

# Latin American structuralism and production development strategies

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## 1.1 Introduction

The recent international financial crisis has put macroeconomic analysis to a test. As in the Great Depression of the 1930s, the orthodox economic ideas about self-regulating markets that had prevailed in the years leading up to the crisis have been severely questioned. As a result, Keynesian thought, which had been born in the 1930s, has experienced an important revival – even if it has not always been followed in practice by policy-makers. In particular, Keynes' emphasis on the inherent instability of financial systems and the role played by aggregate demand in determining the levels of economic activity and employment have come back with significant force.

For the developing world and for Latin America in particular, crises have also spurred the development of new economic ideas and policies. The Great Depression of the 1930s planted the seed for the school of economic thought that was later developed at the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) under the intellectual leadership of Raúl Prebisch and that would eventually come to be known as Latin American structuralism.

Macroeconomic analysis arose out of the need to understand short-run macroeconomic dynamics, but later came to encompass the analysis of economic growth. The core ideas in this respect emerged in the 1940s and 1950s and were elaborated upon in the following decades. The idea that took centre stage had to do with the role of technological change, although also with the importance of physical and human capital formation. For developing countries, this analysis was mixed from

the start with three other concepts: (i) the role of surplus labour and the dualism in labour markets that it engenders; (ii) balance of payments constraints in both the short- and long-term macroeconomic dynamics; and (iii) the crucial role of industrialization as a mechanism for the transmission of technological progress. This last mechanism operates, in part, via investment in machinery and equipment, but also via production linkages and dynamic economies of scale generated by the learning processes associated with industrialization.

ECLAC and structuralist economic thinking have been in the past, and remain today, at the centre of this debate. This chapter deals with one particular aspect of Latin American structuralist thinking: the relation between economic growth and production structures. Section 1.2 summarizes the main contributions made by ECLAC and its main intellectual father, Raúl Prebisch, to this debate. Section 1.3 presents a detailed analysis of the relationship between economic growth and the production structure. Both sections make brief references to Latin America's experiences. Section 1.4 draws some brief conclusions.

## 1.2 ECLAC, macroeconomic analysis and structural change

At the risk of oversimplification, ECLAC's major contributions to macroeconomic thought revolve around two concepts. The first has to do with the crucial role of the balance of payments in shaping the business cycle in developing countries and, hence, the role that policies affecting the balance of payments have in managing the business cycle. The second is the link between long-term growth and the transformation of production structures, with industrialization as the most prominent feature of such transformation. Both of these ideas have implications for state intervention. They are also linked to a conceptualization of the international economic order as a system composed of a centre and a periphery, in which business cycles and technical progress originate in the centre and are then propagated to the periphery. At least two more ideas could be added: the need to develop appropriate financing mechanisms to facilitate the structural transformation, and what has come to be known as the structuralist theory of inflation. For the sake of brevity, however, this chapter will not deal with these issues.

Traditional macroeconomic analysis has developed the concept of "fiscal dominance" to refer to situations in which monetary policy and macroeconomic dynamics as a whole are determined by public finances. The concept developed by ECLAC might, by analogy, be referred to as "balance of payments dominance" in short-run macroeconomic dynamics (Ocampo, 2013). This implies that the basic

task of macroeconomic policy in developing countries is to devise ways of moderating external aggregate supply shocks generated through the balance of payments rather than managing aggregate demand. The former is determined largely by export earnings, the supply and cost of external finance and their impact on domestic interest rates, and the effects of both exports and external financing on the exchange rate.

It is not surprising that the management of balance of payments shocks became the focus of macroeconomic policy in Latin America. The types of measures used for this purpose in the past came to include, with some differences from country to country: foreign exchange and capital account management; import duties and quantitative import restrictions; taxes on traditional exports combined with incentives for non-traditional ones; multiple exchange rates; and, from the mid-1960s on, gradual devaluations (crawling exchange rate pegs). Starting in the 1970s, most of these policies were dismantled during the liberalization process, leaving a single tool – the exchange rate – to manage balance of payments. In several cases, this policy instrument was diverted to support anti-inflationary programmes, leading to situations in which no policy instrument was effectively assigned to manage external shocks.

As can be seen from the types of measures used, they were closely linked to the second component of macroeconomic policy, for which the focus was long-term growth: the industrialization strategy. The basic idea underlying this policy was that growth is a process of structural change in which primary sectors give way to modern industries and services and in which industrial activity is the main channel for the transmission of technical progress from the centre to the periphery – a process that Prebisch characterized as “slow and irregular”.

The complexities associated with this process were related to the management of economies whose static comparative advantages clearly lay in the production of primary commodities. In the classic ECLAC approach to the subject, industrialization strategies were also tied to the assumption that there was a secular downward trend of commodity prices. However, at least in the way it was framed at the time, this postulate has not been borne out by the facts. Indeed, the empirical evidence shows that, while real commodity prices fell through the twentieth century (but not in the nineteenth century), it was not a steady trend but rather the result of two sharp declines during the early 1920s and the 1980s (Ocampo and Parra, 2010). A much more solid line of reasoning is based on the fact that different sectors of the economy have very different capacities for transmitting technical progress and for generating new knowledge. Indeed, this classical justification for industrialization did not rely on the existence of a downward trend in commodity prices. Moreover, in the 1930s or immediately after the Second World

War, there was little need to champion domestic-based industrialization versus production for the international market since, in the wake of the collapse of the world economy, the only opportunities available were, by and large, those offered by domestic markets.

