new tools of intervention radically different from those we have seen before? Is the new IP easier to implement than import substitution industrialization that marked the

¹ See the historical discussion in Chang 2003.

² 1982.

³ 1987.

⁴ 1984.

⁵ 1990 and 2004.

⁶ Rodrik 1996, 1998; Lin and Chang 2003; Pack and Saggi 2006.

economic policies of most developing countries from the 1950s to the early 1980s? And what constraints are countries likely to face if they try to pursue IP? By reviewing both the old and new claims about IP, and by focusing in particular on the political economy of IP, the goal of this paper is to provide analytical survey of the current lay of the land with respect to our understanding of the benefits and pitfalls in the pursuit of IP.

The paper is organized as follows. Section 2 examines the theoretical rationale for state intervention, new and old, focusing on the economic literature on a variety of market failures. It also specifies other goals—economic, political, and environmental—that have driven government intervention. Section 3 examines the variety of policy packages and tools that governments might use to intervene in the market. These include macroeconomic policies, more direct horizontal policies that may have a differential impact on industries, and specific sectoral policies that might attempt to help firms conform to a country's comparative advantage or encourage firms to innovate and defy a country's static comparative advantage.

Section 4 turns to a central political concern: What are the political facilitators and constraints that countries face in efforts to implement IP? A key concern of analysts is concern about government “failure” as a result of capture by firms of the policymaking process, leading to a bottom up rather than top down approach to industrial policy that may serve only the interest of uncompetitive firms who engage in rent-seeking behavior. In terms of *facilitators*, we can identify three levels of analysis—namely international threats, domestic state autonomy, and ideological consensus among policy makers. At the same time, in a dynamic international policy environment, the evolution of the GATT into the WTO, the creation of regional agreements such as the EU, and the recent flurry of bilateral agreements can all *constrain* policymakers' leeway in implementing IP. Looking to the future, we also consider the extent to which such agreements alter the prospects for countries that might wish to pursue IP.

We conclude in Section 5 with some lessons about the use of IP in view of both the theoretical claims and historical experience of a variety of countries examined in the various sections of this report. The main lessons that emerge are that the pursuit of IP is a complex matter, both from an economic and political standpoint. From an economic standpoint, countries that wish to pursue IP must ensure that they have good macroeconomic policy. This fits in with horizontal IP policies to encourage foreign investment that includes the promotion of human capital, regulatory stability, and physical infrastructure. In terms of creating rather than following comparative advantage, it is our view that while both are possible, creating comparative advantage is significantly more demanding from a political perspective. With respect to the latter, success is only likely with relatively autonomous governments that can evade capture by vested political interests. Moreover, IP must take into account the evolving international constraints on such policies, as well as paying attention to varying demands places on governments in light of the types of industries that they might wish to promote. As we suggest, while some countries such as the East Asian newly industrializing countries and China have experienced a significant degree of success, the relatively stringent requirements for such success does not bode well for sector specific industrial targeting in most countries.

2. The Rationale for State Intervention

The debate over the appropriate approach to government intervention has undergone a significant transformation, both from a policy and intellectual perspective. After the 2008 financial crisis, it also became readily apparent that developed countries that had previously espoused a relatively hands off policy toward the economy had actually engaged in sectoral intervention—rather than simply engaging in macroeconomic stimulus.⁷ This reversal in an anti-interventionist trend has led to growing interest by analysts and policymakers on the suitable role for the state, manifested in a revival of new thinking about IP.

Intellectually, the revival of IP has been driven by three important strands of thinking. The first reflects a concern among analysts of developed countries about the deindustrialization of their economies.⁸ Exponents of this so-called new thinking include Gary Pisano and Willy Shih who expressed concern about the outsourcing of not only basic products but of sophisticated ones as well.⁹ Michael Spence, an eminent economist took up the same themes, focusing on the need to promote new technologies to increase the number of manufacturing jobs.¹⁰ Yet many of these ideas, which some see as an original contribution, are hardly new. Indeed, when Stephen Cohen and John Zysman published their book *Manufacturing Matters* in 1987, most economists dismissed their concern about the importance of the manufacturing sector as archaic thinking.¹¹ Moreover, the very basis of ISI was to promote manufacturing to decrease reliance on commodity exports. The claim we make is not that manufacturing might not of significance to broad based economic growth—only that these so-called new ideas were hardly original.

Second, the widespread concerns about environmental degradation became linked to an interest in promoting the manufacturing of environmental goods as a basis for the reindustrialization of the developed countries. This theme gained traction both in the U.S. as well as in Japan and developed countries in Europe. Yet as we will see, the Chinese have actually moved more quickly than developed countries in the promotion of green industries.

Third, an interest in clusters, as seen in the dramatic success of Silicon Valley, and the participation in global supply chains have been seen as a path to development and became a theme of new IP. Here again, the question of how novel these arguments are, and to what extent they provide a new rationale for IP has been subject to extensive debate.

In this section, we take a comprehensive look at both old and new arguments for IP (focusing on the second and third points in light of our interest in developing countries). Table 1 provides an overview of our approach, focusing on several elements that help in better characterizing the essential aspects of each of these approaches. Column 1 considers the specific content of the overarching rationale for government policy. Column 2 considers how governments might respond to these specific objectives, with both a general approach and examples of instruments (not meant to be comprehensive in the table but

⁷ See Aggarwal and Evenett 2010 and 2012 on sectoral intervention in the wake of the financial crisis of 2008.

⁸ See the excellent overview of this debate, particularly in the European context by Owen 2012, Section 4.

⁹ 2009.

¹⁰ 2011.

¹¹ Cohen and Zysman 1987.

only illustrative). Column 3 then looks at possible problems that might occur as a result of government intervention. Following this logic, Section 2's main focus is on the rationale for intervention; Section 3 is on policies and instruments; and Section 4 is on the political dynamics of intervention.

TABLE 1 HERE

To systematically examine the rationale for intervention based on Column 1's three rows, we begin with two major "top down" categories that provide a rationale for intervention: various types of market failures; and other political, economic, and varieties of goals that may motivate states to intervene. We also briefly consider firm efforts to encourage intervention by the state—possibly to enhance their competitiveness or alternatively, as in the case of import substitution industrialization (ISI), to simply maintain their incumbent position by deterring market entry.

2.1 Economic Market Failures

The dominant view on why IP might be appropriate stems from claims about possible market failure. Standard economic theory on imperfect markets and factor market issues are well known and thus are only discussed briefly. Somewhat newer issues concern the importance of dynamic scale economies, technology externalities, coordination failures, and incomplete information, while the newest of the group involved industrial clusters and supply chains.¹²

2.1.1 Imperfect Market

A key rationale for intervention to correct market failures focuses on imperfect markets. As economists have generally claimed, any deviation from a competitive market is likely to lead to a loss of consumer welfare and generate market inefficiencies.¹³ Thus in the case of monopolies or oligopolies, state intervention to break up firms through legal measures, or regulatory efforts to lower barriers to entry to facilitate efficient functioning of the market or to deter collusion by increasing competition may be called for.

Indeed, the dominant theme in American industrial policy toward the end of the 19th century and early 20th century revolved around "trust busting"—the creation of antitrust laws and anti-collusive statutes to prevent excessive industrial concentration. More recently, in the case of the EU, beginning in the 1980s, the emphasis shifted away from nationalization of industry in both the UK and France, toward a focus on privatization and increasing competition through cross-border flows of trade and investment as a result of the common market.¹⁴ More generally, in our view, in many developing countries and emerging markets, privatization of former nationalized industries has often led to the

¹² Pack and Saggi 2006 discuss some key aspects of several of the factors noted in this section. Their treatment is not entirely systematic and thus the discussion here, which draws heavily on S. Aggarwal 2013 incorporates ideas from Haggard 2004 and Lin and Chang 2009.

¹³ See Glykou and Pitelis 2011 for a discussion of industrial policy and imperfect competition.

¹⁴ Owen 2012.

replacement of state monopolies with private monopolies or duopolies. Thus, the creation of suitable rules and regulations to encourage competition and encourage efficiency should be viewed as an important form of “industrial policy.”

2.1.2 Factor Adjustment Failures

Another conventional argument on the need for market intervention focuses on the problem that open trade and technological changes foster market efficiency and growth in theory, but in practice we may see a failure of factor markets to adjust to such changes. Thus, in developed countries such as the U.S., when companies lose their competitive position, claims about smooth economic adjustment do not always hold. For example, although it may appear to be rational for steelworkers and autoworkers to become nurses because of the high demand for this profession and high salaries, the typical response has been for displaced workers to seek protection. Firms, too, may be reluctant or find it too costly to transform their asset specific capital to enter a different industry. In industries such as textiles or steel, as well as agriculture, both firms and workers may seek to discourage technological change or to attempt to block imports. Recognizing this possible market failure, many developed countries have created trade adjustment assistance programs for displaced workers.

