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Productive Development Policies and Supporting Institutions in Latin America and The Caribbean

by

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Abstract

This paper examines the evolution of productive development policies in Latin America in the last half century, with an emphasis on the post-reform period. The paper begins with a review of the import-substitution era and goes on to describe and make a preliminary assessment of the meaning and implications of productive development policies in the liberalization period.

1. Introduction[1]

Productive development policies can be broadly defined as policies that aim to strengthen the productive structure of a particular national economy.[2] This broad definition includes any measure, policy or program aimed at improving the growth and competitiveness of large sectors of the economy (manufacturing, agriculture); specific sectors (textiles, automobile industry, software production, etc.); or the growth of certain key activities (research and development, exports, fixed capital formation, human capital formation). The final objective is to raise growth and improve the competitiveness of the overall economy while maintaining a rising trend in living standards. Productive development policy can target specific products, activities or enterprises within a sector without necessarily targeting the sector as a whole. It can focus on horizontal issues directly related to production, such as technological innovation and investment, or focus on generic areas such as education, health and work habits that have an indirect effect on production. Strictly speaking, productive development policies are not restricted to government policies, defined as the set of laws and regulations and other policy measures that delineate the business environment and the institutional framework in which firms operate. In fact, they encompass any short-, medium- or long-term program aimed at increasing growth and productivity whether formulated or executed by public, private, or non-governmental institutions.

This paper examines the evolution of productive development policies in Latin America in the last half century, with emphasis on the post-reform period. The paper begins with a review of the import-substitution era (Section 2) and goes on to describe and make a preliminary assessment of the meaning and implications of productive development policies in the liberalization period (Section 3).

2. Productive Development Policies in the Import-Substitution Era

Post-World War II development policy in Latin America, as in most less developed countries (LDCs), was inspired by two ideas: first, that economic development is the process by which a poor country evolves into an economy exhibiting the broad characteristics of the developed

[1] The authors would like to thank Eduardo Lora and Mauricio Cárdenas for their comments to previous versions of this paper.

[2] Our definition closely follows the definition of industrial policy proposed by the Industrial Modernisation Centre (2003).

countries of that era, especially the strength of their manufacturing sectors; and second, that the market alone is unable to produce this transformation. There were several rationalizations for this second idea, including declining and volatile relative prices of the primary exports of LDCs (Prebisch, 1950), dynamic (external) economies of scale favoring industry more than agriculture (the infant industry argument for protection; see Bruton, 1998); multiplicity of imperfections in domestic markets that prevented resources from flowing into sectors with the highest returns; and investment lumpiness and economies of scale that created "natural monopolies" leading to the need for coordinated investments across multiple sectors for any individual project to be profitable (Rosenstain-Rodan, 1943).

This was a development challenge whose solution at the time required massive government intervention at multiple levels: trade protection in the form of high tariffs and quotas for certain industries; investment subsidies and subsidized loans; regulation to prevent competition in certain areas so that companies could exploit economies of scale; and direct public investment in natural monopolies and industries that were either important for downstream industries or that represented such large commitments that it was unrealistic to expect the private sector to undertake them (i.e., to induce a "big push"). This massive government intervention implied an enormous transformation of the state, with new ministries and public agencies set up to perform the many new tasks associated with the new development policy. The state created national development and commercial banks, new utilities, and holding companies to administer public investments in a variety of manufacturing and agricultural operations. Ministries expanded to take on a wide range of new regulatory and subsidy activities. Planning ministries were created to develop multi-year public investment plans.

Overall, the state grew significantly, and its new functions led to concentration of power and discretionary action that were generally not matched by strict requirements for results and accountability. The objective of this section is to describe in some detail the policies of this era and their implications for the state. We focus on the two most important areas: commercial policy and investment policy. After a brief review of the policies implemented, we turn to a discussion on the implications of these policies for the state.

2.1. Trade Policy

The views on trade and development in the late 1940s and the 1950s were very different from those that are generally held today. There was nothing at that time like the miraculous growth rates of the export-oriented economies of East Asia during the 1970s and 1980s to convince economists and policymakers of the positive role that trade could play in the development process. On the contrary, as Lindauer and Pritchett (2002) emphasize, the "economic miracle" was the Soviet Union! It was hard for most people to accept that trade opening could transform a poor economy specialized in agriculture into a rich industrialized economy. As Bruton (1998) clearly stated, the prevailing view was that the existence of already industrialized economies in the North meant that, in order to industrialize, the countries of the South had to protect "their economies from imports from the North and concentrate on putting in place new activities that will produce an array of manufactured products currently imported. Thus the structure of the economy would be changed and, at some future time, make possible a foreign trade that contributes to the development objectives" (p. 904).

Import duties were the main instrument for protecting the market, although they were generally supplemented by quotas. As shown in Table 1, adopted from Edwards (1994), average tariffs were very high in the region, with Central American countries exhibiting some of the highest average tariffs in the world. When quotas are converted to their tariff equivalents, the rate of protection increases substantially in most Latin American countries.

Table 1. Import Protection in the Developing World: 1985 (percentages)

	Total tariff protection (a)	**Non-tariff barriers coverage (b)**
South America	51	60
Central America	66	100
Caribbean	17	23
North Africa	39	85
Other Africa	36	86
West Asia	5	11
Other Asia	25	21

(a) Includes tariffs and para-tariffs.
(b) Measures lines covered by non-tariff barriers as a percentage of imports. The data on both tariffs and NTBs reported here are weighted averages.
Source: Edwards (1994), based on data from Erzan et al. (1989)

This picture was substantially more complicated because of the significant tariff dispersion across goods, which led to high effective rates of protection for some industries, and to more cumbersome and complex custom procedures and administration. According to Balassa (1971) and Little et al. (1970), Brazil, Chile and Mexico had some of the most distorted trade regimes in the world with very high variance in effective rates of protection (ERPs) across industries. Lin (1988) compared trade policies in Korea, Taiwan and Argentina during the 1970s and found that the ERP rates in the manufacturing sector were –1 percent in Korea, 19 percent in Taiwan, and almost 100 percent in Argentina.

Many countries moved to regional trading arrangements, with the idea that infant industry protection would take place in larger markets with economies of scale. This was particularly the case in the Central American Common Market and the Andean Pact, both created in the 1960s. This trend led to the need to negotiate tariffs at a very detailed level, and even more to cumbersome customs procedures and requirements to validate origin and content.

One result of strong protection was the creation of an anti-export bias, which resulted in low rates of export growth in many countries. A common reaction was the creation of tax incentives and subsidies for exports, which lessened the anti-export bias to some extent, but clearly imposed even stronger demands on bureaucracies to control and allocate the incentives.

The resulting trade policy was complex and imposed heavy demands on the state apparatus in terms of its design (although, as Balassa and Little et al. show, this does not appear to have produced the intended results), implementation, and constant revision.