According to this approach, which was best expressed in the “Latin American manifest”, as Albert Hirschman dubbed the report issued by the Economic Commission in 1949 (Prebisch, 1973), the solution was not to isolate the region’s economies from the international economy, but rather to *redefine* the international division of labour so that Latin American countries could also reap the benefits of technological change, which they rightly saw as being closely associated with industrialization. In other words, this strategy sought to *create* new comparative advantages. Industrialization policies were modified as time passed in order to correct their own excesses and to take advantage of the new export opportunities that began to open up in the world economy in the 1960s. From that point on, ECLAC thinking began to evolve from an import-substitution strategy (with the institution becoming critical of the excesses associated with it) to a “mixed” model that combined import substitution with export diversification and regional integration.<sup>1</sup> This eventually led to the region’s widespread adoption of export promotion policies, a simplification of the complex system of tariffs and quantitative import restrictions, the streamlining or elimination of multiple exchange rate systems, and the introduction of crawling pegs in economies with a long history of inflation.<sup>2</sup>

An inherent problem in dealing with the intersection between factors influencing business cycles and long-term growth was that the changes in relative prices generated during the upward phase of external cycles make it difficult to hold to the industrialization strategy. Commodity price booms tend to generate incentives to return to a heavier reliance on primary production, both via rising international prices and through the effects that commodity price booms have on exchange rates.<sup>3</sup> Both of these factors tend to exert downward pressure on the relative prices of manufactures. Capital account booms often coincide with upswings in commodity prices and have similar effects on the exchange rate. In the past, the policy tools devised to manage commodity price booms included

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<sup>1</sup> For histories of the development of ECLAC thought, see Bielschowsky (1998), Rodríguez (2006) and Rosenthal (2004). In relation to the ideas on regional integration, see also Salazar-Xirinachs (1993). For a review of the first half-century of the *Economic Survey of Latin America and the Caribbean*, see ECLAC (1998b).

<sup>2</sup> See French-Davis, Muñoz and Palma (1998); Ocampo (2004); and Bértola and Ocampo (2012).

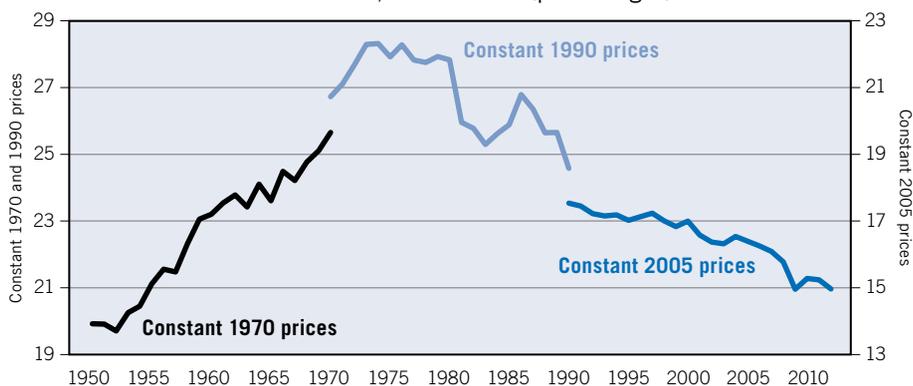
<sup>3</sup> See analysis on Dutch disease effects in Altenburg and Melia, in this volume.

taxes on commodity exports, multiple exchange rate regimes that discriminated against those exports, and incentives for non-traditional exports, while capital controls were designed to deal with shifts in financing cycles. The dismantling of most of these policy instruments led to a situation in which, too often, governments came to reinforce the effects of external shocks with procyclical macroeconomic policies.

The industrialization strategy entailed a range of other elements, including the need to raise the rate of investment in manufacturing and physical infrastructure. This gave rise to a demand for multilateral external financing and to the development of domestic mechanisms, notably development banking and direct investment by the State in infrastructure and some industrial activities. In any case, the level of investment varied sharply across the region. For the sake of brevity, however, these topics will not be explored here.

Despite inefficiencies associated with high levels of protection, state-led industrialization was in many ways a very successful story. It led to the fastest rate of growth in Latin American history between 1945 and 1980, which was accompanied by rapid rates of human development and reduction in poverty levels (Bértola and Ocampo, 2012, Ch. 4). However, this process reached a plateau in the second half of the 1970s (figure 1.1), and was followed by a premature deindustrialization, in the sense that the share of manufacturing in GDP started to fall at lower levels of per capita income than had been typical of patterns in advanced countries. This process was set off by the joint effects of the debt crisis of the 1980s and the liberalization process that started in the mid-1970s in a few economies and spread throughout the region from the mid-1980s.

Figure 1.1 Latin America: Manufacturing value added as a share of GDP, 1950–2012 (percentages)



Source: Author's estimates, based on ECLAC data.

