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Industrial Policy and Growth*Helen Shapiro*

Abstract

The paper highlights how the rationales and instruments of industrial policy have changed since the 1960s. It finds that theories of industrialization have come full circle, as many of the assumptions behind the market failure paradigm have made a comeback. The policy implications of these theories, however, have not been similarly resurrected. It makes an explicit comparison between the strategies of East Asia and Latin America, and reviews the explanations for their divergent performance. It identifies a “back to the future” quality of Latin America’s situation, pointing to the region’s balance of payments constraint and dependence on commodity-like industrial products.

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Industrial Policy and Growth

Helen Shapiro

The paper will review the impact of industrial policy on growth in developing countries from the 1960s until the present. This is a propitious time to conduct such an assessment. Within policy-making and academic circles, extremely critical views of state intervention in general, and industrial policy in particular, are no longer as dominant, and have given way to more nuanced approaches. This opening allows for a reassessment of earlier policies from today's vantage point, as well as reflection about new challenges posed by global production and constrained policy options.

The paper will make an explicit comparison between the strategies of East Asia and Latin America. These are the most industrialized regions within the developing world, accounting for 80 per cent of manufacturing value added (Lall, Albaladejo and Moreira, 2004: 9). East Asia's income and manufacturing growth rates have surpassed those of Latin America, and much of the literature on industrial policy engages in explicit comparison between the regions and offers explanations for their diverging performance.

Why Industrial Policy?

It is useful to recount briefly the motivating factors behind the push to industrialize, if only to place the subsequent policies in their historical context. The economic arguments pointed to the secular deterioration in the terms of trade for poor countries' raw material and agricultural exports, differing income elasticities of demand for agricultural and industry (Engel's curves), and more generally, how high productivity growth, considered the basis of rising per capita income, was only attainable through industrialization.¹ It also reflected the political pressures and interests behind economic autonomy following political independence in some countries, export pessimism from both the collapse of commodity prices and world trade in the 1930s, and the post-war protectionism in Europe and elsewhere. There was also a relatively hospitable international climate, in which US international agencies and multilateral institutions supported such initiatives. In this context, returning to a dependence on raw material exports was considered both economically unviable and politically problematic.²

In their arguments promoting government intervention, many early development economists focused on a "missing factor" – capital, technology, entrepreneurship – which was unlikely to emerge from market forces alone. Therefore, different methods were required to elicit these missing ingredients for growth. Imperfect capital markets, for example, were unlikely either to generate sufficient savings or allocate them efficiently without some form of market intervention. Technological and pecuniary externalities lead to underinvestment. In addition, investors' expectations were often based on past experience, requiring some kind of 'inducement' mechanism to elicit investment in new industrial activities (Hirschman, 1958, 1977).

With respect to capital, some focused on low domestic savings rates and the need to harness foreign capital in the form of aid or direct investment (Lewis, 1955). Gerschenkron (1962) argued that the greater relative backwardness of modern less-developed countries, in contrast to previous industrializers, required a

1 See Prebisch (1950, 1959) and Singer (1950) on the terms of trade; Maddison (1994) on growth and industrialization.

2 See Kaufman (1990) and Haggard (1990) for the political economy of this period.

leap into the most modern, capital-intensive sectors. In the face of this challenge, and equipped with a weak private sector and scarce capital, only the state had the capacity to mobilize and allocate resources. Others saw the problem from a Keynesian perspective as one of motivating investors, rather than as one of scarce savings. Due to the prevalence of pecuniary externalities, Nurkse (1953), Rosenstein-Rodan (1943), and Scitovsky (1954) argued that governments need to coordinate investment decisions and promote a ‘Big Push’.

Despite these differences, there was broad consensus around the basic assumption that development required non-marginal change that market forces alone could not generate.³ The goal was to reallocate resources to industry from agriculture or raw materials. The strategy involved changing the incentive structure to redirect them.

There were two other implicit, but ultimately, questionable, assumptions that experience would later make apparent. The first had to do with the nature of technological change. The development process was typically portrayed as one of factor accumulation and technology, like labour and capital, was viewed as just another missing factor. Embodied in capital, it could be imported and, assuming fixed-technology production functions, applied in the same methods as in the country of origin. The second had to do with the state and technocratic omniscience. State planners, armed with input-output tables from industrialized countries, and given the assumptions about technology, could simply allocate resources accordingly and leapfrog into the modern industrial era.