2.2. Investment Policy

The view after World War II was that investment was crucial for economic development. There is no better way of making this point than to quote Arthus Lewis: “The central problem in the theory of economy growth is to understand the process by which a community is converted from being a 5% saver to a 12% saver” (Lewis 1955, pp. 325-26). Aid to developing countries was viewed primarily as a way of alleviating this savings constraint on investment and growth. Moreover, governments used their ability to borrow to finance a growing share of total investment, which was used not only for infrastructure, but also to invest in large-scale commercial ventures that were considered too large or strategic to be left in private hands. The public share of investment grew substantially, only to decrease again in the 1980s as a

consequence of the financial crisis. For example, the public-sector share in total investment increased from less than 20 percent in the early 1960s to more than 30 percent in the mid-1970s in Costa Rica, whereas the share of State Owned Enterprises (SOEs) in total capital stock increased from around 12 percent to close to 20 percent in the same period (Rodríguez-Clare et al., 2002). The creation of SOEs also led to a sizable increase in the share of GDP that was contributed by the state. This share declined subsequently in the 1990s as a direct result of the privatization efforts in many LDCs. Little et al. (1993) calculated similar numbers for other Latin American countries and found that SOEs accounted for almost 30 percent of total investment in Mexico in the 1970-73 period, with Chile and Argentina recording 20 percent and 17.5 percent, respectively. As shown in Table 2, this phenomenon was widespread among LDCs.

Table 2. Change in SOE activity as percentage of GDP
(Decrease in percentage points of GDP)

Countries (by income group)	1980	1997	Change
Low-income countries	15	3	-12
Lower middle-income countries	11	5	-6
Upper middle-income countries	10.5	5	-5.5
High-income countries	6	5	-1

Source: Sheshinski and López-Calva (1998).

One immediate consequence of the increase in the importance of public investment was the need for some kind of medium-term plan, which led to the creation of Planning Ministries or Agencies in most Latin American countries. In fact, multilateral financial institutions often imposed such plans as conditions for investment loans. In the words of Bruton: "By the early 1960s virtually every developing country had something that was called a plan… Almost all plans announced a growth (of GDP and some sectors) target and then allocated the anticipated investment among the sectors of the economy believed necessary to achieve the target" (p. 911).

Another area where the State assumed a key role was banking. In many Latin American countries, banks were nationalized in the 1940s and 1950s. In most of them the share of the State's banking transacted through public banks increased dramatically. By 1970, the share of banking assets held by public banks in the region reached 70 percent. This ratio fell significantly in the following decades, and the State's role shifted toward regulation and supervision rather than banking (see IDB, 2005).

The state's role in promoting investment did not end there. Apart from direct investment, private investment was subsidized in areas considered consistent with the development strategy. This was done through tariff exemptions on imported equipment and subsidized interest rates, although direct subsidies were also granted for certain private projects.

2.3. Implications for the State

As mentioned above, import substitution involved a complex structure of tariffs, other import levies and quotas that varied across fine categories of goods and were constantly being renegotiated between regional partners—or changed unilaterally. This situation created the need for a technical bureaucracy to take charge of the task, which was usually the Ministry of Economy and/or Industry. With unilateral liberalization and GATT membership, however, the tariff structure became much simpler. Surcharges and quotas were eliminated, making the State bureaucracy much less important. Instead, with the new emphasis on outward-oriented free-trade agreements (FTAs), a group of technocrats able to understand and negotiate such modern GATT-compatible agreements became essential. This group has generally been placed in new ministries (e.g., COMEX in Costa Rica) or in the Ministry of Foreign Affairs, as in Brazil and Chile. The result is that the balance of power has shifted within government from the ministry of Economics to the ministry of Foreign Affairs or Foreign Trade.

Something similar has happened in the area of investment policy. As mentioned earlier, the emphasis on investment and the high rates of public investment required planning, which in most cases was done by planning ministries or agencies, which became very powerful in the 1960s. With the reforms of the 1980s and 1990s, however, public investment decreased, along with the role of SOEs. This decline gradually weakened these ministries, to the point where in some countries there has been talk of closing them down. The role of investment planning is now mostly done at the Treasury, which has the real power to control the budget.

The role of the state as producer almost disappeared, except for utilities and certain services such as banking. The SOEs that remained acquired more restrictions and controls, and the idea that state companies should behave like private companies almost disappeared. Likewise, the agencies supervising SOEs also disappeared from the scene.

Instead of "picking winners," the new incentives were supposed to strive to be sector-neutral. The trend was towards transparency and eventual inclusion in the budget, except for tax incentives for foreign direct investment (FDI). The new incentives were also automatic, rather than discretionary. The offices and bureaucrats in charge of assigning incentives to particular firms vanished, and instead offices or agencies emerged to check that certain well-defined criteria were being satisfied in order to merit subsidies or tax breaks.

In short, the trend in industrial policy has had several implications for the state. First, the state has become smaller, with less discretionary power, acting under tougher and clearer restrictions, with more accountability and transparency. Second, the presence of powerful ministries, such as Planning and Economy, which were intended to plan and supervise large investments, enforce regulations and allocate incentives, greatly diminished, giving way to a network of more decentralized agencies specializing in tasks such as export promotion, attracting FDI, anti-trust, etc.

3. Productive Development Policies in the Liberalization Period

3.1 Industrial Policy's Quiet Return

It is well known that processes of radical policy change tend to overshoot the mark. The rejection of the productive development policies characteristic of the import-substitution approach led, in many quarters, to the rejection of *any and every* industrial or sector policy. The possibility that there could be a set of productive development policies both consistent with the structural reform process and necessary under the new conditions of more open economies was frequently rejected out of hand. It is obvious that the underlying idea that market forces would spontaneously lead to an optimal reallocation of resources as a matter of course following the liberalizing reforms was a major factor in this intellectual and policy attitude.

Nevertheless, by the mid-1990s there was a noticeable change in the policy atmosphere and policymakers' attitudes towards productive development policies. The feeling was growing among economic agents and decision-makers that structural reforms were not delivering the

promised results. Moreover, the strains, imbalances, and difficulties of the industrial restructuring process and the unintended undesirable outcomes of the reforms created conditions favorable to the emergence of a new type of industrial policy consistent with the new, market-oriented development strategy adopted by most countries in the region. The conditions were ripe for what Peres (1997) called, in an early and prescient diagnosis, the resurgence of industrial policies in Latin America and the Caribbean.

Melo (2001) examined the ensuing shift in the direction of industrial policies in several key Latin American and Caribbean countries and found that it had three remarkable features. First, he claimed that the new industrial policies were adopted almost simultaneously in a large number of countries in the mid-1990s; as several significant policy pronouncements were made in the three-year period 1994-1996 in various key countries. Second, in most leading countries the change took the form of the adoption and announcement of explicit, medium-to-long-term plans, programs, and/or strategies for the industrial sector. Third, the policy shift was generally the outcome of (or was broadly related to) a public debate about the effects of structural reforms and the need to improve the competitiveness of domestic industry in the new context of a more open national economy. We should add that the new industrial policies came to be juxtaposed in variable and complex ways with the remnants of the policies and institutions of the import-substitution era.