In the midst of the liberalization process, ECLAC produced its groundbreaking study *Changing production patterns with social equity* (ECLAC, 1990), which marked the beginning of a complete reworking of ECLAC thinking that has exhibited a remarkable degree of continuity over the past quarter century. In line with the proposals concerning economic growth that it put forward in its seminal 1990 study, ECLAC (1998a, 2000, 2007, 2008 and 2012) developed an agenda for production sector strategies in open economies. The point of departure for this agenda, as well as for the Commission's more classic contributions, was the idea that development is a process of structural change in which progress hinges on the economy's ability to develop technologically advanced production sectors. Accordingly, together with the promotion of more competitive production structures and "horizontal" policies to correct market failures in factor markets,<sup>4</sup> ECLAC proposed a series of policies for developing more dynamic production structures by fostering innovative activities with higher technological contents (national innovation systems) and promoting exports (diversification of export products, domestic export linkages and the conquest of new markets). It also suggested ways of developing inter-sectoral synergies and complementarities in order to achieve "system-wide competitiveness", which was the seminal concept put forward in *Changing production patterns with social equity*.

The major constraint on the adoption of this policy was the institutional void created by the elimination of the mechanisms for supporting production sectors as the result of liberalization policies. ECLAC advocated the idea of forming public private partnerships (which each country should establish in line with its own characteristics and development history) to rebuild these institutional frameworks. The destruction of earlier institutions and the failure to build others to replace them were seen as the root causes of the fragility of the region's production structures. This strategy was also tied in with short-term macroeconomic policy because of the institution's obsession with maintaining competitive exchange rates, which were viewed as an essential ingredient of proactive policies to foster production sector diversification.

The recent return of attention in the region to industrial policies has validated ECLAC's approach. In particular, the widespread acceptance in the past few years of innovation strategies reaffirmed the validity of the approach that ECLAC advocated during Latin America's industrialization stages and which it continued to endorse and to adapt to changing circumstances generated by deeper integration into global markets.

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<sup>4</sup> These policies focused on providing credit to small and medium-sized enterprises (SMEs), long-term financing as well as technology, skilled human resources and land.

### 1.3 Economic growth and structural change

#### 1.3.1 *Patterns of specialization and economic growth*

Economic growth is invariably accompanied by changes in production structures: changes in the composition of GDP and employment and in international specialization patterns. In addition, in developing countries, gains in productivity through the development process are linked to shifts in labour from low- to high-productivity sectors, as noted in classic development theory and discussed by Ros (2000). Most traditional studies portray changes in structures as simply a by-product of growth. In the structuralist view, on the other hand, these changes are neither mere by-products nor neutral in terms of their effects; quite to the contrary, they are the actual *engines* of economic growth. Seen from this perspective, development can be equated with an economy's capacity to generate new dynamic production activities (Ocampo, 2005). By the same token, the absence of growth is linked to an interruption of the process of structural change.

In industrialized countries the process of economic growth is driven by technological change. Since the generation of technology continues to be highly concentrated at the world level, it creates a world centre–periphery system. In developing countries, growth is driven by the capacity to absorb, with a lag, these technological changes and economic activities as they become mature and are gradually transferred to the periphery, or by the capacity to respond to the demand for commodities created by economic expansion at the centre. The transfer of technology and production activities is not a passive process: it entails an effort to develop new industries, including those attracted from industrial countries, as well as an active technological learning process (Katz, 1987). If efforts to narrow the technological gap succeed, these lags will be reduced and developing countries may become secondary sources of technology.

This emphasis on changing production structures is closely tied with the need to increase investment. Rapidly growing economies also have high investment rates, but this link is much less systematic than the one that exists between economic growth and structural change (Ocampo, Rada and Taylor, 2009, Ch. 3). This is because high investment rates are actually more of an effect than a cause of dynamic economic growth and associated structural change. This is why more attention will be devoted here to structural change than to investment. There can be, of course, other determinants of capital formation, in particular factors related to appropriate financing mechanisms.

There are a number of reasons why economic growth and changes in production structures are interrelated. The first explanation, which has the longest history in development thought, is that different branches of production create very

different opportunities for generating and transmitting technical progress and, hence, for boosting the economy's productivity. The classic defence of industrialization made the argument that industrial activities were the best channel for transferring technology and spurring other innovations. Some primary-sector activities, such as agriculture and mining, may also experience steep increases in productivity, but they have been less effective in transmitting those increases to other sectors of production.

This leads us to the second explanation, which has to do with different sectors' production linkages. The more traditional sorts of linkages, which are the type focused on by Hirschman (1958), are created by the demand that a new activity generates for others (backward linkages) and the opportunities that it offers for the development of other activities (forward linkages). The key feature to notice in this connection, as well as in the case of the transmission of technical progress, is that these effects are confined to a single geographical area (a country or a region within a country) and do not radiate out to the rest of the world, as tends to occur in an increasingly integrated world economy.

A type of linkage identified more recently has to do with what Hidalgo et al. (2007) call the "product space". In these authors' view, the factors and inputs used in a given branch of production are invariably specific in nature, such as particular kinds of production plants or facilities, workers with certain types of skills and specific intermediate inputs. Consequently, they cannot be directly shifted over to other economic activities except at the cost of lower levels of productivity. They can, however, be used or adapted for use in activities that are in the nearby "product space". In this view, a production activity's capacity to innovate and diversify will depend on what activities are "nearby". Thus, depending on the "density" of nearby production activities (the authors use the metaphor of a forest which is more dense in some areas and sparser in others), they will generate very different opportunities for the diversification of production.