2.1.3 Dynamic Scale Economies

An important motivation for IP—connected to the origins of ISI and infant industries discussed—has morphed into a newer claim on the benefits of IP in the context of dynamic scale economies and capital market failures. Krugman sees this return to the insights of development economists like Hirschman as a result of their ideas being incorporated in “a form of rigorous [mathematical] model.”¹⁵ This line of thinking argues that nascent domestic industries cannot bear the high cost of investment and international competition, so state-led help and protection against foreign imports are necessary to encourage development. The basic claim is that through economies of scale that lower per unit costs with expanding production, these industries could be internationally competitive. Although it may appear that an industry lacks competitive advantage at the time, there could be an advantageous endowment structure that would lead to success in the long run. Connected to this argument is the idea that ideally, while financiers should be able to recognize such dynamic arguments, they too may be unwilling to do so, in part because of incomplete information (as noted in section 2.1.4).¹⁶

This idea (as well as those in sections 2.1.4-2.1.6) has been revived more recently with so-called “green industries” explored at length in section 2.2.4. Many have argued that such industries are special, and the U.S., Japan, Korea, China, Germany, and others have sought to bolster these “new” industries. In particular, given concerns about global warming, support for such policies has been widespread.

2.1.4 Technology and Knowledge Externalities, Coordination Failures, and Incomplete Information

¹⁵ Krugman 1994 p.12

¹⁶ See a summary of the arguments in Rodrik 2013.

Arguments about the need to promote nascent industries are often tied to claims about technological externalities or knowledge spillovers as a result of the formation of human capital. Here, the view is that some industries may be particularly desirable because they lead to widespread diffusion to other sectors of the economy. For example, the U.S. Defense Department's support to create the Internet is an example of "public goods" aspects of investment where private firms may not have a strong incentive to invest in light of possible free riding.¹⁷

Concerns about the lack of investment in such cases can be linked more directly to the broader issue of technological innovation. Such innovations can easily diffuse, deterring potential investors who fear that they will not be able to capture the sunk costs of new technology. Consequently, technologically focused products may suffer from a lack of investment owing to this first-mover disadvantage. Moreover, because economic growth comes with significant capital requirements, increased scale of production, and rapid market growth, such improvements must be accompanied by improved educational, legal, and financial institutions, as well as better infrastructure. The inability or unwillingness of individual firms to single-handedly bring about such changes may thus result in market failure.

In the case of Japan, the Ministry of International Trade and Industry played a key role in overcoming such market failures.¹⁸ By directly negotiating as a monopsonist with foreign companies, MITI was able to secure favorable terms on the transfer of technology (as with color television technology).¹⁹ It then disseminated this basic technology to Japanese firms, who then competed in the Japanese market initially, and then in global markets, through productizing this technology effectively. More recently, the Chinese government has played a role in regulating the entry of foreign firms into the auto market by insisting that all foreign firms be in joint ventures with Chinese firms, and the government has effectively pressured foreign firms to transfer their technology to indigenous firms.

In this context, concerns about coordination failures focus on the difficulty of upstream and downstream industries to coordinate their investments. While it may be individually unprofitable to produce computers or software, if private firms in these two sectors invest somewhat simultaneously, both will benefit. But because there is informational uncertainty about the growth of complementary industries, there may be under investment, leading to market failure. Tied to these claims, arguments about information inadequacy argument has been espoused by Dani Rodrik, who argues that IP is more about eliciting information from the private sector about a country's comparative advantage than it is about creating the correct government intervention.²⁰ The claim here is that it is difficult without complete information to ascertain which industries will have a positive future. In Pack and Saggi's terms, "at the microlevel, entrepreneurs may simply not know what is profitable and what is not."²¹ Hausmann and Rodrik share this view and

¹⁷ Pack and Saggi 2006, p. 273.

¹⁸ Johnson 1982.

¹⁹ Aggarwal, Keohane, and Yoffie, 1987.

²⁰ Rodrik 2004, pp. 2-3.

²¹ Pack and Saggi 2006, p. 277. They refer to this problem as an information externality but a better label would appear to be incomplete or inadequate information.

argue that comparative advantage must be discovered through a form of “experimentation” that depends on “strategic collaboration” between government and private sector; specifically, government would help private sector to “internalize the various externalities associated with the cost-discovery process and to provide many of the public inputs (standards, infrastructure, certification, property rights) that only the government can.”²²

The Chinese case in the wind sector is instructive here. With respect to coordinating and favoring domestic firms, the Chinese have effectively succeeded because of their control of upstream and downstream industries. With respect to power grids, two Chinese firms, China Southern Power Grid Company and State Grid Corporation of China are state-owned and constitute a duopsony in the Chinese market. Wind developers (farms) are all dominated by Chinese SOEs as well. These industrial characteristics played a key role in the upstream Chinese wind turbine industry, and helped to account for their domestic and then global success.²³

2.1.5 Agglomeration Effects of Clusters

The work of Paul Krugman on agglomeration effects has been seen by many as an innovative rationale that goes beyond traditional market failure claims.²⁴ Krugman focuses on the importance of clusters, be they urban or regional, as a key element in driving industrial success. Moreover, as Baldwin and Krugman have suggested, the development of clusters can reverse the ‘race to the bottom’ into a ‘race to the top.’²⁵ Developing countries have often competed with one another in attracting FDI by, for example, lowering tax rates and pardoning pollution infractions. Their work argues that because firms would rather locate in industrial clusters than remote locations, they may be less prone to exploit low tax rates and loose legal systems. Thus, governments—at least in theory—might be able to spend more on infrastructure, education, healthcare, and the like and a comprehensive industrial policy that promotes clustering would bring about more growth in developing countries.

Analysts such as Fan and Scott²⁶ draw on some of these and other claims noted in the previous subsections on market failure to argue that clusters can produce dense local labor markets, knowledge spillovers, and various forms of business organization and culture that can enhance competitive advantage. In their view, geographical proximity increases efficiency and productivity, which, in turn, improves comparative advantage and eventually results in increased economic performance. Earlier work by Schmitz and Nadvi focused on clusters in developing countries, claiming that agglomeration effects can increase the likelihood of entrepreneurial activity given the dense interaction networks of such clusters.²⁷

Yet as noted, industrial policies that make clusters a focal point for economic growth must be paired with horizontal policies targeting education and infrastructure—both physical and social. Investment in education is important for providing skilled labor as well

²² Hausmann and Rodrik 2003 and Hausmann and Rodrik 2008 p.4

²³ Aggarwal and Evenett 2014.

²⁴ See Haggard 2004, p. 66-7 for a discussion.

²⁵ 1998.

²⁶ 2003, p. 297.

²⁷ Schmitz and Nadvi (1999) and Schmitz (2000), *passim*.

as innovation at universities that have “dynamic learning capacities.”²⁸ Moreover, without a system of “social infrastructure such as legal, financial and intellectual property rights systems,”²⁹ to attract both foreign and domestic firms, success in promoting clusters is likely to prove ephemeral. The efforts by countries around the world to create “Silicon Valleys” speak to the widespread recognition of the benefits of such agglomeration, but the success rate of countries in achieving this goal has been relatively limited to countries that have a strong transparent government such as Chile.

2.1.6 Global Supply Chains

In view of the key role played by multinational corporations in an increasingly globalized world, some have argued that governments may be able to help their firms participate in global supply (or value) chains as a way of developing their comparative advantage. As Gereffi has argued, the case of East Asia suggests that prospects for participation in a global commodity chain does not end at being “one link in the chain” but rather the possibility of “numerous links in the chain” or vertical integration.³⁰ As he notes, East Asia provides an example of moving “from assembly to full-package supply” over time while participating in the global value chain. Moreover, countries might be able to foster industrial upgrading when involved in a global value chain in order to follow their comparative advantage. Overall, it seems that participation, upgrading and vertical integration of global supply chains for a developing country can lead to economic growth.

Yet in evaluating prospects for successful participation in supply chains, factors such as geographic location, a country’s geopolitical situation, and domestic political economy, amongst others, affect whether the government can actually foster for participation in global supply chains. For example, a study by Morrison, Pietrobelli and Rabellotti on global value chain concludes that the participation in supply chains ought to be combined with “local technological capabilities” to be successful.³¹

Before turning to empirical examples, it is worth noting that if a country was able to develop *both* clusters and participate in a global supply chain, this might be seen as optimal. Yet fostering both elements can be challenging. As we have already seen, creating clusters along the lines of Silicon Valley is not easy; nor might the Valley’s success be due to specific government policies but rather to a serendipitous combination of universities, knock on effects from innovative companies, venture financing, immigration policy, and other geographical and political-economic factors that cannot easily be influenced by government policy.