The new productive development policies in Latin America and the Caribbean continue to be an emerging phenomenon. Their defining feature can be encapsulated in the key idea that *the new industrial polices are aimed at improving the competitiveness of domestic producers in the new, more integrated and open world economy*. Instead of being designed to circumvent market outcomes, they seek to redress market failures through the provision of public goods and government intervention to stimulate the supply of goods with positive externalities. As Melo (2001) pointed out, the animating spirit behind the emerging policies is *not* to seek to return to the import substitution model. Such a return is considered to be out of the question. *Nor* do they aim at interfering with the market mechanism through a systematic and generalized use of arbitrary subsidies. Moreover, in contrast to many policymakers of the import substitution era, their proponents do *not* overlook the importance of macroeconomic stability and sound macroeconomic policies. On the contrary, macroeconomic stability is not only explicitly but

even forcefully prescribed as a prerequisite background condition for investment growth and industrial modernization.

A key generic feature of the new approaches to productive development policies in the region is that they attempt to address a core set of issues (such as productivity, efficiency, product quality, etc.) revolving around the central question of how to raise countries' competitiveness. The obvious underlying assumptions are that trade liberalization was necessary and is here to stay; that it is not only desirable but possible to change the prevailing world distribution of comparative advantages so as to increase the region's exports of manufactured goods (and even high-technology goods and services) and decrease dependence on primary-sector exports ; and, lastly, that the government has a role to play in this task.

The next section is a general survey of the emerging productive development policies adopted in the region. The discussion covers the policies and the institutions that implement them so as to give a view of how the adoption of the new policies has shaped the institutional and organizational structures of the states of Latin America and the Caribbean.[3]

3.2. Current Industrial Policies in Latin America and the Caribbean: Alternative Approaches and Key Components

The discussion of current productive development policies in Latin America is divided into two parts. The first is a general discussion of emerging alternative approaches in the region, centering on what we call the two-paradigm hypothesis, a concept to be presently explained. In the second part, the components of current industrial policies are dissected so as to provide an overall picture of their scope and content.

3.2.1 The Two-Paradigm Hypothesis

The two-paradigm hypothesis contends that two styles of or approaches to industrial policymaking are emerging in the region. The first, the *demand-driven approach*, emphasizes responding to the needs of existing sectors in the private economy, with the main aim of raising their international competitiveness. The second, the *strategy-driven approach*, is characterized by its emphasis on crisp definitions of the desired medium- and long-term changes in the vector

[3] Our survey of the emerging productive development policies in the region draws heavily on ECLAC (2004) and Melo (2001).

of goods and services produced by the economy and the use of selective policies to promote a small number of industries.

To explore in greater detail the characteristics of the two paradigms, it may be helpful to compare and contrast the ways in which productive development policies are conceived, designed and implemented in the best empirical representatives of the two paradigms. In the case of the strategy-driven approach, the best representative is Brazil. The demand-driven approach is best represented by Colombia's productive development policies.

3.2.1.1 The Demand-Driven Approach

In Colombia, the discussion and definition of productive development policies and actions has largely revolved around a public-private partnership and dialogue that has resulted in a set of organizational vehicles and instruments.[4] The first steps were taken in 1994 with the creation of the National Competitiveness Council, a body that reports directly to the Office of the President of the Republic, formerly under the technical direction of the now-defunct Ministry of Economic Development. The government adopted a strategy based on opening a dialogue with the private sector on the definition of Competitiveness Agreements by production chain; these agreements were aimed at improving the business environment and raising productivity. A quantum leap took place in 1999 with the start of the National Conferences on Productivity and Competitiveness (NCPCs), conceived as fora for the public-private dialogue. The first of these Conferences, held that year in Cartagena, was a trend-setting event. President Pastrana presented the National Policy for Productivity and Competitiveness (NPPC), invited the private sector to work jointly to achieve the objectives of the NPPC, and proposed the principles of (i) joint public and private responsibility for the results, and (ii) the accountability of public officials for the commitments assumed by the government in the half-yearly meetings of the National Conference. These meetings have since become a key institution for the public-private dialogue and for policy discussion. The NCPC is without doubt the most important private-public forum in Colombia.

The spirit of public-private dialogue was further deepened with the setting up of the Colombia Competes Network and the Regional Advisory Committees for Foreign Trade (CARCEs in their Spanish acronym). The Colombia Competes Network is not a single network,

[4] The description of the Colombian model of policymaking and dialogue draws heavily on Velasco (2003).

but rather a set of 10 specialized networks, each thematically driven. The work and dialogue revolve around problem-diagnosis and problem-solving in relation to a key factor that plays a determinant role in shaping competitiveness. The selection of the factors was guided by the main determinants of a country's competitiveness used by the World Economic Forum, with suitable adaptations. The 10 networks are the following: Science and Technology, Finance, Internationalization of the Economy, Institutions, Management, Education, Labor, Infrastructure, Transportation, and Telecommunications, Energy, and Gas. These specialized networks are an institutionalized meeting point and communication structure where representatives of the national government, business sector, workers, regional and local governments, and academia make a joint diagnosis of the situation in relation to the particular factor and a policy and practical dialogue aimed at formulating solutions and programming actions.

The Regional Advisory Committees for Foreign Trade are seen as an instrument of a decentralization strategy. The underlying idea is that competitiveness has an inescapable regional dimension. The CARCEs are bodies for public-private dialogue and policy discussion at the regional level. They were assigned the task of formulating Regional Export Strategic Plans in which they were expected to: (i) identify the comparative advantages and export potential of their region; (ii) establish a system to support investment projects; (iii) identify priorities for action; and (iv) design and execute a plan to foster an export-oriented, entrepreneurial culture in their region.

A crucial part of the public-private partnership is the signing of Export-Oriented Competitiveness Agreements between the national government and the entrepreneurs and trade organizations of a particular production chain. The basic objectives are to raise productivity and improve the competitiveness of the production chain. The Agreements include commitments by both the public and private sectors.

The Colombian experience has strongly influenced other countries. Similar processes of public-private partnership and dialogue in Costa Rica, the Dominican Republic, Bolivia, Ecuador, and Peru have typically led to the establishment of National Competitiveness Councils with (variable) private-sector participation and to the definition of National Competitiveness Plans or Strategies that combine the views of government and business in these countries.

The Colombian approach to industrial policymaking is a bottom-up approach. The Colombian government basically directs its entire organizational, policymaking, and activity

efforts **to the existing export sectors** through the National Productivity and Competitiveness Policy, the National Conferences for Productivity and Competitiveness, the Export-Oriented Competitiveness Agreements, and the Regional Advisory Committees for Foreign Trade. As far as we know, since the replacement of the Ministry of Economic Development by the new Ministry of Industry, Trade, and Tourism, there has not been a single policy pronouncement or document from the Colombian authorities or governmental institutions containing a statement on the need for the government to create and develop new production chains or new industries as part of a medium-to-long-term development strategy.[5] The reference to this missing component in the Colombian approach sets the stage for the discussion of the alternative approach—the strategy-driven approach.

3.2.1.2 The Strategy-Driven Approach

On the face of it, industrial policymaking in Brazil seems to follow a more traditional style. The Central Government defines and executes policy through an array of agencies. A new industrial policy was launched in April 2004, and early in 2005 the Brazilian Agency for Industrial Development (known by its Portuguese acronym ABDI) was created to coordinate the various agencies, execute industrial policies, and monitor their progress.