These two phenomena, which, in a broad sense, can be referred to as *innovations* and *complementarities*, should be the essential focus of any production development strategy. In this context, the term "innovation" should not be understood as being restricted to technological innovation, but should instead be interpreted in a broad sense, as referring to new types of activities. It thus includes not only technology (new production processes, new products and higher quality of existing products), but also new ways of marketing and the conquest of new markets, new ways of managing or structuring firms or industries, and the development of new sources of raw materials. This approach, advocated in an earlier paper (Ocampo, 2005), is also the one used by Australia and New Zealand in their innovation policies (ECLAC, 2006, Ch. V).

The interrelationship between innovations and complementarities is the source of most externalities and, hence, of market failures (coordination failures and information leakages, including technological diffusion). A key problem lies in the interrelationship among the investment decisions of different economic agents, since, in the absence of coordination among those agents (which the market does not guarantee), investments may not be made in new activities if the benefits cannot be fully appropriated by the innovator, or may be made at suboptimal levels. The “new information” (technological but also information about potential markets) may be costly for the agent who needs to acquire it, while the benefits may largely be appropriated by other agents. As a result, the investment made in acquiring that information may be suboptimal.

There is plentiful evidence of a link between specialization patterns and growth rates. In the recent literature, Hausmann, Hwang and Rodrik (2007) have made what is perhaps the most ambitious effort to demonstrate that the technological content or “quality” of countries’ exports is a fundamental determinant of their growth. These authors estimate that content as the “income level” that is incorporated into a country’s exports (the value of exports, weighted by the income level of the countries that typically export those same products). Lederman and Maloney (2012) present some caveats on these results and emphasize that *tasks*<sup>5</sup> incorporated into a country’s exports rather than goods is what matters, and that there are particular benefits to those that incorporate a higher content of human capital as well as goods that have the possibility of quality upgrading.

Ocampo, Rada and Taylor (2009, Ch. 4) engage in a simpler exercise in which they estimate the relationship between economic growth and the dominant pattern of export development in terms of technological content using the categories proposed by Sanjaya Lall (2000). This exercise indicates that countries specializing in high-technology exports tend to grow the fastest, followed by those that mainly export intermediate- and low-technology exports, while countries whose export structures are based on natural resources tend to grow more slowly. This tendency is not as obvious during periods when commodity prices are high, which indicates that one of the reasons why, over the long term, growth based on high- and even low-technology industries is preferable, is that it relies less on price spikes or wind-fall profits and thus engenders a more stable development process. Interestingly enough, mid-level technology exports (which are partly composed of industrial commodities such as standardized iron and steel products and chemicals) do not enjoy those advantages.

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<sup>5</sup> The phenomenon of “trade in tasks” is analysed in detail in UNIDO (2009).

When value chains disintegrate, the link between the technological content of export products and production activities may be broken, especially in the case of maquila activities. So, the particular task that is undertaken in a particular place may be characterized by low technological content (e.g. pure assembly of imported parts) even if the final output of the value chain is a high-technology good. Alternatively, the task may have high technological or human capital content even if the output is classified as a low-technology good (e.g. design of apparel). Furthermore, in maquila activities, and more generally in export industries that use large volumes of imported inputs, the complementarities may also be very limited. Many activities that export manufactured goods may therefore lack the virtues that they are portrayed as having in the economic literature.

Various disadvantages that are associated with a specialization in natural resources have been explored in the course of the controversy about the “natural resource curse”.<sup>6</sup> Two main problems with this type of specialization have been identified by Agosin (2007): the structural effects of this pattern of specialization as such (i.e. production/technological contents and linkages) and macroeconomic vulnerability (which he terms the “portfolio effects”). According to Hidalgo et al. (2007), the first problem has to do with the fact that countries with abundant endowments of natural resources (including oil) are situated in sparsely populated areas of the product space, which limits their opportunities for diversifying their production activities. The second is that countries that specialize in natural resources are more prone to crises emanating from the export sector owing to their less-diversified export structures and their vulnerability to sharp fluctuations in the exchange rate. One of the consequences of this is a strong propensity to use procyclical policies and vulnerability to the severe crises that they can trigger.<sup>7</sup> The “Dutch disease” links the two problems: in this case, the crucial problem is that commodity price booms can spark exchange rate appreciations that can have lasting effects on the production structure – effects that can turn out to be very costly when price levels subside.<sup>8</sup> The issues involved in exchange rate management will be discussed in a later section.

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<sup>6</sup> The paper by Sachs and Warner (1995) is the best-known attempt to devise an econometric corroboration of the adverse growth effects of a natural resource-based pattern of specialization. Lederman and Maloney (2007) claim that there is no negative technological factor of any sort associated with natural resources, but there may be adverse effects associated with high concentration of exports in a few commodities (i.e. macroeconomic vulnerability) as well as adverse political economy characteristics associated with such specialization pattern.

<sup>7</sup> See also Manzano and Rigobón (2007).

<sup>8</sup> There are many analyses of this problem, but the most insightful is that by Krugman (1987).