In terms of examples of industrial upgrading that links both clusters and supply chains, China’s efforts are particularly illuminating. Aside from the IP that promoted wind turbines and solar energy, the case of the auto sector speaks to the issue of strategies for industrial upgrading that is tied to both the issue of clusters and supply chains.³² As Oh notes, the Chinese insisted that foreign auto companies could only enter China in joint

²⁸ Fan and Scott 2003.

²⁹ Kuchiki and Tsuji 2010, p. 3.

³⁰ Gereffi 1999.

³¹ Morrison, A., Pietrobelli, C., and Rabellotti, R. 2008.

³² This subsection draws heavily on Oh 2013.

ventures (JVs) with Chinese state owned enterprises (SOEs).³³ The government then used these JVs to promote parts exports as well as to supply the domestic auto market (and keep out imports). It also pushed industrial upgrading by insisting on high local content requirements *before* it joined the WTO in 2001.

At one level, these policies proved successful in making China a dominant auto producer, with over 180 auto makers by 2008 and relatively few imports coming to China. But in terms of technological innovation, Chinese automakers in JVs failed to develop their own models, even though the government achieved its goal of significant localization and capacity building. As a result, the Chinese government then began to use government procurement to boost local firms that were not in JVs, and that ironically had managed to flourish despite favoritism toward JVs by the Chinese government. Yet it still had trouble enforcing compliance with this effort as government officials continued to prefer cars produced by JVs.

China's entry into the WTO in 2001 has significantly influenced its policy mix. While it began to comply with the TRIMS agreement by eliminating elements such as local content and export performance requirements, it was able to continue to use government procurement as a key policy instrument because China has not signed the WTO code on government procurement—despite agreeing to do so in the near future when it acceded to the WTO. It also attempted to discourage parts imports with higher tariffs. Yet in 2006, the U.S. and EU filed a complaint against China in the WTO against China's tariff policies in the auto sector. After three years of negotiations, China was forced to fully comply with the Dispute Settlement Body ruling against it. Still, China managed to foster the localization of foreign automakers' supply chains by postponing compliance with the WTO. In 2012, the U.S. filed a new case against China, this time criticizing its domestic stimulus plans as being favorable to local auto producers that were not in JVs.

Oh's work on Chinese IP in autos holds important lessons. It shows that countries can, in principle, use IP to promote a particular industry. But it also demonstrates that even a very strong state such as China has faced important challenges—not only in enforcing regulations domestically, but also in attempting to maneuver around the WTO to achieve its goals. On this score, China's relative success in pursuing IP, working to circumvent the WTO, but coming under repeated pressure, suggests that such efforts are unlikely to be easily replicated by other developing countries.

2.2 Economic and Political Goals

We next turn to an examination of the variety of economic and political goals that states may wish to pursue, which do not fall easily into the category of "market failure"—although some analysts might see them as such. Some are well known and have long been used as a rationale for government intervention. The newest of these claims concerns the benefits of promoting green industries, both to address environmental degradation and as a new source of manufacturing jobs.

2.2.1 Income Distribution

States can pursue industrial policy as a method of addressing income distribution issues, which can be by region, ethnic, or religious group. States are often under societal political

³³ Oh 2013.

pressure to address problems of what some see as unequal income distribution. Both China and India have suffered a wide income gap as a result of rapid industrialization in certain areas. In India, southern states have benefited from India's software boom over the past twenty years, leaving rural areas underdeveloped. China has similarly suffered disparities between its urban and rural residents, as well as regional inequity between inland and coastal cities.

More recent legislation by both India and China has worked to address these disparities. In the case of India, the state has pursued measures to provide more Indians with access to social and financial services. In India these include horizontal policies such as targeted programs to help women and educate girls in schools,³⁴ an electronic identity card to ensure among other things that subsidies go to their intended recipients,³⁵ and a variety of rural employment schemes. In China, horizontal policies include a scheme to encourage 260 million Chinese migrant workers to become permanent urban dwellers—a policy that has met with some local opposition as well as criticism of “empty cities.”³⁶ A 2013 OECD study examines the problems of promoting urbanization, including ways to develop “greener policies.”³⁷

In terms of regional inequality, the disparity between the wealthy north and the largely underdeveloped southern areas in Italy has been met with attempts to bridge the gap through significant fiscal transfers.³⁸ These efforts have been met with limited success, and have been mirrored throughout the EU in terms of addressing the disparity among its member states. In China, the disparity between the coastal regions and the western part of the country has led to the creation of a plan known as “Go West” in 2000, that led to the construction of highways, railways, educational programs and the like. Despite these efforts, significant disparities between eastern and western China still remain.³⁹

The issue of inequality often extends to ethnic or religious-based economic disparities. States will often promote preferential treatment for certain ethnicities or religions to correct for this problem. For instance, Malaysia gives preferential treatment to Malays in education, scholarship, business, loans, and housing to help its ethnic population and preserve their dominance in various areas. Such policies have come under fire for continuing past the original deadline of 1990 and persisting today.⁴⁰ Similar preferential policies exist in many other countries.

2.2.2 International Security and International Negotiations

³⁴ <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3180952/>

³⁵ <http://www.digitalcommunities.com/blogs/international/India-Lauches-Worlds-Largest.html>

³⁶ www.bloomberg.com/news/2013-08-10/china-must-address-migrants-needs-in-urbanization-advisers-say.html

³⁷ OECD (2013), “Urbanisation and Green Growth in China”, OECD Regional Development Working Papers, 2013/07, OECD Publishing.

³⁸ *The Economist* 2011.

³⁹ http://www.atimes.com/atimes/China_Business/LG23Cb01.html

⁴⁰ Pang 2013.

Economists, while generally skeptical of deviations from free trade, have almost always agreed that some industries must be protected for reasons of national security.⁴¹ At the same time, industry lobbying groups have often framed their claims for protection in national security terms, knowing that the government may be more amenable to protection in such instances.⁴² Some industries such as defense or the oil industry can make more valid claims about their importance. But even these claims can sometimes be suspect. For example, in the 1950s, the U.S. domestic oil industry argued that imposing quotas on the import of Middle Eastern oil would increase American national security. By 1958, the industry had secured quotas on oil imports based on a national security argument, claiming that this trade policy would lead to energy independence for the U.S. While in the short run this may have been the case, the long-run effect of this policy was disastrous, since it led to the use of American over foreign oil reserves.⁴³

In addition to national security claims, governments have often responded to intervention by other countries' IP efforts with either direct negotiations or by working through international institutions such as the WTO.⁴⁴ Thus, although industry groups might press for government support, governments on their own may also be interested in ensuring that their industries face a level playing field, a topic we examine in Section 3.2.

2.2.3 Rent Seeking by Governments

Less benignly, and motivated by personal rather than state goals, many bureaucrats across the world have engaged in rent-seeking behavior. This involves extracting benefits for themselves from the private sector, which may sometimes, but not always, be tied to industrial policies. In India, for example, ISI policies were often accompanied by large scale bribery as protected industries sought to ensure that such protection would continue. In other cases, such as Korea, corruption has taken place, but politicians facing external threats were more willing to siphon money slowly over time while allowing industries to prosper.⁴⁵ Countries that have a primary advantage in extractive industries are generally more prone to such rent-seeking than those based on manufacturing or services.

2.2.4 Environmental

Global warming has led to growing concerns about environmental sustainability and jobs, which states have tried to address through industrial policy. The United States, for example, has actively promoted green policies through providing subsidies and tax benefits to clean technology companies. The Department of Education has established a 25 billion low-interest loan program to sponsor low-emission vehicles, and has lent to companies such as Nissan, Ford, and Tesla.⁴⁶

⁴¹ See the discussion by Mastanduno 1991 who examines arguments about national security and industrial policy in the context of responding to Japan's economic policies.

⁴² The textile industry among others has often made national security arguments.

⁴³ Keohane 1984

⁴⁴ See the discussion by Mastanduno 1991 who examines U.S. negotiations with Japan in response to its industrial policies in the high tech sector.

⁴⁵ Haggard 2004, p. 71.

⁴⁶ Aggarwal and Evenett 2012.

In an effort to empirically evaluate whether governments had actually been using the financial crisis of 2008 as an opportunity to support “green industries,” Aggarwal and Evenett empirically examined early trends in intervention.⁴⁷ Their 2009 study showed that:

...much state intervention is directed towards those sectors that before the crisis traditionally received plenty of protection from international competition. Defensive motives on the part of private sector interests, trade unions, and policymakers may well account for this finding. Directing so much intervention towards smokestack sectors, relatively lower productivity sectors such as textiles and apparel, and agriculture is hard to square with professed motives to promote economic growth and a “greener economy.”