The key point is that Brazilian industrial policy has a clear-cut strategic view of the need to select a small set of industrial sectors as the target for promotion through selective, vertical policies. In other words, Brazilian policy is the expression of a definite **political will to change the vector of goods and services** produced by the economy **in a particular direction,** and not

[5] The absence of such a policy pronouncement has not always been the case in Colombia. As late as 2000, a policy document from the (now defunct) Colombian Ministry of Economic Development made a distinction between existing production chains that required further strengthening and development, and new production chains that should be promoted to help the country enter markets where, for the most part, it was (and still is) absent. The document included the following sectors in the latter category: information technology and software; microelectronics; biotechnology and biomedicine; new materials; fine chemicals; capital goods; and communications (see Ministerio de Desarrollo Económico de Colombia, 2000, and Melo, 2001). There is no evidence, however, that real practical initiatives and fiscal and institutional resources were allocated at that time to develop these new, mainly high-technology-based sectors. This lack of action is obviously very relevant in assessing the design of productive development policy in a number of countries in the region, and we will return to this in the concluding section. The absence of any mention of efforts to actively promote new sectors in recent Colombian policy statements is in fact due to a change in the orientation of the country's productive development policies that goes back to the beginning of this decade. Three expressions of this change were: (i) the substitution of the Ministry of Economic Development by the Ministry of Industry, Trade and Tourism, mentioned earlier; (ii) the removal of any reference to changes in the production structure as a strategic goal; and (iii) a terminological change in which the phrase "industrial policies" in the policy documents was replaced by references to "competitiveness policies."

merely a set of policy measures and actions aimed at promoting and assisting the **existing** sectors. The industrial sectors selected for special attention fall into two categories. The first category consists of what is called, in Brazilian policy terminology, a set of "strategic options." The strategic-option sectors are (1) semiconductors; (2) computer software; (3) pharmaceutical products; and (4) capital goods (Governo Federal do Brasil, 2003). Second, there is a set of industrial sectors that Brazilian policymakers label—rather poetically—"bearers of the future," presumably because of their potentially profound effect on productivity and competitiveness. The three specific sectors are: (1) biotechnology, (2) nanotechnology, and (3) biomass energy production (Jaguaribe, 2004; Teixeira, 2005).

Private-sector participation is also important in this approach. The key Brazilian policy document explicitly states that "both the multiplicity of situations and firm-level specificities reaffirm the need for the Industrial, Technological, and Foreign Trade Policy to be discussed and negotiated with the private sector since this is responsible for productive investments and industrial production" (Governo Federal do Brazil, 2003, p.10), while the newly constituted ABDI is to be governed by a Deliberative Council of eight members from government and seven from the private sector and civil society.[6] In addition, production-chain-specific competitiveness fora have been organized as instruments of a public-private partnership whose task is to tackle issues that affect the competitiveness of selected production chains, an issue that will be discussed below.

A strategy-driven approach has been adopted in only a handful of countries. Besides Brazil, only Argentina, Costa Rica, Mexico and Venezuela can be classified in this group. Costa Rica is a special case that deserves careful consideration. As one of the authors of this paper has concluded, Costa Rica's development strategy is based on technology and human capital, with FDI and high-tech multinationals playing the leading role (Rodríguez-Clare, 2001). However, two features differentiate Costa Rica's approach to attracting foreign investment. First, in the context of a strong public-private partnership, the private sector, represented by the Costa Rican Coalition for Development Initiatives (CINDE in its Spanish acronym), plays a major role in attracting FDI. Second, since the early 1990s the strategy has focused on a few sectors. For

[6] The seven non-governmental members represent the following organizations: Confederaçao Nacional da Industria (CNI), Agencia de Promoçao de Exportaçoes e Investimentos (APEX-Brasil), Confederaçao Nacional do Comércio (CNC); Serviço Brasileiro de Apoio a Pequena e Média Empresa (SEBRAE); Central Unica dos Trabalhadores (CUT); Instituto de Estudos Para O Desenvolvimento Industrial (IEDI); and Associaçao Nacional de Entidades Promotoras de Empreendimentos Innovadores (ANPROTEC).

instance, the 1993 strategic plan focused on the electrical, electronic, and telecommunications industries (Rodríguez-Clare, 2001).

Having outlined the main features of both approaches in an admittedly schematic manner, it is important to clarify that many features are common to both approaches. The two approaches share all the general features of the emerging industrial policies in Latin America described in the previous sub-sections, along with many concepts, issues, and policies.

What explains the emergence of these two approaches? We suggest a preliminary hypothesis that combines political economy determinants with institutional factors. In terms of this hypothesis, for a strategy-driven approach to become dominant in a country, the confluence of at least two of the following three factors is required: (i) a sufficiently strong technical and social-scientific intelligentsia, (ii) government institutions where this technical intelligentsia can exercise its intellectual influence,[7] and (iii) a nucleus of private entrepreneurs capable of going beyond a short-term corporatist stance and of interacting with the technical intelligentsia to generate a long-run, strategic perspective for productive development policies. In the Latin American experience, the technical and social-scientific intelligentsia sees itself as representing both the standpoint of the country's future and the interests of technical rationality. But (i) if this social segment is weak; (ii) if it is not sufficiently represented in the state bureaucracy; (iii) if the specialized agencies through which it expresses its views and technical interests are weak or non-existent; and (iv) if it does not have an ally in (at least a segment of) the entrepreneurial class, it cannot become a dominant factor influencing public policy, and there is thus no possibility of developing a strategy-driven approach in a particular country.

In the absence of a strong technical intelligentsia expressing itself through strong, capable institutions (and possibly allied with a segment of the business class with a long-term outlook), the kind of political-economy regimes prevailing in Latin American countries spontaneously bring about productive development policies that are basically shaped by the political influence of existing production sectors and where long-term strategic considerations take a back seat. In this situation the approach that ends up prevailing is the demand-driven approach.

[7] The government agencies we have in mind are planning agencies, public development banks, industry and trade ministries, science and technology agencies, and foreign trade agencies.

3.3 Overview of Current Industrial Policies in Latin America and the Caribbean

Understood in a broad sense, productive development policies usually cover a diverse set of elements: trade policies, investment policies, science and technology policies, policies for the promotion of micro-, small-, and medium-sized enterprises, human-resource training and upgrading policies, and regional development policies. For the purposes of this survey, a simple taxonomy will be used to classify and describe the emergent industrial polices of the region. For the discussion in this part of the paper, the industrial-policy set will be partitioned into three different classes: (a) export promotion policies; (b) policies to promote innovation, higher productivity and competitiveness; and (c) policies to promote output growth and investment. Some words are in order to explain and justify the distinction between the second and third categories. The idea is to distinguish between policies whose main effect is to increase present and future output and policies that change the way output is produced, presumably in the sense of increasing technical and economic efficiency. The set in category (c) of the proposed classification consists of policies that create incentives for producers to, as it were, "do more of the same." In contrast, policies in category (b) aim to encourage them "to change their ways," i.e., to produce more efficiently. In other words, while, in its pure form, the first policy set leads directly to increases in output and investment allowing firms to leave their production functions unchanged, the second set is deliberately designed to alter firms' production functions.[8]

3.3.1 Export Promotion Policies

Export promotion policies in Latin American and the Caribbean are presented in two parts. The first (Section 3.3.1.1) is a brief description. The second part (Section 3.3.1.2) proposes several ideas for assessing the effectiveness of those policies.