Neoclassical Backlash⁴

The first neoclassical reaction to state-guided industrialization aimed at the associated costs. Using new analytical tools such as effective rates of protection and domestic resource costs, these authors showed that industrial policies were inefficient and tried to correlate ‘distorted’ policy regimes with poor economic performance (Little, Scitovsky and Scott, 1970; Balassa, 1982). Their critique was bolstered by the success of export-oriented countries such as South Korea and Taiwan which at the time were thought to have non-interventionist states. Their rapid growth in comparison to economies which followed inward-oriented strategies seemed to provide empirical validation that dynamic gains could be had from free trade (Krueger, 1984).

This debate between old-style development economists and more orthodox theorists, however, still centred on market failure and whether intervention was necessary. In the 1980s, a second wave of critique attacked the early development economists’ implicit belief in the efficacy of government intervention. Various models of the interaction between the state and private actors pointed to the possibility that ‘bureaucratic failure’ could be worse than ‘market failure’. Krueger (1974) argued how quantitative restrictions on imports led firms to compete for import licenses and their attached rents, thereby squandering resources in unproductive, rent-seeking activities. This approach came to a different explanation for the relative success of East Asian newly industrialized countries (NICs) – the pressures of international competition mitigated against the worse sort of rent seeking observed in countries practicing more inward-oriented industrialization.

This literature was correct in its claim that state intervention does not necessarily lead to efficient outcomes. The lack of a theory of the state was less problematic for neoclassical theory, which at least assumed that markets function and presupposed a minimal role for government. In contrast, the omission of

3 Ellis (1958) and Viner (1953) were early exceptions to this approach, each expressing more faith in market-based solutions.

4 This section is based on Shapiro and Taylor (1990).

the state as an explicit actor is a fundamental flaw in the development theorists' argument, since they relied upon the state as an agent of change and presumed that it had the requisite political autonomy and administrative tools to carry out the task.

Empirical Findings and Emerging Consensus

Although early in this debate, some claimed that the East Asian NICs had relatively free trade and non-interventionist governments, it soon became clear that the governments were extremely interventionist. Subsequently, a huge literature has documented how all late industrializing countries followed quite similar strategies and relied on the same policy instruments to kick-start industrialization in the 1950s and 1960s. They all tried to substitute imports with domestic production and used government planning to target priority sectors. They used selective protection (tariffs, quotas, import licensing, and foreign exchange rationing), domestic content requirements, and subsidized credit. In her survey of twelve countries that had successfully moved into mid-technology industries, Amsden (2001) found that the public sector had a large role in capital formation in the 1960s that diminished over time; even where development banks per se were insignificant, government played a large role in credit allocation through the banking system. What's more, they each targeted the same group of basic industries.⁵ Even sceptics of import substitution such as Bruton have concluded that with respect to policy instruments, their similarities outweigh their differences. Looking at effective rates of protection, he points out how high effective rates of protection were not necessarily correlated with poor results, as "a number of countries, later achieving outstanding success, showed the same sort of protection picture as did later failures" (Bruton, 1998: 912).

A key difference among these countries was how fast and how extensively they moved into manufacturing exports. While some inward-oriented countries such as Mexico and Brazil grew at fast rates during the 1960s and 1970s, the East Asian export-oriented countries grew even faster.⁶ This challenged the long-standing export pessimism of development economists. Although Latin American manufactured exports also grew in the 1970s, they were a much smaller share of both total manufacturing value added and of gross domestic product (GDP). They also failed to keep up with imports, as the region entered into the balance-of-payments crisis of the late 1970s and early 1980s. In light of these performance indicators, East Asian export-led growth came to be seen as a more effective industrialization strategy.

Based on the conclusion that East Asian success was due to its outward orientation, and in the wake of the debt crisis in Latin America, countries were encouraged by the World Bank and others to liberalize trade. The assumption was that the anti-export bias of import-substitution policies, along with the lack of domestic competition, discouraged innovation and encouraged rent-seeking behaviours. These micro inefficiencies, in turn, had led to macro imbalances and slower growth rates. Exports and import competition would have dynamic effects through learning and innovation.

Subsequent work by Rodrik (1995a) and others point out how these assumptions about the gains from trade are open to question. The static efficiency costs of import substitution turn out to be relatively small and cannot explain slower growth. The dynamic learning effects from trade in East Asia are also open to dispute. Rodrik argues that in the case of South Korea's innovative firms, causation may have been from efficiency to exporting, rather than the other way.

5 The countries include China, India, Indonesia, South Korea, Malaysia, Taiwan, Thailand, Argentina, Brazil, Chile, Mexico, and Turkey. Argentina is the one exception with respect to government's role in capital formation.