In 2010, when Aggarwal and Evenett employed more sophisticated econometric tools in their analysis based on a longer time series, they found that there was indeed a newly developing bias toward green industries. As they note: “On the basis of these results, we cannot rule out that crisis-era discriminatory intervention appears to have been motivated by other considerations, including potentially the desire to promote new growth poles as well.”⁴⁸ The upshot appears to be that countries have indeed been promoting some green industries, and the case studies in this work show that both the U.S. and China actively promoted their wind turbine sector. Moreover, in the Chinese case, WTO constraints have *not* prevented the use of IP (see 5.21 below).

Although some analysts have criticized the industrial glut in solar panels and wind turbines (the former a subject of dispute between China and the EU), suggesting that IP was a failure, it is worth noting that while Chinese firms accounted for just under 50% of newly wind turbine capacity in 2006, by 2011 Chinese firms accounted for 96% of new capacity. Similarly, at the global level, in 2004, no Chinese firms were among the top ten global wind turbine manufacturers, but by 2013, four were in the top 10.⁴⁹ But even if one views the Chinese example as at least a partial success, as we do, the political economic requirements for pursuing such policies to secure market share are likely to prove daunting to most developing countries as we note in Section 4.

2.3 Rent Seeking by Firms

Private firms may also exhibit “rent seeking” behavior or lobby the government to secure benefits that may have little to do with market failures or security considerations and avoid competition. With fewer competitors, either domestic or international, profits are likely to increase. Thus, firms are likely to use a host of non-market strategies to benefit themselves as opposed to solely focusing on market strategies to improve their competitiveness.⁵⁰

⁴⁷ 2009.

⁴⁸ 2010, p. 231.

⁴⁹ World Market Update: Executive Summary (2011). BTM Consult Available from <http://www.btm.dk/reports/previous+reports/world+market+update+2006+chinese/?s=39> and IEA, various reports.

⁵⁰ On non-market strategies and tactics, see Baron 2013.

In terms of tactics, the most common approach has been to lobby by framing the debate in terms of national security (as noted previously), or health and safety concerns and also use a grassroots approach to generate pressure. For example, the Korean agricultural sector has publicized these health problems by appealing to the press, summoning images of infected Pul-Kogi, a common Korean dish of barbequed beef. In addition, a candlelight vigil held in May of 2008 drew 2,500 protesters after the ban on beef was lifted.⁵¹ Other tactics include direct lobbying of the government, testimony at hearings, legal strategies, and electoral efforts. These kinds of approaches can result in policies that have little to do with market failure or genuine security considerations, and the outcome can be trade, regulatory, or other such measures.

3. State Management of the Economy: Strategies and Measures

How can governments address market failures and pursue the various political goals, and rent seeking? Governments have utilized a plethora of instruments ranging from macroeconomic policies to horizontal policies that might enhance market performance to more specific sectoral policies that target specific industries. We consider each in turn before examining the political economic constraints on the pursuit of IP in Section 3.

3.1 Macroeconomic Policy and Instruments

Many analysts have argued that states should eschew any horizontal or sectoral policies and simply concentrate on creating a healthy macroeconomic environment. This could include clear monetary policy goals that avoid either inflation or deflation and create stable expectations. In addition, fiscal policy that either stimulates growth or restrains excessive capacity usage that might be inflationary can also help firms operate in a stable environment.

Similarly, exchange rate policy (clearly affected by monetary policy in an open global economy) should allow firms to export and import without biases. Unlike advocates for an undervalued exchange rate to promote exports, or an overvalued exchange rate to facilitate capital imports (as under ISI), many neoclassical economists argue for a market determined rate with minimal government intervention. By contrast, if one examines the policies of the so-called East Asia tigers, these countries systematically undervalued their exchange rate to provide them with a competitive edge in foreign markets. Larger countries such as Japan and Germany also have pursued such policies, particularly in the 1960s when both countries refused to revalue their exchange rates despite U.S. pressure to do so, an unwillingness on their part that led to the end of the Bretton Woods fixed exchange rate system beginning in 1971 (with full floating among major countries by 1973). More recently, China has maintained an undervalued currency to promote exports, and has found itself under U.S. and EU pressure to revalue the yuan.

3.2 Horizontal Policy and Instruments

Horizontal policies are broad, as opposed to sector specific, and work to enhance the market without targeting specific industries. These policies are typically either economic

⁵¹ *Fox News* 2008, p. 1.

incentives such as tax benefits and grants, or are development driven and encompass infrastructure and human capital improvement, or internationally focused.

3.2.1 Domestic Investment and Tax Benefits

Horizontal policies include investment and tax incentives for growing businesses. These can include tax incentives for startups as well as government programs to sponsor certain areas of development. Another example of horizontal policies includes the provision of finance to specific type of firms. The most oft used of these policies are small and medium enterprise (SME) development through tax incentives and access to capital. The United States has promoted SME policies for the past several decades, and President Obama has continued this trend by creating a \$30 billion small-business lending fund.⁵² Most other countries have similarly sought to promote SMEs, a policy which may have a sectoral impact depending on the relative size of firms in different industrial sectors.

3.2.2 Development of Human Capital and Physical and Regulatory Infrastructure

Human capital development, though expensive and more difficult to implement than other horizontal policies, is one of the most effective approaches in the long run. The most important use of this policy is through improving education. The Indian government, established higher education institutions such as the Indian Institutes of Technologies, which have played an essential role in fostering the Indian IT industry. Other programs can include retraining programs for workers who have previously held jobs in industries that are no longer competitive. For example, the Korean government has helped farmers that have lost their jobs as a result of declining agriculture industry by creating educational programs to facilitate career changes.

Infrastructure development, both physical and regulatory, plays an important role in horizontal policymaking. Physical improvements can come through more efficient transportation networks, such as improved roads, highways, or canals, which reduce transportation costs internally. Infrastructure development in impoverished countries has included increased access to clean water and technology, which not only leads to more productivity but also increases consumption, which can help domestic markets grow. In terms of regulatory infrastructure, stronger law enforcement, clear rules and procedures, and a more efficient bureaucracy can help attract foreign direct investment. It also can allow domestic companies to spend less money on private infrastructure (as in the case of India, with firms providing their own electric generators and water storage), allowing them to focus on product research and development, as well as marketing and sales.

3.2.3 Foreign Direct Investment

One of the goals of horizontal policy can be to create an atmosphere that attracts foreign direct investment. These include providing low cost labor, creating tax incentives, and improved market access. A strong example of this is Hong Kong, which has attracted a significant amount of investment by allowing foreigners to invest without burdensome restrictions. In addition, Hong Kong is known for protecting its investors' property and shareholder rights, as well as for providing highly advanced physical and regulatory

⁵² *The Economist* 2010.

infrastructure.⁵³ These policies have led to Hong Kong and states that have followed similar methods to attract more investment. As we have seen, arguments about the creation of clusters and supply chains relies on attracting foreign investment. So on this score, having the right “investment” infrastructure is crucial to attracting capital.

3.3 Sectoral Policies

When one thinks of IP, the most attention has often been focused on sectoral policies. In debating how sectoral state intervention might be critical to development (albeit supplemented by coherent macroeconomic and horizontal policies), two approaches stand out. First, one strand of thought argues that that government action is necessary, but only to the degree that it encourages a country’s existing comparative and competitive advantage in the market. Second, another promotes a vision of state intervention wherein the government “leads” the market, encouraging policies that transform a country’s existing comparative advantage to promote long-term growth.

3.3.1 Conforming or Defying Comparative Advantage?

Robert Wade refers to state intervention to conform to the market as “following the market,” where the government supports some of the bets of private firms.⁵⁴ Justin Lin, former Chief Economist and Senior Vice-President of the World Bank, is in favor of industrial upgrading through the “facilitating state.” Such a state facilitates the private sector’s activity in areas of the country’s comparative advantage.⁵⁵ In a debate with Ha-Joon Chang, Lin discusses how by optimally tapping into a country’s endowment structure (defined by the country’s labor market, capital, and natural resources), the state can remove barriers to entry for firms in these industries. Removing externalities can help firms who have a comparative advantage grow naturally, instead of forcing growth in areas that may not be as internationally competitive in the long run.