There is also, however, an opposing body of literature that postulates that the forward and backward linkages of primary production activities can be used to leverage the diversification of production. Sweden and Finland boast two of the best success stories of this type of diversification (Blomström and Kokko, 2007), along with Australia and New Zealand (ECLAC, 2006, Ch. V). There are also certain technologically demanding niches for commodities in terms of quality, processing, storage or transport, some of which also afford access to dynamic markets (Akyüz, 2003, Ch. 1; ECLAC, 2008, Chapters III and V).

In view of these effects, and looking beyond the specific issues involved in natural-resource specialization, the critical issue for Latin America is the low technological content of its production activities and exports and its scant levels of research and development, not only in comparison to the more successful East Asian economies, but also to industrialized countries that specialize in natural resource-intensive exports. The data shown in table 1.1, drawn from Cimoli and Porcile (2011) and from a broader ECLAC study (2007), corroborate these findings.

Numerous studies have shown that one of the major differences between the success stories of East Asia and the experiences of Latin America has been that East Asian economies have made the transition to knowledge generation, whereas Latin America is still lagging behind in this respect – and, indeed, substantially so (Cimoli and Porcile, 2011; ECLAC, 2008, Ch. III; Palma, 2009 and 2011). This is highly associated to three decades in which the production sector strategy was ignored as a crucial element of development policy. Hausmann (2011) has

Table 1.1 Specialization, productive structure and technological content

	Share of engineering industries relative to United States, 2002–07 <sup>a</sup>	Spending on R&D as share of GDP, 1996–2007	Patents per million inhabitants, 1995–2008
Latin America	0.23	0.40	0.5
Natural resource-intensive developed economies	0.72	1.89	65.4
Developing Asia	0.99	1.21	30.5
Mature economies	0.97	2.43	132.6

<sup>a</sup> Share of engineering industries in manufacturer value added (ratio with respect to share in the United States). Latin America: Argentina, Bolivia, Brazil, Chile, Colombia, Mexico and Uruguay.

Natural resource-intensive economies: Developed economies where more than 40% of total exports are based on natural resources: Australia, Canada, Denmark, Finland, Iceland, Norway and New Zealand.

Developing Asia: Republic of Korea, Philippines, India, Malaysia, Singapore and Taiwan (China).

Mature economies: France, Italy, Japan, Sweden, United Kingdom and United States.

Source: Cimoli and Porcile (2011); ECLAC (2007).

demonstrated that the region's lower long-term growth rate is correlated with a poorer-quality export basket and with the fact that it is, in general, located in less dense portions of the product space. In contrast, industrialized countries are for the most part situated in high-density portions of that space, and the rapidly growing economies of East Asia have been moving in that direction.

The main lesson to be drawn is that, above and beyond the fact that different branches of production have differing capacities for leading the way to gains in productivity, in today's developing countries the key to robust growth is the synchronization of export development, production linkages and technological capacity building.

### *1.3.2 Production development strategies in open economies*

The strong relationship between production structures and economic growth obviously has major policy implications. As development is closely linked with changes in production structures, ensuring that the economy has the capacity to bring about dynamic changes in its production patterns by putting into place proactive production development strategies is a crucial element of economic policy. A reference to the "production sector" as the focus of these policies is perhaps better than the term "industrial policies" because it does not necessarily assume that these measures are specific to manufacturing industries but instead recognizes that they can be implemented in natural resource or service-intensive sectors as well, and indeed that some mature manufacturing activities may not significantly contribute to technological upgrading.

In open economies, such as those of Latin America today, progress in this area is closely intertwined with the capacity to develop increasingly high-technology export structures. The domestic market should not be overlooked, however, because it plays a critical role in economic growth. For most countries in the region, economic integration should serve the same purpose as a larger domestic market would, but for this to be possible, the political obstacles that are blocking stronger integration would have to be overcome. Particular attention also needs to be devoted to the production linkages generated by export activities, which may also be seen as the "domestic market" generated by export activity. These linkages are some of the complementarities created by this type of activity. It can also be argued that the competitiveness of a given export sector, which makes it less prone to relocation, lies precisely in the complementary production activities that supply it with inputs or services at the local level, especially non-tradable (or

imperfectly tradable) goods and services. These complementarities are, to use the term employed by ECLAC (1990), sources of systemic competitiveness.

The debate surrounding types of production development strategies has raised a number of questions. The first is what the focus of such policies should be. Most of the literature places its emphasis on innovative activities that generate externalities (Cimoli, Dosi and Stiglitz, 2009; Ocampo, 2005; Rodrik, 2007). The presence of externalities – which, as indicated, may be technological, commercial or both – is crucial, since their presence implies that the benefits of innovation will not be appropriated exclusively by the innovating firm.<sup>9</sup>

In the long run the main objective of any production development strategy should be, in any case, to build technological capacity. This raises a second set of questions. Some of them refer to the coexistence of high- and low-productivity sectors and firms and thus to the need to accelerate the diffusion of technology. Others have to do with the relationship between building production capacities and building technological capacities. Acquiring new production capacities inevitably involves learning how to use a given technology but the focus is on production sector activities, whereas the acquisition of new technological capacities encompasses everything from adapting technologies, introducing small innovations or modifying a product design to developing the capacity to generate new technologies, new designs of existing products and new products.