6 The comparative performance figures on industrialization and growth have been well documented. See World Bank (1993).

Additional work by Amsden (1994), Fishlow and others (1994) and Wade (1990) also countered the emphasis on outward orientation and focused on the efficacy of East Asia's selective interventions. In this framework, exports are a reflection of their governments' superior 'reciprocal control mechanisms' (Amsden, 1994). All these governments required some kind of performance targets in exchange for special favours – ranging from exports, domestic content, research and development (R & D) spending, or financial arrangements – but they were not as extensive or effective.⁷

The conclusion that selective industrial policies led to East Asian success is by no means universally accepted (Nolan and Pack, 2003). However, to the extent that their contributions are seen as consequential, the conditions that allowed for their efficacy are seen as nonreplicable. The capacity of governments elsewhere to enforce reciprocity commitments is questioned; markets are therefore required to enforce this discipline on firms. The focus in policy-making once again shifted to state, rather than market, failure, just when the theoretical development literature began to move in the opposite direction.

Theory and Practice Divide

In contrast to the 1960s, a kind of schizophrenia began to emerge in the 1980s and 1990s as theory and practice moved in opposite directions. Governments in Latin America and elsewhere weakened or dismantled the public institutions associated with state-led industrialization and liberalized trade. Pressure mounted on East Asian countries to do the same, although they moved more slowly in this direction. Concurrently, various international trade agreements institutionalized these market-driven reforms by committing countries to free trade, and prohibiting industry-related policies such as trade-related investment measures and export subsidies.

Just as these reforms were being vigorously promoted, their theoretical foundations were being undermined. Many of the underlying assumptions about market failure which motivated industrial policies of the 1960s – and were subsequently dismissed as irrelevant in the 1980s -- have made an astounding comeback in development economic theory. In addition, new approaches to technical change and innovation, some originating in the literature on firm competitiveness, have challenged previous assumptions about firm behaviour. Together, they have generated a huge literature documenting how market forces will not produce optimal results and that some kind of state intervention is necessary to promote industrialization. Based on these theoretical findings, this literature has also proposed new explanations for East Asia's success, and helps shed light on Latin America's relatively poor performance.

Although repackaged in formalized models, the arguments behind coordinating investment or a 'Big Push' have changed little since first proposed by Rosenstein-Rodan, Nurkse and Scitovsky more than 50 years ago. In the presence of increasing returns, industrialization in one sector raises demand for other sectors and makes large-scale production in these sectors more profitable. The presence of these pecuniary externalities makes different firms' and industries' profits interdependent and thereby provides a rationale for a government-coordinated investment strategy. As argued by Murphy, Shleifer, and Vishy (1989: 1024), "a program that encourages industrialization in many sectors simultaneously can substantially boost income and welfare even when investment in any one sector appears unprofitable."

7 For example, Brazil had a target program in place by 1970, which gave firms access to duty-free imports in exchange for exports. By 1990, as much as half of total exports were covered by this program. As early as the 1960s, India had an export program for textiles, which failed due to the lack of capital for restructuring. Similar incentives were offered to other industries in 1970, but the government failed to enforce the export requirements. Ironically, when trade was liberalized in the 1990s, similar programs were more effective (Amsden, 2001).

The notion that countries can be stuck in a low-level equilibrium trap has also made a comeback, as it has been shown that multiple equilibria can exist in the face of pecuniary externalities driven by increasing returns. Under these conditions, making the transition from so-called ‘cottage production equilibrium’ to ‘industrialization equilibrium’ (Murphy, Shleifer and Vishy, 1989: 1004), which entails specializing in different types of manufacturing, is the challenge countries face. This echoes a point made long ago by Gerschenkron, among others, about backwardness and inertia—that more than a market signal is required to displace the previous equilibrium in order to make non-traditional investment projects attractive (Shapiro and Taylor, 1990).

What this work suggests, in contrast to traditional models of comparative advantage, is that a country’s specialization pattern determines its rate of growth (Ros, 2000, 2001). This literature also offers new explanations for the success of East Asia and the relative failure of Latin America that have focused not on prices or exports but on investment. As suggested by Murphy, Schleifer, and Vishy (1989: 1025), “countries such as South Korea that have implemented a coordinated investment program can achieve industrialization of each sector at a lower explicit cost in terms of temporary tariffs and subsidies than a country that industrializes piecemeal. The reason is that potentially large implicit subsidies flow across sectors under a program of simultaneous industrialization.” Ros (2001) and others attribute East Asia’s success to policy interventions which sped up the transition from one pattern of production to another.