3.3.1.1 Export Promotion in the Region: The Policies

Export promotion policies in the region can be classified into five broad categories: (i) fiscal incentives; (ii) financial incentives; (iii) incentives for export processing zones; (iv) incentives

[8] It goes without saying that this distinction is purely analytical. It would be hard to find pure examples of the two types of policies in the real world. However, it is not unreasonable to assert that horizontal lines of credit to finance working capital are essentially a policy of the first type, and incentives for technological innovation are essentially a policy of the second type.

for trade in services; and (v) support for exporters' efforts to access and penetrate foreign markets.

Fiscal Tax Incentives. Fiscal tax incentives for exports have a long tradition in the region. They were initiated in the 1960s under the import-substitution regime in countries such as Argentina, Brazil, Chile and Colombia (ECLAC, 2004) and have evolved in response to changes in multilateral trade rules, regional trade agreements, and the peculiarities and constraints of the fiscal tax situation in particular countries. Tables 1 and 2 summarize fiscal incentives in a sample of South American countries, and in Mexico, Central America, and a sample of Caribbean countries, respectively.

Table 1. Summary of Fiscal Export Incentives in Selected South American Countries, March 2004

	Argentina	Bolivia	Brazil	Chile	Colombia	Ecuador	Peru	Uruguay	Vene-zuela
Re-bates	Refund of indirect taxes (manufacturing, turnkey plants and exports from some regions) (1991)	Drawback certificate DS 21660 (until 1991)	No	Levels similar to tariffs	Tax rebate certificate (CERT), Law 48 of 1983. Replaced the CAT. Repealed in 2002	No	Refund of taxes paid following export	Yes	Yes
Tax credit certif-icates	No	Negotiable letter of credit certificate (CENOCREN) DS 21530	No	No	Tax credit certificate (CAT) Decree-Law 444 of 1967 (repealed)	Tax credit certificate (CAT). Agricultural Development Act (repealed)	Tax credit (tax refund)	Yes	Special tax rebate*
Draw-backs	Refund of import taxes and charges (1960)	Refund of duties on imported inputs incorporated into exports (1991)	Refund of import taxes and charges (1964)	Refund of import taxes and charges (1988)	Duty drawback Vallejo Plan, created by DL 444/67 (until end of 2004)	Yes	Yes	Temporary admission mechanism with tariff exemption	Yes
Ex-emp-tion from value added tax	Includes credit for pre-export stages	Tax refund certificate (CEDEIM) Law 1489 (16/04/1993)	Constitutional law since 1965	No	No	Yes (oil companies). Under government review	Tax credit (VAT). D.S. No. 126 (1994)	Tax refund mechanism	No
Ex-emp-tion from other indi-rect taxes	Includes indirect exporters	No	No	No	No	No	No	Tax refund mechanism	No

Table 1., continued

	Argentina	Bolivia	Brazil	Chile	Colombia	Ecuador	Peru	Uruguay	Vene-zuela
Exemp-tion from profit tax	No	No	No	No	Full exemption in industrial free trade zone	No	Full exemption in industrial free trade zone	No	Full exemption in industrial free trade zone
Per-form-ance-based export incent-ives	Industrial specialization regime (1993-1996), compensation for the automotive sector (1991)	No	Existed between 1972 and 1990	Simplified rebate (1985)	No	No	Simplified rebate for ex ante recognition of drawback, based on guarantee invoice	No	No
Incent-ive for trading compa-nies	No	No	Existed until 1990	No	No	No	No	No	No
Maquila/ free trade/ export process-sing zones	Yes	Yes (industrial free trade zone) DS 21660 16/04/1993. Temporary import regime for re-export (RITEX)	Yes (1967)	Yes (1974)	Yes (textile sector)	Yes Law No. 90 (3/08/1990)	Yes, Tacna free trade zone and CETICOS (industrial and commercial free zones). For firms that export 92% of their output.	Yes	Yes
Defer-red payment of customsd uties	No	No	No	For capital goods	No	No	No	No	No

Source: ECLAC (2004).
*Until the mid-1990s, special tax rebate certificate for non-traditional agricultural exports depending on domestic value added (export bonds). D.881/75 (1992).

Table 2. Summary of Fiscal Export Incentives in Mexico, Central America, and the Caribbean, March 2004

	Mexico	Guatemala	El Salvador	Honduras	Nicaragua	Costa Rica	Jamaica	Other Caribbean Countries (d)
Rebates	No	Refund of customs duties++ on imports and VAT (1989)	Refund of import taxes and other indirect taxes.+++ Refund of tax credit to exporters (Art. 77, VAT Law)	Sales tax paid on purchase of inputs is converted into a tax credit for the firm (sales tax law)	Tax refund of 1.5% of the value of exported goods	No	…	No
Tax credit certificates	No	No	No	No	Existed until 1997	Existed until 1997	…	No
Exemption from value added tax	Includes pre-export stages (1985)	Total added component export regime	Yes (with a zero rate)	Yes (1998), sales tax	Yes (1991)	Yes (1972)	Yes	Yes
Exemption from other indirect taxes	Yes, for non-NAFTA members. Bill on strategic zones submitted to congress in December in 2002	Total added component export regime	Yes	Yes (1998)	Yes (1991)	Yes (1972)	Yes	Yes

Table 2., continued

	Mexico	Guatemala	El Salvador	Honduras	Nicaragua	Costa Rica	Jamaica	Other Caribbean Countries (d)
Exemption from profit tax	Yes, for non-NAFTA members. Bill on strategic zones submitted to Congress in December 2002	For exports to countries outside Central America	For free trade zones	Yes (1998)	Yes (1992)	Existed until 1996	…	Grenada, St Lucia, St Vincent and the Grenadines, Guyana
Export performance-based incentives	Program for export-oriented firms (ALTEX)	No	No	No	No	No	…	Guyana and OECS
Incentives for trading companies	VAT exemption (1997)	Waiver of taxes, customs duties and charges	No	No	No	No	…	No
Maquila/free trade/export processing zones	Various regions with maquila enterprises (1965)	Yes (1989)	Yes (1974). Reformed in 1998	Yes (1976)	Yes (1991)	Yes (1981)	…	No

Source: ECLAC (2004)
*For non-NAFTA countries
++Only under the duty rebate regime; otherwise, firms have a waiver or suspension of payment.
+++Refunds only amount to 6 percent of FOB value. (d) Includes Barbados, Grenada, Guyana, St. Lucia and St. Vincent and the Grenadines.