In the early stages of development and, in some industries, even today, technological learning is a by-product of the development of a new production sector. In this case, technology plays an important but passive role and the policy focus should be on promoting the sector, rather than technological development as such. This was, to some extent, done during the stage of state-led industrialization. During that stage, technological development was a by-product of the production development strategy. There was limited technological policy, a few notable exceptions aside (including agriculture). Trade liberalization tended to create incentives for the adoption of the best available technology so that producers could compete – and, in particular, obliged them to streamline their production processes. However, this strategy placed more emphasis on importing technology than on adapting and developing it. In some cases, this even led to the dismantling of technologies or indeed production sectors that had been developed in the past. Thus, in terms of their effectiveness in inducing economic growth, in Latin America these processes of promoting sectors and trade liberalization proved to be less satisfactory than the preceding strategy.

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<sup>9</sup> Commercial externalities are associated with the fact that when a country or region comes to be recognized as a reliable supplier of a given product, this generates benefits that accrue to other producers.

It is therefore of crucial importance to determine whether the focus should be on production activities or on the development of an innovation system. There is no single answer to this question. In some cases, local technological innovation is essential for competitiveness. This occurs in high-technology sectors in the region (Brazil's aeronautics industry, for example) as well as in natural resource-intensive sectors (e.g. the role of national research institutes in the development of agri-food complexes). In any event, the adaptation and creation of knowledge are always "infant industries" and should therefore be given preferential treatment in any production development strategy.

At times it may not be clear, however, which "innovative activity" should be promoted or whether it is possible to promote it as such. In such cases, fostering innovation may be indistinguishable from the promotion of a given sector's development. In this type of situation, saying that promoting a given sector is misguided because it entails "picking winners" is to ignore the intrinsic characteristics of production development strategies. The first point that is being overlooked is that a learning process is involved in determining what elements should be promoted and, even more importantly, how to go about doing so. Many things have to be learned along the way, and mistakes will be made. Seen from this angle, the types of choices to be made are not very different from those that any private company makes when it decides to expand into new product lines and has to make a strategic gamble based on the capacities that it has built up over time. Firms in this position are liable to make mistakes, too. The second point that is often overlooked is that policies of this type are designed to create conditions that will be conducive to the initiative's success, so, rather than "picking winners", they are actually aimed at "creating winners". Yet another consideration is the fact that, in line with one of the basic conclusions of modern international trade theory, when economies of scale (including learning processes) are present, comparative advantages are, in large measure, created.

Regardless of whether a technological or sectoral approach is being taken, incentives may be either horizontal or selective. There are some crucial horizontal components that should be a part of any production development strategy, such as measures for fostering innovation and the diffusion of technology, improving long-term financing mechanisms, and supporting micro, small and medium-sized enterprises. Compelling arguments can be made, however, for selective strategies, since opportunities for innovation do not arise across the entire range of the production structure. What is more, advocates of the general preference for horizontal schemes overlook the fact that, when such schemes rely on scarce fiscal resources, it is necessary to specify where those resources should be used, and this necessarily entails selectivity of some sort. No matter what policy tools are used, these kinds of choices should be made within the framework of a production

development strategy. And in the interests of transparency, it is better for these choices to be explicit rather than implicit.

Another set of questions concerns public–private partnerships, which are an inherent part of any production development strategy. Such partnerships are necessary because the various agents are faced with problems relating to lack of information about production processes and markets on the part of the business community, about the economy as a whole, or about international negotiations. It is important, however, to make sure that the incentives provided by the State actually serve a collective purpose rather than simply being transformed into economic rents. The crucial issue is how to go about developing a close partnership that will ensure policy relevance while avoiding policy capture by the private agents involved. There are many different solutions to this problem, as is illustrated by the range of experiences in this field that can be identified the world over (ECLAC, 2008, Ch. VI; Devlin and Moguillansky, 2011). The interaction between the public and private sectors should be viewed, like in any production development strategy, as a mutual learning process.

A final question relates to the timing of incentives. The fact that mistakes may be made implies, first of all, that the system must include clear-cut mechanisms for detecting errors and correcting them. The quid pro quo for any incentive should be a performance requirement, or a “reciprocal control mechanism,” to use the term coined by Amsden (2001). In addition, by their very nature, incentives should last only for as long as they continue to meet certain basic requirements: that they are necessary for innovation to take place and for it to be diffused to other agents. Because of information failures, however, it may not be feasible to set strict time frames at the outset of a process about which full information is not available. In fact, setting definite time frames may undermine the policy effectiveness, and the associated incentives may end up being wasted. Indeed, this may increase the probability of creating “losers” instead of “winners” or may make it necessary to extend an incentive whose initial cut-off date had been set, at the expense of government credibility. Again, what is needed is a way of designing a process that allows the agents involved to see when it is going off track so that they can correct it and to determine when the innovation has become consolidated.

This means that governments need to invest in the development of the institutions responsible for policy implementation. If anything can be said with certainty in this respect, it is that during the market reform period in Latin America, the destruction of institutions was widespread. Fortunately, some institutions survived and have adapted to the changed circumstances. More recently, a new wave of institutional reconstruction has begun, Brazil’s production development strategy being the most outstanding example of this.