The acknowledgement that sectors are not all equal in a world of differential returns to labour and capital reflects the insights from the literature on firm strategy and competitiveness. In contrast to the passive price-taking firms of comparative statistics, this literature portrays successful firms as those that create and maintain barriers to entry and the rents associated with them. By exploiting ‘competitive’ advantages based on innovation, firms are then not dependent on unsustainable cost advantages such as low wages or exchange rates. According to this logic, a firm’s strategy must be to avoid price-competitive sectors, vulnerable to forces beyond its control (Porter, 1980).

By extension, a ‘competitive’ nation does not specialize in these sectors, either. In explicit contrast to theories of comparative advantage, a country’s competitive advantage is determined by innovation rather than factor endowments. For Porter (1990), this means that national policies should help create an environment of demanding consumers, domestic competition, strong supplier linkages, and good infrastructure.⁸

Amsden, focusing on late-developers, also puts firms and their technological capacity at the heart of development. Their ability to shift away from primary resources to knowledge-based assets—a set of managerial and technological skills that allow them to either produce a product “at above prevailing market prices (or below market costs)” —determines a country’s long-term growth (Amsden, 2001: 3). In contrast to the standard emphasis on getting the macro right, the starting point for Amsden and others⁹ is the firm.

The treatment of technology also distinguishes this work from early development economists. Rather than a missing factor akin to capital or labour, knowledge or technology is portrayed as a learning process. As Lall (2003: 15) puts it, “industrial success in developing countries depends essentially on how enterprises

8 Porter claims that import-substitution policies failed to create this type of environment and subsequently failed. It should be noted that this work was based primarily on firms in advanced, industrialized countries. Moreover, related work on developing countries generally addresses the challenge of creating competitive, domestically owned firms, as opposed to transnationals, which dominate manufacturing in Latin America. For more on this latter point, see Shapiro (2003).

9 See Nelson and Winter (1982), Best (2001), Lall 2001, Paus (2005), and Katz (1996).

manage the process of mastering, adapting and improving upon existing technologies. The process is difficult and prone to widespread and diffuse market failure.” In this world of imperfect information and technology rents, the firm is not a competitive, price-taker implicit in most macro approaches. Moreover, public support is crucial to help build their technological capabilities. In recent decades, the competitive pressures to be near the technological frontier have only increased with the fall in trade barriers and transportation, communication and information costs (Amsden, 2001: 282).

This work on the firm and the assumption of imperfect information and information externalities, particularly with respect to technology, has challenged what has been the dominant view of rents since Krueger’s classic 1974 article. Since then, rents and rent-seeking were portrayed as the main scourge of development and the trump card against any selective state interventions, even in the presence of market failure. Correspondingly, domestic barriers to entry and the lack of foreign competition, which enabled a rent-seeking environment, were seen as reducing the incentive to innovate.

Now, the acknowledgement that rents are at the heart of technological change and not simply politically derived is ubiquitous in the theoretical and empirical literature on the micro-foundations of development. Free trade, rather than forcing firms to innovate, may simply force them out of business if the productivity gap with foreign competitors is too large. Using the findings from endogenous growth models, in which R & D is a key factor in determining a firm’s competitiveness, and the finding that losses from monopoly power may be secondary to losses associated with underinvestment in specialized goods and services, it provides a new twist to old infant industry arguments. For example, Traca (2002) argues that temporary protection, which would allow firms to maintain market share and increase returns, is warranted for firms if they are far from the technological frontier. Otherwise, they would not be able to maintain market share and returns necessary to sustain the costs of R & D necessary to become internationally competitive. Rodrik (2004) also makes the case that firms will invest in risky non-traditional activities only with the assurance that their rents will not dissipate from foreign or domestic competition.¹⁰ These works are helpful in explaining the divergent performances of regions since liberalization.

Performance

During the 1980s and 1990s, Latin America’s total and per capita growth rates did not compare favourably with either East Asia or its own 1950-1980 performance. Some countries, such as Chile, Argentina, Bolivia, and Uruguay, did experience faster growth rates in the 1990s than during the import-substitution period, but the largest economies of the region, Brazil and Mexico, did not. Even when the analysis is refined to identify each country’s particular years of crisis and recovery, as opposed to comparing only the 1980s with the 1990s, the overall annual growth rate of 4 per cent during recovery did not match the overall base period rate of 5 per cent (Hofman, 2000). With respect to investment, while the region regained its 1980 average rate of 21 per cent as a share of GDP by the late 1990s, neither Brazil nor Mexico had recovered its previous peak. Moreover, the region’s average was no where near the average of East Asia, nor was it sufficient to reduce significantly employment and poverty levels (Stallings and Peres, 2000: 77-78). With the exception of Chile, the growth that has been achieved came largely from high rates of capacity utilization, raising questions about sustainability.