Financial Incentives. Tables 3 and 4 summarize the existing financial export incentives in nine South American countries (as of March 2004), and in Mexico, the Central American countries and some Caribbean countries, respectively. From the institutional point of view, four countries have public banks whose specific mission is to finance domestic exporters. These are Colombia with BANCOLDEX, Jamaica with the National Export-Import Bank of Jamaica, Mexico with BANCOMEXT, and Venezuela with BANCOEX. In Argentina, the Investment and Foreign Trade Bank (known by the Spanish acronym BICE) is a similar type of bank since it provides credit for both productive investment and exports. Four countries provide financing through their main public development banks: Brazil (BNDES), Chile (*Corporación de Fomento de la Producción*, CORFO), Ecuador (National Finance Corporation, CFN), and Uruguay (*Banco de la República Oriental del Uruguay*). Out of the sample of 18 countries considered in Tables 3 and 4, only nine countries have government institutions that provide credit to exporters. In the remaining nine countries export finance is left to private commercial banks. These include two South American countries (Bolivia and Peru), the five Central American countries, and two Caribbean countries (Barbados and Trinidad and Tobago). In the case of Central America, governments prefer to support exports with fiscal rather than financial incentives (ECLAC, 2004).

Table 3. Summary of Financial Export Incentives in Selected South American Countries

	Argentina	Bolivia	Brazil	Chile	Colombia	Ecuador	Peru	Uruguay	Venezuela
Pre- and post-shipment credit	Lines of credit from the Bank for Investment and Foreign Trade (BICE) and commercial banks	No	From the National Bank for Economic and Social Development (BNDES) and the Export-Import Bank (EXIMBANK), for selected products	Financing of national inputs for exporters (Production Development Corporation (CORFO))	Line of credit from the Colombian Foreign Trade Bank (BANCOLDEX) through commercial banks	Private banks and credit from EXIMBANK through the National Finance Corporation (CFN)	Private banks	Line of credit from the Banco de la República Oriental de Uruguay (BROU) (1969)	BICE lines of credit through commercial banks
Post-shipment credit	Lines of credit from BICE and commercial banks	No	Funds from the Export Financing Program (PROEX) for selected products	Financing for consumer durable purchasers (CORFO)	Line of credit from BANCOLDEX through commercial banks	Private banks	Private banks	Line of credit from BROU (1979)	Line of credit from the Foreign Trade Bank (BANCOEX)through commercial banks
Trade promotion	Banco de la Nación	Own funds as counterpart to ADC, IDB, World Bank and other projects	Funds from BNDES and EXIMBANK	Financing of the costs of marketing abroad (CORFO)	Transport subsidy from the Export Promotion Office (PROEXPORT) (abolished in 2002)	COERPEl* Guayaquil Chamber of Commerce*	Own funds; Peruvian Export Promotion Commis-sion (PROM-PEX)	Line of credit from BROU (1969)	BANCOEX *
Fixed asset financing for exporters	No	No	BNDES (20002), for locally-owned firms located abroad	Advance VAT refunds for export investment projects	Lines of credit from BANCOLDEX through commercial banks	Private banks and credit from EXIMBANK through CFN	Private banks; Guarantee Fund for Small Industry (FOGAPI)	Lines of credit from BROU (1969)	Lines of credit from BANCOEX through commercial banks

Table 3., continued

	Argentina	Bolivia	Brazil	Chile	Colombia	Ecuador	Peru	Uruguay	Venezuela
Financing for development of exportable products	No	No	For SMEs (APEX) (1997)	CORFO line of credit	Lines of credit from BANCOLDEX through commercial banks	Credit from the US Trade and Development Agency (TDA) and World Bank-CORPEI for pilot project studies	No	No	Lines of credit from BANCOEX through commercial banks
Pre-shipment credit insurance	Private insurers	No	YES	Private insurers	Private insurers	No	Private insurers, insurance for exporters (SEPIMEX) /Development Finance Corporation (COFIDE)+++	No	Private insurers
Post-shipment credit insurance	BICE and private insurers	No	Mixed capital (public-private) insurer (1997)	Private insurers	Private insurers	No	Private insurers	No	Private insurers
Guarantee fund for exporters	No	No	Guarantee fund to promote competitiveness (1997)	Guarantee fund for exporters of non-traditional goods (1987)	No	No	No	No	No
Coverage of bank loans to exporters	BICE	No	Guarantee fund for exports (BNDES)	Coverage of bank loans (COBEX)	No	No	No	No	No
Financing for export-oriented SMEs	PYMEXPORTA (export program for SMEs), BICE and commercial banks	No	No	No	No	No	(SEPIMEX/ CPFIDE)*	No	No

Source: ECLAC (2004).
*Partial subsidy for participation in overseas events, trade fairs and missions. ++ Part-time export manager program (GTP).
+++ Credit insurance fund for exporters (SEPIMEX), allocated US$50 million by the Ministry of Economic Affairs and Finance, covers 50% of the value of pre-shipment credit lines granted by private banks. Fund administered by the Peruvian Development Finance Corporation (COFIDE).

Table 4. Summary of Financial Export Incentives in Mexico, Central America, and the Caribbean (March 2004)

	Mexico	Guatemala	El Salvador	Honduras	Nicaragua	Costa Rica	Jamaica	Other Caribbean Countries++
Pre-shipment credit	National Foreign Trade Bank (BANCOMEXT) for manufacturing products (1988)	Private commercial banks*	Private commercial banks*	No	Private commercial banks*	Private commercial banks*	National Export-Import Bank	Trinidad & Tobago EXIMBANK+++
Post-shipment credit	BANCOMEXT funds (1985)	Private commercial banks*	Private commercial banks*	No	Private commercial banks*	Private commercial banks*	National Export-Import Bank	Trinidad & Tobago EXIMBANK+++
Trade promotion	BANCOMEXT funds (1985)	No	No	No	No	No	Jamaica Investment and Export Promotions Agency (JAMPRO)	Trinidad & Tobago (TIDGO), Barbados Investment and Development Corporation
Fixed asset financing for exporters	BANCOMEXT resources (1985)	Private commercial banks*	Private commercial banks*	No	Private commercial banks*	Private commercial banks*	…	…
Financing for development of exportable products	BANCOMEXT resources (1985)	Private commercial banks*	Private commercial banks*	Private commercial banks* and state support	Private commercial banks*	Private commercial banks*	…	…
Pre-shipment credit insurance	BANCOMEXT	Private insurers	Private insurers	Private insurers	Private insurers	Private insurers	National Export-Import Bank	Trinidad & Tobago EXIMBANK+++
Post-shipment credit insurance	BANCOMEXT	Private insurers	Private insurers	Private insurers	Private insurers	Private insurers	National Export-Import Bank	Trinidad & Tobago EXIMBANK+++

Table 4., continued

	Mexico	Guatemala	El Salvador	Honduras	Nicaragua	Costa Rica	Jamaica	Other Caribbean Countries++
Guarantee fund for exporters	BANCOMEXT	No	No	No	No	No	National Export-Import Bank	Trinidad & Tobago EXIMBANK+++
Coverage of bank loans to exporters	BANCOMEXT	No	No	No	No	No	No	No
Financing for export-oriented SMEs	Mexican export program (BANCOMEXT)	Private commercial banks*	Export development fund Technical assistance fund for exporters	Wholesale banking system: Central American Bank for Economic Integration (CABEI), Banco Grupo el Ahorro Hondureño (BGA), FICOHSA, Covelo Foundation, Honduran Private Enterprise Council (COHEP)	Private commercial banks*	Private commercial banks*	No	No

Source: ECLAC (2004).