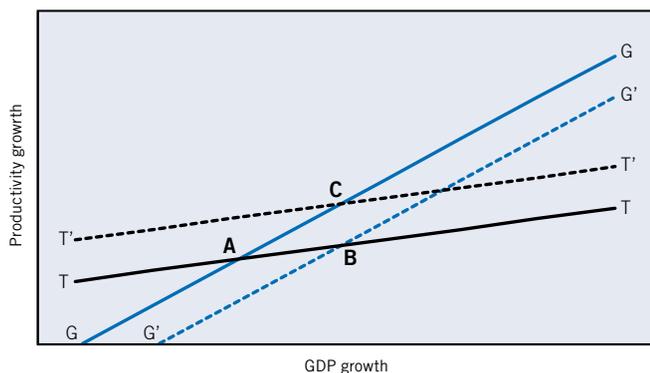
### 1.3.3 Interaction between the macroeconomy and production development and the crucial role of the exchange rate

A simple way of visualizing the link between the development of the production sector and macroeconomic conditions is by looking at the double relationship that exists between economic growth and productivity gains, as shown in figure 1.2 (see Ocampo, 2005). The function of technical progress, TT, is determined by structural conditions. The direction of causality in this case runs from the growth of production to increases in productivity: the expansion of the production sector boosts productivity by spurring investment (if better technology is incorporated into production equipment), learning processes and the reallocation of labour from low- to high-productivity sectors.

A state of macroeconomic equilibrium, GG, indicates either that aggregate demand is in equilibrium or, if there is an external gap, that the balance of payments is tenable. The relationship is positive in both cases, with the direction of causality running from productivity gains to growth, but it runs through different channels in each case. If it is demand that is in equilibrium, then increases in productivity will boost investment and labour income (and consumption) and will also improve the external balance. In the second case, productivity gains will drive up exports or reduce imports and, either way, will narrow the external gap.

Equilibrium is reached at point A. If macroeconomic conditions improve, then GG shifts to the right and results in a new equilibrium point (B) at which there is both more growth and faster productivity gains. This effect can operate through an expansionary macroeconomic policy that is sustainable because it induces higher investment and does not generate inflationary barriers or untenable balance of payments disequilibria. A successful production development

Figure 1.2 Relation between GDP and productivity growth



strategy will shift the TT function upward, as it leads both to more economic growth and higher productivity (point C).

As pointed out by Ocampo (2005) and Ocampo, Rada and Taylor (2009), this implies that the relationship between increases in productivity and in growth is the result of a two-way link, rather than, as in the traditional view, productivity being the cause and economic growth the effect.<sup>10</sup> The reverse link implies that a poor growth performance tends to undercut the rate of productivity growth. There can be various reasons for this, including a balance-of-payments crisis or a destructive restructuring process in the production sector. Declines in productivity will operate through the pathways mentioned earlier: lower investment, less learning and a perverse reallocation of labour to informal sectors. A strong macroeconomic performance will have the opposite effect.

Although this conceptual scheme can be used to analyse many different types of problems, here we will focus on the real exchange rate, which is perhaps the most critical macroeconomic variable in open economies.

The exchange rate has a number of complex features. One is that, because it is a macroeconomic variable, it cannot generate the selective incentives that a trade regime can, and it can therefore serve only as a partial substitute for a production development strategy. Another is that it is at the same time the price of a set of financial assets and one of the determinants of the relative price of internationally tradable goods and services.

This latter feature gives rise to a number of well-known effects. For example, one of the main ideas underlying the concept of an “anti-export bias” was that protection led to an overvaluation of the exchange rate, which undermined export incentives. In orthodox theory, the expectation was therefore that any reduction in protection would trigger a real depreciation that would spur the development of the export sector. However, the experiences of the countries of the Southern Cone in the second half of the 1970s already showed us that, if the move to liberalize trade is coupled with the opening of the capital account, not only does the expected real depreciation not occur, but it may have the exact opposite effect: a real appreciation. This blocks the pathway through which liberalization would correct the “anti-export bias” and can even give rise to a paradoxical situation in which economic growth is driven by domestic demand rather than by exports. This has, in fact, often occurred in Latin America (see, among many others, Vos et al., 2006, Ch. 3).

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<sup>10</sup> The fundamental problem has to do with the assumption of full employment of resources used in traditional growth models, in which the direction of causality runs only from productivity to growth.