10 Work by political scientists on Latin America also documents how economic liberalization does not eliminate incentives for rent-seeking but generates different ones. See Shamis (1999).

Latin America's performance in manufacturing was also relatively weak. From 1980 to 2000, manufacturing value added (MVA) in the developing world as a whole grew by 5.7 per cent, as compared to 2.3 per cent in the industrialized countries.¹¹ MVA grew by 9.1 per cent in East Asia, 6.5 per cent in South Asia, 4.8 per cent in the Middle East and North Africa, 1.7 per cent in Sub-Saharan Africa, and only 1.4 per cent in Latin America and the Caribbean. As a result, Latin America's share of the developing world's MVA fell from 48 per cent to 22 per cent, while East Asia's rose from 29 per cent to 58 per cent. On a per capita basis, the Latin American region is still the most industrialized, but that lead is diminishing. Even when only the 1990s growth rate is considered, if Mexico is excluded, the region's MVA grew at only 1.9 per cent. (Mexico grew at 4.4 per cent, which, according to Lall and others, was largely due to the trade benefits derived from NAFTA, rather than from liberalization per se.) Moreover, that growth rate is still lower than both the import-substitution period and that of East Asia. Indeed, manufacturing is no longer the engine of growth in the region, as its share of GDP has been falling.¹²

In contrast to its lagging performance in manufacturing, Latin America and the Caribbean did shift to exports at a fast rate. The region's manufacturing exports grew faster than MVA from 1981-2000, as did global manufacturing exports. Due to sluggish growth in the 1980s, the region's exports grew at 10 per cent, following East Asia at 13.4 per cent and South Asia at 11 per cent. It was the leader during the 1990s, however, growing at almost 15 per cent a year, compared to 11.6 per cent for East Asia. The share of developing country manufactured exports from Latin America and the Caribbean fell from 25 per cent to 19 per cent, while that of East Asia rose from 52 per cent to 69 per cent. East Asia's share of global manufactured exports increased from 7 per cent to 18 per cent over this period, while Latin America and the Caribbean saw its share fall from 3.2 per cent to 2.4 per cent. As a whole, the developing world's share of global exports rose from 13 per cent to 27 per cent.

The sectoral breakdown of manufacturing also diverged between the regions. In many Latin American countries, such as Brazil, Chile, Argentina, Colombia and Peru, the fastest growing industries are those that process natural resources. In Mexico and Central America, there has been a shift towards labour-intensive assembly operations, mostly for export. Generally, labour-intensive sectors geared for the domestic market fared poorly, as did capital goods and consumer durables. The motor vehicle industry is an exception. It was also industrial commodities and the automotive industry which saw the greatest improvements in productivity, approaching the technological frontier (Benavente and others, 1996; Katz and Stumpo, 2001).

This rise in resource-based activities is in contrast to global trends. In global manufacturing, the share of resource-based and low-technology activities in total manufacturing fell, as that of medium- and high-tech activities grew. In Latin America, resource-based activities, starting from a higher base than East Asia, increased their share to 40 per cent, while they declined to less than 30 per cent in East Asia. Medium- and high-technology sectors grew at 16 per cent in East Asia, as compared to 6 per cent in Latin America. As a result, the overall share of medium- and high-tech in manufacturing is almost 60 per cent in East Asia, as compared to less than 50 per cent in Latin America.

Likewise, developing countries overall have moved into high- and medium-technology exports, which are also the categories showing the highest growth rates. Resource-based exports showed the slowest growth rates, falling from 23 per cent of manufacturing exports in 1981 to 13 per cent in 2000. As put by Lall, Albaladejo, and Moreira (2004: 15), "Given the general rise in the share of HT (high tech) in trade,

11 Data from Lall (2003) and Lall, Albaladejo and Moreira (2004).

12 This trend started in the 1970s, but accelerated in the 1980s and 1990. See Benavente and others (1996).

export success is now increasingly associated with the ability of countries to move into these products. This is as true of developing and industrialized countries, and the most competitive countries in the developing world are shifting rapidly into HT exports.” In contrast, the structure of Latin America’s exports reflects that of manufacturing more generally. The medium-tech automotive industry was the largest category, followed by natural resource processing industries, foodstuffs and primary commodities. High-tech exports followed.