* In all the Central American countries, private commercial banks play a major role in foreign trade activities, both through their own funds and through the management of lines of credit granted by international institutions such as the Central American Bank for Economic Integration or the Latin American Export Bank (BLADEX), which also extend loans to private banks in other countries in the region. However, in some countries, such as Honduras, the private banking system is not fully exploited.

++ Barbados and Trinidad and Tobago.

+++Also financed by the Regional Caribbean Exports agency.

Export Processing Zones. An Export Processing Zone (EPZ) is an arrangement in which exporting firms locate their manufacturing plants in a common in-bond physical space and receive a set of fiscal incentives in exchange for the commitment to produce and/or process goods for the external market.[9] In his survey of industrial policies, Melo (2001) found that 20 countries offer the EPZ option to both foreign investors and domestic exporters, making this the most widely used fiscal-incentive vehicle.

Incentives for Trade in Services. According to ECLAC (2004), the main fiscal incentives for promotion of merchandise exports can also be applied to service exports. These incentives include: (i) the drawback mechanism applied in Argentina, Chile, and the Dominican Republic; (ii) refund of indirect taxes in Mexico; (iii) access to export processing zones in Chile; (iv) deferred payment of tariffs on capital goods imports in Chile, Mexico, and Uruguay; and (v) tax exemptions for tourism services in Chile and Peru. Financial mechanisms to support trade in services include: (i) credit for acquisition of domestic services by foreign buyers (Brazil and Chile); (ii) financing of investments abroad (Central America); (iii) export insurance; and (iv) credit for the development and dissemination of new services (Argentina, Brazil, and Mexico).

Access and Penetration into Foreign Markets. One of the characteristic developments of the post-import-substitution period from the standpoint of both policy and institutional transformations in the public sector is the emphasis on foreign market access and penetration. While trade negotiations are a key front in the battle that Latin American and Caribbean countries have waged to gain access to foreign markets for their goods and services, particularly in developed countries, these policy initiatives will not be discussed in this paper as they cannot be considered as productive development policies in the proper sense of the term. The discussion will instead concentrate on policy and institutional initiatives that do not depend on the success of international trade negotiations.

[9] Tax incentives for locating in these zones usually offer the following exemptions: (i) corporate income taxes for up to 20 years; (ii) taxes on dividends and profits; (iii) import and export duties on capital equipment, intermediate goods, and spare parts; (iv) sales, excise, and consumption taxes; (v) taxes on transfers of profits; (vi) restrictions on foreign exchange; and (vii) industrial regulations applying elsewhere in the country. In addition to these incentives, firms in export processing zones usually benefit from simplified and expedited export procedures (such as customs inspection in the zone); strategic location (e.g., proximity to ports, airports, or key roads); a modern physical infrastructure in the zone (warehouses, roads, power plants, etc.); and complementarities and economies of scale in the use of services such as security and employee transportation.

The substance of the support provided to private exporters consists mostly of systematization and provision of trade information, organization of exporters' participation in trade fairs and missions, and basic export training courses.

As suggested above, the institutional aspect of the non-financial support to exporters is interesting. There is some measure of experimentation and institutional diversity in the way different countries respond to the market penetration needs of their exporters. Table 5 shows, for a sample of 25 Latin American and Caribbean countries, the agencies responsible for non-financial export promotion; the legal nature of these agencies, whether they are fully public, mixed public-private or fully private agencies; and the information on whether the agency is responsible for both export and foreign investment promotion or only export promotion.

Table 5. Export Promotion Agencies in Latin America and the Caribbean

Country	Agency	Legal nature	Mission
Argentina	*Banco de Inversión y Comercio Exterior* (BICE)	Public	Only X
Bahamas	No export promotion agency	N/A	N/A
Barbados	Barbados Investment and Development Corporation (BIDC)	Public	X + INV
Belize	Belize Trade & Investment Development Service (BELTRAIDE)	Public	X + INV
Bolivia	*Centro de Promoción Bolivia* (CEPROBOL) under the Ministry of Foreign Affairs	Public	X + INV
Brazil	*Agência de Promoçao de Exportaçoes*	Public	Only X
Chile	ProChile	Public	Only X
Colombia	PROEXPORT	Public	X + INV
Dominican Republic	*Centro de Exportación e Inversiones de la Republica Dominicana*	Public	X + INV
Ecuador	*Corporación de Promoción de Exportaciones e Inversiones*	Public-private	X + INV
El Salvador	*Fondo de Fomento a las Exportaciones* (FOEX) under the Ministry of the Economy	Public	Only X
Guatemala	*Cámara de Industrias de Guatemala*	Fully Private	Only X
Guyana	Guyana Office for Investment (GO-Invest)	Public	X + INV
Haiti	No export promotion agency	N/A	N/A
Honduras	*Dirección General de Promoción del Comercio Exterior* under the Ministry of Industry and Commerce	Public	Only X
Jamaica	Jamaica Promotion Corporation (JAMPRO)	Public	X + INV
Mexico	*Banco de Comercio Exterior de México*	Public	X + INV
Nicaragua	*Centro de Promoción de Exportaciones* (NICAEXPORT)	Public-private	Only X
Panama	*Viceministerio de Comercio Exterior* under the Ministry of Commerce and Industry	Public	Only X
Paraguay	No export promotion agency	N/A	N/A
Peru	*Comisión para la Promoción de Exportaciones* (PROMPEX)	Public	Only X
Suriname	No export promotion agency	N/A	N/A
Trinidad and Tobago	Tourism and Industrial Development Corporation of Trinidad & Tobago (TIDCO)	Public	X + INV
Uruguay	*Instituto de Promoción de Inversiones y de Exportaciones de Bienes y Servicios (Uruguay XXI)*	Public	X + INV
Venezuela	*Banco de Comercio Exterior*	Public	Only X

Note: "Only X" means that the agency is only concerned with export promotion. "X + INV" means that the agency covers *both* export *and* investment promotion.

3.3.2 Export Promotion: Towards an Assessment of Effectiveness

From the standpoint of effectiveness, a constraining factor for export promotion policies is that very few countries in the region have the complete battery of policies required to do an effective job of export promotion. A complete policy menu would cover the entire range of activities from the production stage to the marketing of products in the target markets and should include credit services and/or fiscal incentives, credit insurance, trade information, training, facilitation of access to foreign markets, improvement of quality standards, assistance with issues of distribution logistics, business intelligence, and trade diplomacy. In a considerable number of countries, the governments only provide a part of these incentives or services. For instance, as mentioned above, in a sample of 18 countries of the region, in only nine countries do government institutions provide credit to exporters. In the other nine, export finance is left to private commercial banks. In four countries there is no export promotion agency of any kind, not even for the simplest promotional tasks.

Another related constraining factor is the fact that in some countries the institutional framework for export promotion is not sufficiently developed. Although a single institution is not absolutely necessary for effective export promotion, the minimum requirement is a small network of solid institutions with stable financing, qualified professional staffs, and careful coordination. This is not, by any means, the general pattern in the region. In some cases, the existing institutions are not only poorly coordinated but also work at cross-purposes. For instance, in some countries, export promotion efforts are hindered by institutional rivalries between the foreign offices of the export promotion institutions and the network of embassies and consulates.