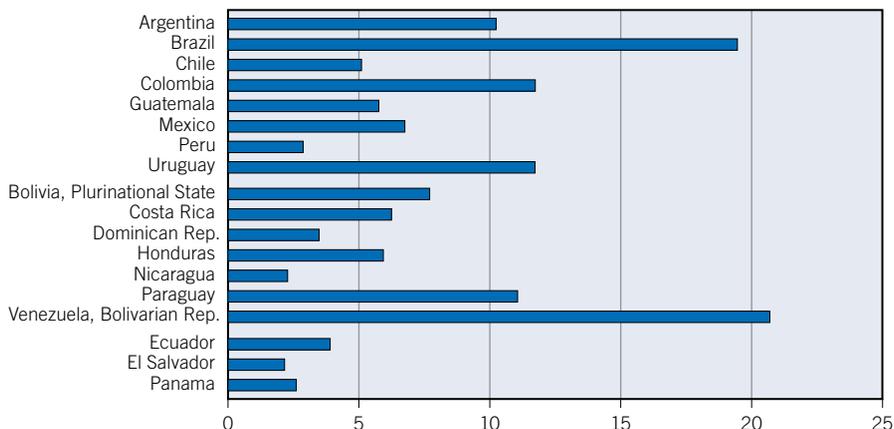
The empirical evidence shows that the real exchange rate is one of the determinants of economic growth. According to Rodrik's (2008) estimates for developing countries in the period from 1950 to 2004, a 10 per cent undervaluation of the exchange rate was associated with 0.27 per cent additional growth per year. One of the explanations that he offers has to do with the externalities generated by producers of tradables and indicates that an undervaluation of the exchange rate functions as a partial substitute for a production development policy. Hausmann, Pritchett and Rodrik (2005) show that one of the factors behind an acceleration in growth rates in developing countries is a competitive exchange rate. This evidence is also in line with the findings of Prasad, Rajan and Subramanian (2007) and the results of Frenkel and Rapetti's review of the literature, which indicate that higher growth rates are associated with an improved current account balance (Frenkel and Rapetti, 2010).

Frenkel and Taylor (2007) call this effect of the real exchange rate on growth the "development effect" and draw a distinction between this and other effects of this variable, such as its short-run macroeconomic effect, which is ambiguous (as there may be short-term contractionary effects of an exchange rate depreciation), and its impact on employment. The development effect is linked, first of all, with the externalities generated by the dynamic development of tradables sectors, which include the repercussions that this has on the diversification of the export structure. Second, it is associated with the fact that economies with a robust current account are less sensitive to sharp turnarounds in the capital account. One way of understanding these effects is to see that a stable, competitive exchange rate shifts TT upward (i.e. serves as a partial substitute for a production development policy) and shifts GG to the right (i.e. generates an expansionary macroeconomic effect) (see figure 1.2).

Apart from these development effects, the exchange rate has, as noted by Frenkel and Taylor (2007), additional implications for employment that have to do with its effect on the labour output elasticity. A real appreciation tends to reduce this elasticity in two different ways: first, it lowers the price of production equipment in economies that import a large share of their machinery, which leads to a substitution of capital for labour; second, it tends to bias the selection of inputs in production processes toward imported inputs, which weakens domestic production linkages.

Instability in the real exchange rate also heightens risk and thereby depresses investment in the production of tradable goods and services that can be exported or used as import substitutes. This problem is compounded by the greater vulnerability to international price shocks displayed by countries that are dependent on commodity exports. The greater volatility of the real exchange rate in the

Figure 1.3 Coefficient of variation of the real exchange rate, 2004–11 (percentages)



Source: Author's estimates based on ECLAC data.

countries of Latin America, as illustrated in figure 1.3, is indeed associated with this subregion's greater reliance on commodities.

This underscores the fact that the macroeconomic challenges posed by this situation are especially formidable in economies where a considerable portion of the export basket is composed of natural resource-based goods. In order to deal with this situation, mechanisms need to be developed that can smooth out the macroeconomic effects of fluctuations in commodity prices.

It should be underscored, however, that even in economies in which commodities make up a large share of exports, the real exchange rate is not determined solely by export prices. Figure 1.3 shows, for example, that Peru has been much more successful in avoiding exchange rate volatility than other Latin American countries, thanks to its central bank's active intervention in foreign exchange markets. The other side of the coin is that the introduction of more flexible exchange rates heightens the volatility of the real exchange rate, especially in economies dependent upon natural resource-based exports. This points in the direction of using managed flexible exchange rates as part of broader countercyclical macroeconomic policies.

## 1.4 Conclusions

The essential message of this chapter is that a sound macroeconomic policy for development should combine well-designed countercyclical macroeconomic policies with a proactive strategy for the diversification of the production structure. The need for a production development strategy stems from the close relationship that exists between economic growth and the diversification of production structures. The central policy objective is to promote innovative production activities that generate strong production linkages with other domestic economic activities and, through them, systemic competitiveness. The concept of “innovation” should be understood in the broad sense of the term – i.e. not as being confined to technological innovation, but also encompassing new production activities, new marketing methods, the conquest of new markets and new ways of organizing a company or an industry. The litmus test, however, is the extent to which an economy is capable of building up technological capacities. The challenge is particularly formidable in economies that, like most of those of Latin America, have static, natural resource-based comparative advantages. The exploitation of those advantages should not, however, be a barrier to the diversification of the production structure. Wise management of the exchange rate throughout the business cycle is essential if this is to be accomplished.

Countercyclical macroeconomic policy and the diversification of production structures are crucial elements in the contributions to economic thought made by Latin American structuralism. They, in turn, are based on two other fundamental concepts: the key importance of managing the external vulnerabilities of economies whose macroeconomic dynamics are subject to “balance of payments dominance”, and the close relationship that exists between economic growth and changing production patterns. These two pivotal ideas are as valid today as they were in the past and demonstrate the cogency of the concepts that Latin American structuralism has espoused throughout its history.

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