Explanations for Performance

A variety of explanations has been put forth to explain the different rates of growth across regions. Some have suggested that liberalization hasn’t gone far enough. Most have emphasized the need for complementary ‘second-generation’ reforms which focus on institutions and regulations, rather than simply macro stabilization and liberalization. Many have argued that in regards to industrial performance, it is difficult to disassociate industrial policies or the lack thereof from the broader macroeconomic environment. In Latin America, for example, overvalued exchange rates combined with trade liberalization during the 1990s hit import-competing industries particularly hard.

The literature that emphasizes industrialization and firm capabilities suggests different causal factors. One is the relative decline in R & D spending in Latin America. According to a variety of indicators, the gap in technological capacity between Latin America and countries such as South Korea, China, Taiwan, and India, is growing. These include R & D spending in manufacturing, and the private sector’s share in R & D expenditure (Amsden, 2001: 277-278). In its comprehensive study of Latin American competitiveness in a global context, the Inter-American Development Bank supports Amsden’s conclusions. It finds that East Asia (excluding China) spent five times more on enterprise-financed R & D than Latin America and the Caribbean, and that “the gap is likely to be rising sharply over time” (Lall, Albaldejo, and Moreira, 2004: 43).

The reasons behind this growing gap are hard to specify.¹³ One may be the fact that governments in countries such as India, Korea, China, and Taiwan have historically promoted R & D and technology to a greater extent than those in Latin America, and have continued to do so. These programs have both supported capabilities for domestic firms and pressured foreign companies to invest in local R & D and to maximize spill-overs.¹⁴ Lall (2003:21-22) suggests that this also explains differing performances within East Asia.

Latin America’s R & D gap may also reflect how sectors with a relatively high level of technological content were hit hard by the combination of free trade and overvalued exchange rates. Those industries, which had spent more intensively on R & D, have had difficulty competing with imports from more industrialized advanced countries (Katz and Stumpo, 1995). Brazil is an exception to this regional trend, and may have been more successful in retaining industries with high engineering content precisely because it reduced its trade barriers relatively late. Benavente and others (1996: 62) conclude, “It is very likely that the high level of complexity reached by the metal product and machinery sectors, the scale of the domestic market and the higher level of protection maintained up to the early 1990s strongly influenced the fact that Brazil maintained an industrial structure more oriented towards dynamic and technologically advanced sectors than the other countries of the region.” In short, this work suggests that Latin America suffered from too much liberalization, too soon, rather than too little, too late.¹⁵

13 Lall, Albaldejo and Moreira (2004) suggest, but do not analyze, possible explanations for this gap.

14 For details on these programs, see Lall (2003), Amsden (2001), Wade (1990), and Rodrik (1995b).

15 In the UNDP’s *Human Development Report 2003*, Stiglitz also points out that East Asia was slower to reduce trade barriers, liberalize capital accounts, and still used selective policies. Lall (2003: 9) points out that India also liberalized more slowly and selectively, and performed better in terms of growth in manufactured value added.

In her survey of late developing countries, Amsden (2001) comes to a similar conclusion about how the timing of liberalization matters, particularly with respect to the relative strength of domestic and transnational firms. Countries outside of Latin America that opened relatively late and had supported domestic firms were more likely to retain medium- and high-tech industries. In the recent phase of mergers and acquisitions that has taken place in all of the late developing countries to enhance scale economies, Taiwan, China, Korea and India were more likely to have national firms strong enough to survive and/or to be viable as joint venture partners.

This raises the question of whether the greater role of foreign firms in manufacturing in Latin America has any implications for its relatively weak performance compared to East Asia. Interestingly, the theoretical literature cited above on the need to coordinate investment or to protect firms until they reach the technological frontier or generate adequate returns fails to mention ownership, implicitly assuming that the firms are independent and nationally owned. Much of the literature on competitiveness makes similar assumptions, and does not consider the ramifications of transnational firms' global strategies on national industrial development.¹⁶

In Latin America, foreign firms have dominated the most dynamic manufacturing sectors since their inception, and their control has increased since liberalization. According to Garrido and Peres (1998), sales by the biggest 100 industrial firms in Latin America broke down as follows for 1996: 40.2 per cent by private, national firms; 57.3 per cent by private, foreign firms; and 2.5 per cent by state-owned firms. The share held by private national firms had fallen from 45.9 per cent in 1990. Even large national conglomerates which held dominant positions in their local markets found themselves poorly positioned to confront trade liberalization.