Critiquing this view, Chang argues that the standard trade model (Heckscher-Olin-Samuelson, or HOS) that Justin Lin and other proponents of state intervention focus on is effective in short-term allocative efficiency, but not sufficient to explain medium or long run economic growth. In Chang’s view, the HOS model fails to account for outcomes in the long run because it assumes perfect factor mobility—that there are no losers when trade patterns are impacted by external shocks. Throughout the process of trade liberalization, losers such as low-skilled laborers, specialized laborers, and many others are negatively impacted. This is particularly significant in developing countries, where there are few welfare measures to account for the trade-adjustment process by providing unemployment benefits, healthcare, or education.

Another weakness with the HOS model is that it assumes that there is one superior technology for producing a certain product that can be attainable once capital needs are met. This simplification does not account for the difficulty in acquiring better technology. Even if a country has the endowment structure (the labor, capital and the like) that is suitable for a certain industry, it is difficult to attain success without suitable technical and knowledge innovation to sustain a country’s efforts in such an industry.

⁵³ Savard and Wickramarachi 2013.

⁵⁴ Wade 1990 and Wade 2010, p. 155.

⁵⁵ Lin and Chang 2009, p. 484.

Ha-Joon Chang argues against Lin that state intervention must be about defying comparative advantage to upgrade a country's industry.⁵⁶ Wade refers to these policies as "leading the market." States make investment decisions that private firms would not make, rather than supporting already successful industries.⁵⁷ Ha-Joon Chang discusses how comparative advantage-defying policies are necessary to promote long-term growth. He argues that it is impossible for a country to follow the market and smoothly follow comparative advantage industries. Uncertainty over industrial prospects must be overcome, and firms encouraged and protected to achieve future industrial upgrading.⁵⁸

In turn critiquing Chang, Lin describes efforts to lead the market as "comparative-advantage-defying" with high costs. In his view, implementing such a strategy requires significant protection and subsidization for firms that are not necessarily viable without government help. As a result, these firms may not provide any surplus, which can lead to greater difficulties in facilitating improvements in necessary capital and skilled labor over the long run.⁵⁹ In addition, supported firms that may not currently have a competitive edge in the market may lead to a loss of resources from firms that are currently successful, which slows development in these areas for the sake of an uncertain future payoff.

3.3.2 Sectoral Policy Instruments

Whether market following or leadings, instruments of intervention could include a host of measures. For example, countries have often sought to attract FDI through tax holidays for firms producing specific products or accelerated depreciation. Wade advocates incremental support, described as avoiding "open economy industrial policy," which can lead to developing economies losing their manufacturing industry. He cites China as an example of a country that refuses to level the playing field and instead keeping its currency undervalued to stay competitive. Other measures that might be used include directing funding toward certain research priorities. Although this decreases researcher autonomy due to set outcomes and time constraints, such a shift may be beneficial for promoting or leading comparative advantage.⁶⁰

Strategic investments also can be used to promote innovation through providing and stimulating the availability of venture capital. Methods to promote the availability of such capital include financial incentives to VC providers (tax breaks and guarantees) or direct government funding.⁶¹ In addition, government procurement can be utilized as a tool to create national champions and support domestic producers, or as a lever to entice foreign suppliers to comply with national development efforts.⁶² States seeking early project development opportunities often provide incentives that would eventually benefit

⁵⁶ Ajit Singh's 2011 research supports Chang's arguments. He notes that policies that simply follow the market limit firms from finding their global competitive advantage in the long run, instead promoting industries that may only be profitable in the short run.

⁵⁷ Wade 1990 and Wade 2010, p. 155.

⁵⁸ Lin and Chang 2009, p. 501.

⁵⁹ Lin and Chang 2009, p. 487.

⁶⁰ Weiss 2005, p. 733.

⁶¹ Weiss 2005, p. 735.

⁶² Weiss 2005, p. 735.

the industry it is championing. As a result, governments that attempt to lead the market often utilize government procurement.

Governments may use a host of other measures including the creation of government led companies or State Owned Enterprises (SOEs), direct subsidies to industry, or trade measures such as tariffs and quotas. Each of these measures has a set of potential problems including inefficiencies as in the case of SOEs that do not have to meet a bottom line, or excessive coddling of industries with a closed market to foreign goods that diminishes their incentives to become competitive. As we have seen, the Chinese have used government procurement as a key policy in many industries, as they have not yet signed the WTO Government Procurement Code.

In terms of approaches to dealing with national security, governments have often attempted to bolster specific sectors that are seen to be essential and tied to defense related concerns. Instruments that they use include the subsidization of specific industries, or the use of trade measures (such as quotas on oil, as noted above), and government procurement. As noted, as in the oil case, the government may end up helping industries to the detriment of national security despite industry claims to the contrary.

In terms of international negotiations, the U.S., among others, has often aggressively use trade instruments to help particular sectors. For example, in 1986, both because of pressure from the Semiconductor Industry Association and widespread concerns about the security implications of this sector, the U.S. signed a semiconductor agreement with Japan. This accord guaranteed U.S. producers a 20 percent market share in Japan, and came in the wake of U.S. antidumping actions against Japan.⁶³ More recently, the EU has contemplated bringing trade cases to the WTO against China in view of its IP efforts to bolster its solar and wind power industries. As the head of EU Trade Commissioner Karel De Gucht's cabinet noted, "They want their industry to grow. They invite U.S. and EU companies in. They loosely interpret intellectual property rules, then they produce the technology more cheaply themselves and close the market."⁶⁴

Intervention to help specific industries, be they for defense industries or other sectors, is thus likely to create conflicts with trading partners. Although the countries can take international actions through unilateral, bilateral, or multilateral approaches, there is always the danger of retaliation. Particularly in dealing with large trading partners, both the state and industry lobbies must weigh the costs and benefits of aggressive action.

4. The Political Dynamics of Implementing Industrial Policy

To a large extent, the economic and political rationale for some type of intervention—be it a specific type of macroeconomic policy, horizontal policies, or specific sectoral policies to boost or create comparative advantage—has been accepted by many scholars, although by no means universally. Yet even for the proponents of IP, the extent to which states can actually *implement* such policies at the domestic level, and the constraints posed by international trade arrangements that may prevent the pursuit of IP, is a central issue.

The literature in economics tends to be skeptical about state's abilities to coherently pursue industrial policies, whereas the political economy literature has been more

⁶³ See Irwin 1996 on this case.

⁶⁴ EurActiv 2012, p. 1.

optimistic. In the latter camp, as Stephan Haggard argues,⁶⁵ many critics of IP point to government failure, claiming that governments do not have sufficient information and that rent-seeking by business groups is common, undermining any case for intervention. At the same time, an obsessive concern with government failure and capture by private sector interests may lead to excessive caution in addressing market and other failures that continue to beset countries—including developing countries making efforts to catch up with industrialized one.

Still, since success in pursuing IP has varied tremendously, it is critical to focus on understanding both the political facilitators and constraints that influence the pursuit of successful policy measures as well as their evolution over time. On the facilitation side, analysts have identified international, domestic, and ideological factors that affect policy choices. And with respect to constraints, scholars have examined the regulatory impact of international regimes such as the WTO, regional arrangements such as the EU, and the new trend toward the negotiation of bilateral FTAs. It is to these issues that we now turn.

4.1 Facilitators of State Intervention

4.1.1 International Threats

International threats can contribute to successful industrial policy by creating an urgency to achieve economic development.⁶⁶ Countries that face the risk of resource limitations are good examples of this—for instance, Singapore or Hong Kong, which have few natural resources of their own, have pursued economic development to reduce its dependency on other countries as much as possible. Another example is South Korea, which has emerged as an economic powerhouse partly because of the threat of North Korea. South Korea emerged out of the Korean War battered and bruised, yet determined to ensure future security strength through growth—survival through growth.⁶⁷ Summarizing the work of Cummings and Woo-Cummings, Haggard notes, South Korea, along with other East Asian high-growers benefitted from “first a Japanese imperial system and then an American-dominated regional order” which “influenced the emergence and subsequent behavior of state structures.”⁶⁸ Doner and Ritchie also find the origin of the state structures that contribute to successful industrial policy in their “systemic vulnerability,” or the “simultaneous interplay of constraints” that include “severe security threats” along with broad coalitional commitments and scarce resource endowments.⁶⁹ Likewise, such threats have led to economic development in these countries, and encouraged states to promote more heavy-handed industrial policy to encourage growth.

An interesting comparative study by David Kang carefully shows that while the Korea and the Philippines had many similar characteristics with respect to their bureaucracies, and that both had significant corruption, a difference in international threat perception was critical in allowing Korea to pursue growth policies.⁷⁰ As he notes, the U.S.

⁶⁵ Haggard 2004, p. 68.

⁶⁶ Haggard 1990.

⁶⁷ Kang 2002.