Evidence suggests that transnationals invest virtually nothing in local R & D in developing countries (Amsden, 2001: 207). This may put even successful sectors at risk. According to Lall, Albaladejo and Moreira (2004: 13), "The few outstanding successes in LAC (Latin America and the Caribbean) in manufactured exports face severe competitive challenges. Export activity is often de-linked from local industry and capabilities, and the competitive base will be eroded unless these links are greatly strengthened. While this is also true of some East Asian countries, others have built impressive local capabilities and even the weaker ones are acutely conscious of the need to develop local capabilities-and are investing in doing so more assiduously than the leaders in LAC."

Transnational firms also have the option of confronting new competitive pressures by integrating their subsidiaries into their global production networks. This can involve limiting national production to particular product lines and complementing them with imports, or importing parts and components for final assembly. In regard to Argentina, Kosacoff (2000: 188) writes: "In short, the data show that the manufacturing sector has itself utilized trade openness and economic deregulation to increase its imports not only of parts and components but of finished production, too. This is indicative of a trend towards the vertical de-integration of activities that affects both manufacturing activities... and commercialization activities..."

As a result of these processes, intermediate and supplier industries are drastically shrinking. Even should relative comparative advantage indicators change, in some sectors there may be no domestic substitutes remaining to replace imports, and they are difficult to regenerate. Given the importance attributed to

16 Porter's *The Competitive Advantage of Nations*, based primarily on firms in advanced, industrialized countries, deals almost exclusively with national firms. For a discussion of related works on developing countries, see Shapiro (2003).

these sectors, the potential consequences for future development are dire. For example, Porter and others who have focused on the role of geographic agglomeration have emphasized the importance of strong supplier linkages for innovative firms (Porter, 1990; Krugman, 1991).¹⁷ Ciccone and Matsuyama (1996: 57) suggest that new sources of innovation may be concentrated at the intermediate, rather than the final, output stage of production, and see “the proliferation of intermediate inputs and producer services as the essential part of economic development and growth.”

This pattern has also led to balance-of-payments concerns. Numerous studies have shown that transnational firms in Latin America are leading an ‘import-intensive’ or ‘deficit-prone’ industrialization process. While exports of natural resource processing industries, foodstuffs, and primary commodities have grown fast, imports of capital goods and labour-intensive products are growing even faster, so the manufacturing trade balance is increasingly negative. Economic concentration has increased, as transnational subsidiaries and large national firms are in a better position to take advantage of this new environment; small and medium sized firms are losing out, many of whom had been suppliers to big firms and are now being replaced by imports.

Kosacoff (2000) argues that in Argentina, vertical de-integration and the increased dependence on imports explain why the costs of adjustment were higher, and growth in output, slower, than anticipated in the 1990s. Moreno Brid (2000) raises similar issues about Mexico. Using a balance-of-payments-constrained growth model, he shows how Mexico’s income elasticity of import demand has doubled over the last 15-20 years.¹⁸ Looking at Brazil, Miranda argues that the intensive use of imported intermediate goods will not be sustainable.¹⁹ As a result of these factors, Ocampo (2004-5: 296) concludes that “the multiplier effects and the technological externalities generated by the high-growth activities associated with exports and FDI have been weak.”

In sum, in the context of a favourable international climate, domestic liberalization and macroeconomic stability, and rapid export growth, Latin America’s GDP growth rates have been disappointing. They haven’t matched earlier growth rates or those in East Asia. In addition, resource-based activities “*continue to dominate manufacturing and there has been a general downgrading of the technology structure*” in small and medium sized economies (Lall, Albaladejo, and Moreira, 2004: 31).

Moreover, the few successes in manufacturing cannot be attributed to liberalization per se. With the exception of maquila industries, all of these sectors were established under import-substitution regimes. In Latin America, natural resource processing industries received state support. This came in the form of financial and technical support to non-traditional agriculture and forestry, or as subsidies in the 1970s and 1980s to help firms invest in state-of-the-art, capital-intensive processing plants.²⁰ To the extent that freer trade did not lead to large-scale restructuring in most of the late-industrializing countries, Amsden (2001: 266) concludes that “the resource allocation of the developmental state appears to have been efficient enough to withstand the market test.”

17 The firm strategy literature criticizes import substitution and trade protection for creating weak supplier networks. Enright, Frances, and Scott Saavedra (1994) argued that import liberalization would both provide firms with access to the highest quality inputs and force domestic supplier industries to innovate. Instead, the speed of liberalization, in combination with foreign firms’ access to global sources, forced out many domestic suppliers. See also Fairbanks and Lindsay (1997).

18 On Mexico, see also Dussel Peter (1996).

19 Miranda (2000), cited in Katz and Stumpo (2001).

20 See Meller (1995) and French-Davis (1997) on support to Chilean agriculture; see Bisang, Burachik and Katz (1995) and Stumpo (1995) on capital-intensive processing plants.

In both East Asia and Latin America, exports were based on the productive capacity and expertise developed during import substitution.²¹ The Latin American automotive industry is an obvious case in point. Transnational corporations initially invested so as not to lose potentially lucrative markets when most countries became closed to imports. They were first pushed into exporting through government programs. Moreover, the industry remains one of the key exceptions to liberalization, subject to special sectoral policies throughout the region.²²

Indeed, the logic behind import-substitution policies was to force firms to make large investments that were not easily reversible. These investments constrained a firm's options; they were subsequently forced to consider the need to protect access to these markets and their past investments, which they did not treat as sunk costs (Shapiro 1994). Given the acknowledged importance of path dependence, and the fact that many of the successful sectors and firms got their start under import substitution, it is difficult to attribute growth in the recent period only to liberalization policies.

In addition, non-traditional exports that were distinct from products initially produced for the domestic market, and were therefore not the outcome of import-substitution policies per se, were usually produced by the same firms that did mature under the import-substitution regime. To the extent that managerial and technological capabilities at the firm level are key to development, then acknowledging this continuity of major firms is critical.²³ Work by Roberts and Tybout (1995) on Colombian exports and Maloney and Azevedo (1995) on Mexico reinforces this point. Costs associated with entering export markets lead to path dependence, in that firms already exporting are more likely to continue doing so.

These issues raise the more general question of the appropriate time frame in which to assess industrial policy impact. This is true for both East Asia and Latin America. Indeed, some observers have begun to look to 'initial conditions' that predate any industrial policies to explain relative success or failure.²⁴

Finally, there is a peculiar 'back to the future' quality with respect to Latin America's situation, similar to the trends in the theoretical literature. Liberalization was expected to increase efficiency at a micro level, which in turn would help address its macro balance-of-payments problems. Similarly, import substitution was adopted in part to overcome the region's chronic external imbalances by reducing its dependence on raw material exports and manufactured imports. As first noted by Diaz-Alejandro, import-substituting industrialization paradoxically made countries even more dependent on imports, at least in the short run, and therefore growth more vulnerable to an import constraint. Likewise, although exports have increased under liberalization, imports have risen even more, in part due to the vertical de-integration of the manufacturing sector. As discussed above, many observers today are concerned about an ever-more binding balance-of-payments constraint.²⁵ The restructuring processes underway also raise the question of whether what is good for the 'competitive firm' is good for national development more broadly, since what works for a subset of firms may make the national economy more prone to balance-of-payments crises and slower growth in the short to medium run.

21 See Shapiro (2003). For a discussion on Turkey's export 'miracle' of the 1980s, which was also based on a preexisting industrial base created during import substitution, see Boratav (1988).

22 See Katz and Stumpo (2001) for the role of industrial policy in revitalizing the Latin American auto industry in recent decades.

23 Amsden (2001: 173) elaborates on this point.

24 See Acemoglu, Johnson, and Robinson (2001), Engerman and Sokoloff (1997), and Ros (2001).

25 Katz and Stumpo (2001) also note the similarities to the debate over balance of payments in the 1950s.

Other characteristics are disturbingly familiar to an earlier phase. In the 1950s and 1960s, Latin America was concerned about finding itself in raw materials with low income and price elasticity of demand; today it still finds itself at the low-growth, commodity end of the industrial spectrum. While its export industries are no longer the raw material export enclaves of the past, they have become increasingly de-linked from the domestic economy as they move towards the assembly of imported parts and components while the design and technology intensive activities are done elsewhere.

Conclusion

In many ways, theories of industrialization have come full circle. Fifty years ago, the reigning paradigm considered market failure to be endemic. After years of being discredited or ignored, many of the assumptions behind this paradigm have been made a comeback. The policy implications of these theories, however, have not been similarly resurrected. In contrast to their predecessors, contemporary theorists of market failure have been reticent about policy recommendations. Given the acknowledged limitations of import-substitution policies, scepticism about government capacity, and a very different global economy, this is not surprising. Moreover, the challenge facing the more developed countries – making the existing industrial infrastructure more competitive, or upgrading technological capabilities – requires different approaches to that of kick-starting industrialization.

The default policy recommendation is still the market (see World Bank, 2002; Nolan and Pack, 2003).²⁶ The emphasis of reform has switched to institutions that will allow the market to perform more efficiently. Given the weakening theoretical and empirical foundations for market-based solutions, the assumption that state failure is always worse than market failure needs to be reconsidered.

26 See World Bank (2002) and Nolan and Pack (2003).

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