⁶⁸ Haggard 2004, p. 71. Cummings 1984 and Woo-Cummings 1999.

⁶⁹ Doner and Ritchie 2005, p.329

⁷⁰ 2002. This paragraph draws on his work, particularly his conclusion and pp. 29-39 on external threats.

was more deeply committed to the Philippines with a major base but less so to South Korea, which also faced a real threat from the North. As a consequence, by the 1970s, the South Korean government aggressively focused on building up its heavy industry. At the same time, both the South Koreans and the Philippines had access to the U.S. market and were treated similarly (if anything, the U.S. was less favorable to South Korea, often pushing it to impose voluntary export restraints in textiles and footwear).⁷¹ Yet attributing success in pursuing IP solely to the single minded focus created by external threats can be misleading. Indeed, Kang's core argument concerns the relationship between business and political power (discussed below)—linked to the external context.

What lessons might the role of international threat in facilitating IP hold for the current context? Here, the implications are not encouraging from a strategic perspective. While leaders have often pointed to external threats as a means of bolstering political stability, a phenomenon known as “diversionary war,”⁷² the long standing extant threats that countries like South Korea and Taiwan faced cannot simply be replicated. But to the extent that such threats exist (or are perceived to exist), depending crucially on domestic political structures, such a context may facilitate IP.

4.1.2 Domestic State Structures

As we have discussed, state structures play a crucial role in the ability for governments to pursue industrial policy. A key factor on this score concerns the ability of the government to be able to resist capture by lobbies. Academics have distinguished between strong and weak states,⁷³ arguing that the former are better able to resist lobbies because of the nature of their bureaucracies or their insulation from political pressures.

Drawing on the work of analysts of East Asian industrial policy, Haggard argues that the strong state in both Taiwan and Korea and the “industrial organization and financial and corporate structure in both countries were directly influenced by the politics of business-government relations.”⁷⁴ And he goes on to note that in the high growth East Asian countries “political elites enjoyed a degree of political, organizational and economic independence from the private sector actors in the early phases of the region's growth, and this key political fact was reflected in institutional arrangements.”⁷⁵

Proponents of market intervention such as Robert Wade recognize the danger of clientelism as a form of government failure. To respond to these concerns, he notes that the state should impose performance conditions on industries in which it intervenes.⁷⁶ Alice H. Amsden specifically terms this “tendency for subsidies to be dispensed in exchange for concrete performance standards with respect to output, export, and R&D” as “reciprocal control mechanism.”⁷⁷ These conditions can range from success in export or import replacement, reducing the gap between international and domestic prices, or increasing the

⁷¹ See Aggarwal, Keohane, and Yoffie 1997 on the political dynamics of VERs in several sectors.

⁷² See Sobek 2008 for review of the literature.

⁷³ Katzenstein 1977, p. 879-920.

⁷⁴ Haggard 2004, p. 72 drawing on Cheng 1990 and 1993, Fields 1995, and Noble 1998.

⁷⁵ Haggard 2004, p. 72.

⁷⁶ Wade 2010, pp. 158-159.

⁷⁷ Amsden (1991) P. 284 and Amsden (2001).

ratio of local content in products. Dani Rodrik agrees with Wade and Amsden on the need to reduce government failure in IP by ensuring a collaborative environment between government and the private sector. Such collaboration can include “deliberative councils, supplier development forums, investment advisory councils, sectoral round-tables or private-public venture funds.”⁷⁸ Rodrik goes one step further than Wade in arguing that these principles must apply to all state efforts to promote new industries, and that government incentives “need to be temporary” as well as based on performance. Should periods of heavy state involvement be understood to be short-term, firms will have incentives to pursue internal long-term growth or perish once such policies end.

Yet the debate about an “appropriate” political structure for successful IP has yet to be resolved. Indeed, even the widely accepted claim that corruption necessarily undermines IP efforts has been challenged by Kang—at least conditionally.⁷⁹ Kang argues that what distinguished South Korean success from the relative failure of government growth policies in the Philippines—in addition to the presence of an external threat discussed in 5.1.1—was the balance of power among business and government elites in Korea, as opposed to domination of business by the state in the Philippines. Thus in Korea, both government elites and business found themselves in an iterated Prisoner’s Dilemma (PD) game where cooperation for growth and IP became possible.

In terms of the implications for countries seeking to pursue IP, the lessons are complex. Clearly, much of the success in the case of Korea was based on historical legacies of development and path dependence (Kang and others, for example, point to the Japanese colonial legacy). Thus, leaders seeking to pursue IP cannot simply seek to “develop” a PD game: successful collaboration rather than defection will depend on the institutional context as well as on the extant power of business and government. More practically, there is little to suggest that strong governments that face weak business groups would have an incentive to create more powerful business groups—any more than strong business groups who face a weak state would be willing to give up power.

Wade nicely summarizes three other conditions besides a balance of power to ensure effective state-business alliances.⁸⁰ These include the condition that public officials operate with “an activist, public service oriented mindset,” rather than the pervasive “do no harm” attitude that leads to indifference. In addition, he argues that effective state-business development policy requires the bifurcation of political and administrative structures. The final condition is that the state officials involved in promoting private firms must not have significant discretionary control over public resources. These conditions, particularly the right mindset, bring us to the third element of this section—the development of an ideological consensus for growth.

4.1.3 Ideological Consensus

Aside from international and domestic facilitators, the importance of ideological coherence has often proven critical in the successful pursuit of IP. For example, a key aspect of the move away from ISI to liberalization in the 1980s and 1990s came from an evolving ideological consensus that ISI had reached its limits and that economic liberalization would

⁷⁸ Rodrik 2010.

⁷⁹ 2002.

⁸⁰ 2010, 158-159.

be a far more beneficial approach to promote economic growth. Later, as the neoliberal approach of the Washington Consensus faced its own set of economic challenges, scholars such as Dani Rodrik, Robert Wade, and others advocated a more nuanced approach to state intervention—rather than heavy-handed ISI.⁸¹

In the current environment, the level of ideological consensus has clearly eroded. Even in China, where the state continues to strongly intervene, a debate has been taking place on the role of the state, particularly with respect to addressing excessive state power that leads to corruption. Indeed, for the most part, few countries today have a strong ideological consensus on the level of intervention in which states should engage. This lack of consensus results from several factors. First, the success of China has thrown the pure neoliberal model of non-intervention into question. Second, it has been clear that much IP has led to inefficiencies, whereas states where the market has been allowed to work have had success in such industries as information technology (such as Silicon Valley). Third, a number of constraints on the use of IP have been developed in the WTO, although as we shall see, the work of Aggarwal and Evenett suggests that these constraints are not as binding as some scholars have suggested.⁸² Summing up, the current consensus in most countries is that states can successfully pursue IP. Yet given the economic and political prerequisites for success as we have seen in Section 2 and this section, ideological dissensus on the benefits of an active IP effort continues to prevail.

4.2 International Constraints on State Intervention

4.2.1 Global Constraints

A key debate on IP concerns the evolution of the WTO's rules over time. Put simply, does the WTO now make it impossible for countries to pursue IP? Some analysts have accused developed countries that pursued IP of their own of “carving out a multilateral order which best suits their current development trajectory.”⁸³ Chang and Wade have revived Friedrich List's concept of “kicking away the ladder,” arguing that developed countries used protectionist measures to get to their place atop the pecking order while prohibiting developing countries from following them by “cement[ing] the head-start advantages of their firms through the WTO agreements.”⁸⁴

More specifically, Weiss argues that the multilateral trading order discriminates against state policies that promote labor and capital-intensive industries while allowing the same policies directed at technology- or knowledge-intensive industries.⁸⁵ As she notes, developed countries, which are more reliant and capable in high-tech and knowledge-based industries are not subject to the same trade laws as developing countries whose skills revolve around labor- and capital-intensive industries. Labeled “Strategic Activism” by Weiss, governments' use of subsidies to enhance technology and policies such as export finance programs, infrastructure for export expansion, governance of science and

⁸¹ Various authors have written extensively about ideology and economic growth including Johnson 1982 on MITI in Japan and Katzenstein 1985.

⁸² 2012.

⁸³ Weiss 2005, p. 723.

⁸⁴ Wade 2003, p. 633. See Chang 2003 on “kicking away the ladder.”

⁸⁵ Weiss 2005, p. 724.

technology priorities and innovation and investment support have not been challenged in the WTO.⁸⁶

Secondly, some argues that the Trade-related Aspects of Intellectual Property Rights (TRIPS), Trade-related Investment Measures (TRIMs) and General Agreement on Trade in Services (GATS) agreements can hinder developing countries from implementing IP. Wade argues that TRIPS, which is the multilateral agreement on intellectual property, makes it more expensive for developing countries to receive a transfer of technology because of the overwhelming number of patents owned by developed countries.⁸⁷ Moreover, it ensures that, as Wade puts it, “developing countries’ rights and developed countries’ obligations are unenforceable, while developing countries’ obligations and developed countries’ rights are enforceable”⁸⁸ because of the high cost of using the dispute settlement mechanism. The TRIPS agreement has been extended for the least developed countries on two occasions (from July 2005 to July 2013) and now with the most recent being in July 2013 until 2021.

Yet this view has been the subject of intense debate.⁸⁹ For example, only 38 very poor countries are affected by the extension of TRIPS agreement. Maskus also claims that although stronger system of intellectual property rights like TRIPS by themselves are “highly unlikely to produce benefits,” positive impacts of intellectual property rights (IPRS) should be stronger in countries with “appropriate complementary endowments and policies” such as enhancing capacities to develop and use IPRS and promoting competitive markets.⁹⁰ In fact, contrary to the views expressed by Wade and others, some like Shadlen argue that it is still possible for developing countries in post-TRIPS era to have space available for local actors to “invent around” patents by designing patent laws that take into account “broader developmental objectives such as imposing stringent rules on disclosure and subsequently granting narrow patents, for example, or by allowing for wide-ranging research exceptions.”⁹¹ More significantly, a new study using a large data set of case by DiVita finds that “the TRIPs agreement is always positively related to innovation and is highly statistically significant, even when we account the potential problem of endogeneity.”⁹²

Wade also criticizes the TRIMs accord, which forces governments to treat all firms equally regardless of their home country and “bans performance requirements related to local content, trade balancing, export requirements, and it also bans requirements on public agencies to procure goods from local suppliers.”⁹³ There is some evidence here from WTO dispute settlement mechanism that suggests that countries have changed their policies to comply with TRIMs. As we have seen, China was subject to a dispute settlement proceeding

⁸⁶ For specifics, see Figure 1 Weiss 2005, p. 728.

⁸⁷ Wade 2003, p. 624.

⁸⁸ 2003, p. 624.

⁸⁹ See the review in DiVita 2013 of the theoretical and quantitative evidence on TRIPs and the implications for domestic innovation.

⁹⁰ Maskus 2000 p.19

⁹¹ Shadlen 2005 p. 762

⁹² DiVita 2013, p.

⁹³ 2003, p. 627.

in 2006 after a complaint by the U.S. and EU over the use of auto parts in assembling cars. China then changed its policies in 2009 to conform to the TRIMs agreement.⁹⁴

In light of this debate, an innovative study examined the extent to which seven economies—the U.S., Russia, Japan, China, Brazil, the EU, and South Korea — are complying with the WTO when they intervene in the aftermath of the 2008 financial crisis.⁹⁵ In addition to observing significant variation in both discrimination against foreigners as well as among domestic firms, the study found that countries vary in the degree to which they substitute for classic trade measure by using less regulated WTO rules such as “migration, bailouts and state aids, competitive devaluations, investment incentives, export taxes, trade finance, and steps by subnational governments and state-owned enterprises.”⁹⁶ In particular, the study finds that the worst “offender” in terms of discrimination against foreigners also were the most likely to employ weakly controlled measures. On this score, the EU proved to be the most likely to employ such measures, while Brazil was least likely. The study concludes by noting that this evidence “casts doubt on some of the strong claims in the industrial policy literature that WTO rules impose substantial constraints on government intervention, at least during the crisis era.”⁹⁷

As we have seen, even aggressive interveners such as China have been subject to some WTO disciplines (as in autos and solar panels), but such countries have also found ways to circumvent these rules through alternative mechanisms. Thus, even countries that are fully complying with provisions of the WTO (as noted, China has not secured the government procurement code), still have options to develop clusters and become part of global supply chains. At the same time, they will need to be prepared to face possible dispute settlement cases depending on the measures that they choose to employ.

4.2.2. Regional Constraints

Aside from the WTO, regional arrangements such as the EU or ASEAN may also impinge on state efforts to pursue IP. For example, the European Union’s Competition Policy attempts to prohibit any market distorting practices by national governments and firms operating in Europe. This Competition Policy involves both legislation limiting the scope of national government actions and legislation limiting certain private sector operations. As Section 2, Article 107 of the Treaty on the Functioning of the European Union (TFEU) notes, “any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favoring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market.”⁹⁸

Still, important exceptions exist to this rule, including aid to consumers that does not discriminate, damage caused by natural disasters, regional aid, cultural and heritage conservation. Moreover, in the wake of the 2008 financial crisis, Article 109 of the TFEU authorized horizontal schemes to promote “research, innovation, training, environmental protection and in particular clean technologies, transport and energy efficiency” and

⁹⁴ http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds342_e.htm

⁹⁵ Aggarwal and Evenett 2012.

⁹⁶ 2012, p. 278.

⁹⁷ 2012, p. 278.

⁹⁸ European Union. 2012. Official Journal of the European Union C326, p. 91.

allowed “Member States to ease access to finance for companies through subsidized guarantees and loan subsidies for investments in products going beyond EU environmental standards.”⁹⁹ The extent to which IP should be allowed continues to be debated in the EU, and in ASEAN with its target date of 2015 to create an ASEAN Economic Community.

4.2.3 Bilateral Constraints

Bilateral free trade agreements (FTAs) have also played an increasing role in constraining industrial policy. Negotiations over these types of FTAs often result in concerns over protectionist policies and subsidies that hinder market access across borders. For example, in negotiating the Korea-U.S. FTA or KORUS, both the United States and Korea attempted to protect certain industries through preferential policies. The United States automobile lobby, led by Ford and GM, attempted to retain tariffs on Korean auto imports to the U.S. to retain a competitive edge. This resulted in the Korean agriculture industry lobbying heavily to protect rice production, despite Koreans paying five times the world price for rice as a result of this protectionism.¹⁰⁰

Bilateral constraints also played a role in limiting the maneuvering room of the Thai pharmaceutical industry. Between 2006 and 2007, Thailand issued compulsory licenses for two AIDS drugs (efavirnz and the combination of lopinavir+ritonavir) and one antihypertension drug (clopidogrel), which led to objections from the pharmaceutical industry that such actions violated the WTO’s Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS). The USTR placed Thailand on its Priority Watch List, despite Thai protests that not all could afford AIDS drugs, and that the prevalence of AIDS in impoverished areas was grounds for an exception.¹⁰¹ Such constraints have led to tension in U.S.-Thai trade.

5. Toward the Future: Lessons on IP

As we have seen, industrial policy can foster economic growth, but must be practiced with great care. The most limited form of “industrial policy” is macroeconomic policy, which is essentially a *lassiez faire* approach that combines monetary and fiscal policy to create a stable environment for industries to grow based on their own strengths and weaknesses in the global economy. The risk of following this method is that simply creating a more economically open environment may not be enough to realize real economic growth. Horizontal policy requires greater intervention, and generally promotes industries that already have an advantage in the market through broad policies such as improved education and human capital development, stronger infrastructure development (whether financial or physical), or financial benefits. Finally, sectoral policy is the most involved, allowing the state to pick winners (and losers) by choosing which industries should have the most resources. The downside of these last two more intrusive methods are that the state can create policies that are initially beneficial, but can result in dependence and eventually, capture.

To better understand the new issues that are increasingly becoming a focus of the benefits or costs of IP, Table 2 examines both the claims that advocates of particular

⁹⁹ EU European Economic Recovery Plan, p. 12 (emphasis in original).

¹⁰⁰ LaMoshi 2003.

¹⁰¹ *Bangkok Post* 2013.

problems or types of industries promote as well as the policies that they believe will achieve their goals. As we can see, different policies or market failures often require more than one type of policy (macro, horizontal, or sectoral), and at least theoretically, as we have seen in this paper, it is possible to substitute different policies to achieve the same goal.

TABLE 2 HERE

As Section 3 noted, there is considerable debate about the appropriateness of IP. Some argue that macroeconomic policies should be sufficient, others call for horizontal policies, and yet others favor sectoral policies. With respect to the latter, there is an ongoing debate about whether governments should attempt to facilitate the pursuit of comparative advantage or actually defy a country's comparative advantage to create cutting edge products and services. Table 3 summarizes the key arguments on this score. Our own view is that it is unlikely that sectoral policies can succeed in the absence of good macroeconomic and horizontal policies. The importance of these policies has often been lost in the debate on sectoral policies.

TABLE 3 HERE

A crucial issue concerns the question of whether such policies, be they macro, horizontal, or sectoral, can be successfully *implemented*. To this end, column 1 in Table 4 summarizes the key factors that may facilitate or impede the pursuit of IP. More importantly, from a policy perspective, column 2 addresses the key question of whether these factors can somehow be influenced by policy elites. What do we find?

TABLE 4 HERE

Although international threats appeared to have played a historical role in facilitating IP (as in the case of South Korea or Taiwan), this "factor" is not subject to quick manipulation for the purpose of pursuing IP. As noted, international threats are generally a "given" and elites are unlikely to attempt to create such threats simply to promote IP.

State structures, on the other hand, play a significant role in whether or not a government is able to successfully pursue industrial policy. Strong states are better able to resist capture by lobbies, which is a major concern of practicing highly interventionist policy. As we have seen in East Asia, state independence combined with external threats and a strong developmental ideology, helped countries such as South Korea and Singapore among others to partially avoid clientelism. In terms of policy, as Wade and others have noted, states should impose performance conditions on industries they support, and should ensure that power is evenly balanced to prevent corruption.¹⁰² But the notion that elites may be willing to impose performance conditions or encourage a power balance is not a given. Such elites may just as easily be interested in extracting rents from business actors rather than promoting IP, particularly in the absence of international threats. Moreover, given the variety of countries that have succeeded in the global economy with quite different policies, few prospect for a single ideological agreement are on the horizon.

¹⁰² Wade 2010.

Although some countries may achieve such a consensus, this process is likely to be long and drawn out, as even countries such as China face debates over the appropriate role of the state.

The WTO is another important player in how states pursue industrial policy through limiting protectionism. Some have argued that the rules of this organization are limiting the pursuit of IP. For example, analysts have been critical of the TRIPS and TRIMs agreements, as restricting developing countries scope of action with respect to IP. Yet the empirical evidence is much more mixed than at first glance. TRIPS may well enhance the prospect of IP, as governments are more confident that the intellectual property that they promote or that is developed by firms will be protected. TRIMs may restrict the ability of the countries to engage in export promotion, using local content rules to promote industrial upgrading, or support cluster development. Yet as Aggarwal and Evenett have shown,¹⁰³ countries may be highly resourceful in circumventing the strictures of the WTO. Empirically, we have seen that China, Brazil, and developed countries have all managed to implement IP without running afoul of the WTO. Similarly, countries have been creative in pressing for changes in regional accords, or in negotiating bilateral agreements to give them leeway in IP promotion.

What is the take away from this analysis? On the whole, we believe that while international constraints only have a limited effect in preventing the use of IP, the most significant impediment to the promotion of successful IP revolves around a country's domestic political structure. Even countries that meet many of the requirements that we have discussed for the effective use of IP such as China and Singapore are increasingly facing challenges, both in terms in the case of the former with corruption and concerns about fostering sufficient innovation in a rapidly changing global economy in the case of the latter.

In short, while IP policies may well lead to the development of countries' economies—be they horizontal or sectoral policies—policymakers must be aware of the risks of regulatory capture. This may leave countries worse off than simply creating a positive atmosphere for businesses through carefully managed macroeconomic policies. At the same time, excessive concern about government failure may be overblown in some cases, and some forms of IP may foster growth and development. As with most policy advice, the careful design of policy proposals from both a political and economic perspective is essential to achieve success.

¹⁰³ 2012.

Table 1: Rationale for State Intervention

		Dynamics of State Intervention		
		<i>1) Specific concerns</i>	<i>2) Government responses (policies and instruments)</i>	<i>3) Possible problems with intervention</i>
Overall Rationale for Intervention	<i>State with strategic intent to address market failures with industrial policy</i>	<ul style="list-style-type: none"> - Imperfect market - Factor adjustment failures - Dynamic scale economies - Technology externalities - Coordination failure - Incomplete information - Agglomeration effects - Global supply chains 	<p><i>Responses:</i> Horizontal or sectoral policies (market following or leading)</p> <p><i>Measures:</i> trade measures, SOEs, subsidies, tax benefits, regulation, government procurement</p>	Governmental failure owing to lack of knowledge or capture
	<i>State intervention for other political and economic goals</i>	<ul style="list-style-type: none"> - Income distribution - International security - International negotiations - State rent seeking - Green industries 	<p><i>Responses:</i> Horizontal or sectoral policies (market following or leading)</p> <p><i>Measures:</i> trade measures, SOEs, subsidies, tax benefits, regulation, government procurement</p>	Conflicts among groups, capture in the name of “security”, retaliation by other countries, predatory state
	<i>Rent seeking intervention because of regulatory capture (lobbying by the private sector)</i>	Secure protected market to avoid competition, either foreign or domestic or to increase competitiveness through state intervention	<i>Measures:</i> Tariffs, quotas, SOEs, subsidies, tax benefits, regulation	Misuse of government intervention creates inefficiencies

Adapted from S. Aggarwal 2013, Table 1.

Table 2: “New” Issues with Respect to Industrial Policy

<i>Issue</i>	<i>Claim</i>	<i>Policies</i>
Importance of manufacturing sector	Manufacturing is essential to develop comparative advantage and move away from reliance on commodities or is important in developed countries to provide jobs for middle class jobs.	Both horizontal and sector specific policies to bolster the manufacturing sector (with aggressive trade and subsidy policies, among others, in the case of ISI).
Agglomeration effects or clusters	Clusters are the basis of rapid industrial transformation because of their spillover effects and interconnected factor markets.	Horizontal policies to boost regions and possibly sector specific policies to promote specific industries in a cluster complex.
Global supply chains	Working with multinationals in a global economy through positioning domestic firms in a global supply chain can promote growth and increase the benefits of foreign direct investment.	Encourage multinationals to invest through good macroeconomic policies and horizontal policies. Promote industrial upgrading of existing domestic firms through a variety of horizontal and sector specific policies.
Green industries	Green industries in both manufacturing and services should be promoted in view of environmental concerns that will drive high demand.	Both horizontal and sector specific policies to target green focused industries.

Table 3: Economic Factors Influencing Successful IP

		Specific Policies	Views in the literature
Policy Type	Macroeconomic	Monetary policy Fiscal policy Exchange rate policy	General agreement on stability Deficit spending can be useful in crises, but excessive spending is inflationary Almost all argue for stable exchange rates; some argue that undervalued rates help promote exports
	Horizontal	Tax incentives Investment incentives Financing for SMEs Human capital development Physical Infrastructure Regulatory Infrastructure Policies to attract FDI	Generally seen as favorable Good but can lead to overinvestment Generally seen as positive Widespread agreement on benefits Widespread agreement on benefits Widespread agreement on benefits More controversy on this issue, particularly with concerns about excessive preferences for foreigners
	Sectoral	None Follow comparative advantage Defy comparative advantage	Skeptics on the utility of sector specific industrial policy Increasing support for government as facilitator Controversy about the possibility that the government can useful lead firms

Table 4: Political Economy Factors Influencing Successful IP and Ability to Affect Factor

<i>Key facilitators or impediments for success</i>	<i>Can state elites affect these factors?</i>
<i>International Threats:</i> May help countries develop IP when tied to other factors below.	Only to a minor extent. “Diversionary war” may bolster domestic popularity, but elites are unlikely to “create” threats for IP purposes.
<i>Domestic structure:</i> State autonomy, balance between business and government, and administrative versus political separation are helpful.	State structures and relationships are often historically determined and cannot readily be changed in the short run. State autonomy can lead to state rent-seeking rather than successful IP depending on other factors (1 and 3).
<i>Ideological consensus:</i> Coherence of views among relevant stakeholders helps in promoting IP.	Appropriate consultation and debate may allow elites to develop a coherent vision of what types of horizontal and sectoral policies should be promoted.
<i>International Accords:</i> The WTO may constrain actors from undertaking IP in some cases. It might also be possible that adherence to WTO strictures facilitates IP (as in the case of respect for intellectual property rights that encourage firms to be more innovative in response to government initiatives.	If countries are members of the WTO and all its codes, they could be constrained in the pursuit of IP. Still, since many members do not sign all the codes (e.g. China and government procurement), and since all intervention measures are not constrained by the WTO, countries may have leeway in implementing IP.
<i>Regional agreements:</i> Various regional accords (NAFTA, EU, ASEAN) may have their own set of strictures aside from the WTO as to what types of policies are permissible.	Changing views as well as lobbying by member states can alter what is permissible in regional accords.
<i>Bilateral agreements:</i> As countries pursue bilateral agreements in view of problems in the WTO, some constraints on IP may be included in FTAs.	Since bilateral agreements involve two parties by definition, the question of what constraints are introduced is subject to negotiation. Because many bilateral agreements involve asymmetric power, some states may be pressured into restricting their leeway in exchange for market access, particularly to larger economies.

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