An even more serious constraining factor—which we will return to at the end of the paper, since it affects not only export promotion polices but all productive development policies—is the chronic budgetary constraint characteristic of public sectors in countries with low tax-to-GDP ratios, constraints that worsen when fiscal adjustments are undertaken.

However, on the positive side, most Latin American countries have made their diplomatic offices and/or the foreign offices of their export promotion institutions into increasingly effective tools in facilitating access by domestic exporters to foreign markets and in providing information on the country's export supply to prospective buyers in the target markets.

Finally, the proposed classification of demand-driven and strategy-driven approaches to industrial policy is relevant for the analysis of current export promotion policies in the region since some countries have National Export Strategies or National Export Plans where sectors are selected as special targets for promotion. Venezuela's current National Export Strategy, where the policy instruments for promoting exports are also seen as tools to induce transformations in the production structure, is a case in point. However, it must also be pointed out that it is not in the area of export promotion policies where the distinction between the two approaches is most visible, because it is in the nature of export promotion that horizontal policies must prevail in its design.

3.4 Policies to Promote Innovation, Higher Productivity and Competitiveness

The second broad class of productive development policies to be surveyed here includes all policies (other than export-promotion policies) whose aim is to foster higher productivity, greater efficiency, technological innovation, and stronger competitiveness (i.e., the capacity to produce goods of a given quality at a lower cost or goods of higher quality, given the cost). This policy set is discussed here under three main headings: (1) policies to promote innovation and technological development; (2) policies to foster the integration and strengthening of production networks; and (3) policies to extend and deepen the use of information and communication technologies.

It is in this area where the distinction between the strategy-driven and demand-driven approaches is most relevant and can bear more fruit from the analytical standpoint. By its nature the goal of improved competitiveness raises the issue of whether the country in question (or perhaps, to be more precise, its entrepreneurial class and/or its technical intelligentsia and policymaking elite) is satisfied with its place in the international division of labor. As will be seen shortly, some countries are attempting actively and explicitly attempting to change their linkages to the international economy and see innovation and competitiveness policies as a means of getting where they want to be.

3.4.1 Policies and Institutions to Promote Innovation and Technological Development

The discussion starts with a review of the changes in the institutional aspect of science and technology policies in the last few decades and then examines the array of government interventions aimed at promoting technological innovation and development.

The Institutional Dimension. Technological development is a policy field where major transformations in concepts and institutions have occurred over the last few decades. As stated by ECLAC (2002), in the import-substitution era the public sector played a fundamental role in providing direct and indirect support for the development of technological capabilities. One way in which this was done was to create an institutional infrastructure for science and technology, which consisted of two key components. The first was to set up independent, decentralized public agencies—the national science and technological councils—which were given responsibility for science and technology policymaking and promotion of scientific research and technological development. The second, which largely pre-dated the national councils, consisted of an array of public research institutes and laboratories, located both inside and outside public universities. The region's largest countries took the lead in implementing this institutional infrastructure. The National Institute for Scientific Research (INIC) was created in Mexico in 1950;[10] the National Research Council (CNPq) in Brazil in 1951, and Argentina's National Council for Scientific and Technical Research (CONICET) in 1958. In addition, technology institutes in areas such as agriculture, energy (including nuclear energy), industrial technology, mining, forestry, and aeronautics were also established.[11]

The basic concept behind this institutional infrastructure was the idea that the state's only role was to organize and subsidize the supply of scientific knowledge and technological know-how as public goods. It was believed that solving the bottleneck on the supply side would lead almost automatically to the adoption of technologies by the enterprises on the demand side.[12]

As soon as this model was relatively consolidated the first signs started to appear that something was wrong with this model. The policy design led to a situation where the technological research carried out in the public research institutes did not, for the most part, address the needs of the production sectors. In the early 1970s, a growing awareness of the need to create effective demand for science and technology led policymakers to adopt a more selective and sector-specific approach. This brought about the organizational reforms of the mid-1970s.

[10] In 1970, INIC was replaced by the National Council of Science and Technology (CONACYT).

[11] For instance, Argentina's National Atomic Energy Commission was set up in 1954, followed in 1957 by the National Institute of Industrial Technology, and the National Institute of Agricultural Technology (ECLAC, 2004). In Mexico, the National Nuclear Energy Commission (CNEN) was created in 1956, the Mexican Petroleum Institute in 1965, the Electricity Research Institute in 1975, and the Mexican Institute for Water Technology in 1986.

[12] This way of conceiving the relationship between science and technology, on one hand, and their productive applications by firms, on the other, is known as the linear supply model. See the discussions in ECLAC (2002, 2004).

The main action was the formal creation of "national S&T systems" from above by simply bringing together all organizations, institutes, agencies, societies, and individuals directly involved in scientific and technological activities under the direction of the S&T policy agencies. These agencies were, in turn, given the responsibility for articulating, planning, and coordinating the whole "system."

The economic crises and stabilization programs of the 1980s hit the S&T agencies hard. Fiscal adjustments led to budgetary contraction and, in some cases, the agencies were affected by the downsizing of the public administration. In addition, some policies containing strong elements of interventionism (or perceived as such) were scaled down. In the meantime, public support for basic scientific research and graduate training inside and outside the region continued to absorb most of the public budget earmarked for S&T activities.

Throughout this process, the central organizational feature of the policy agencies was a fairly high degree of centralization of decision-making. Other shortcomings have been frequently highlighted. Writing about Argentina's case, for instance, Chudnovsky (1999) pointed to "a lack of priorities, serious shortcomings in management, lack of coordination and of quality evaluation mechanisms, and serious imbalances in budgetary allocations" (p. 165). Other analysts pointed to the lack of an appropriate legal and institutional framework, which kept public authorities, including the S&T agencies, in a situation of isolation and lack of accountability. These authors have established, for some key countries, a connection between these institutional features and the experience of authoritarian political regimes. Instead of creating favorable conditions for state efficiency, insulation and lack of accountability promote policy rigidity and increase the likelihood of capture by private groups (Bastos, 1995).

The institutional situation in the smaller and/or poorer countries was even worse. While there were a few good R&D institutions, often organized on a sub-regional basis, most of these countries had almost no institutional base, except for a few universities.

In the 1990s, the supply-based model finally broke down and was replaced in a number of countries, by a new approach emphasizing demand-side incentives (ECLAC, 2004). In this approach, priority has been given to the design and utilization of instruments to promote demand for technological innovation and support the transfer of technological know-how to the firms in the production sectors. Demand subsidies play an important role in this model, and the way they are allocated makes technology policies more horizontal and neutral.

The new approach was accompanied by institutional reform. The main components of the reform were (1) greater legal formalization of the national science and technology system; (ii) the introduction of separate funding programs (or even agencies) for technological modernization, clearly differentiated from the traditional programs (or agencies) responsible for funding scientific research; (iii) implementation of a more participatory approach, which strengthened the role of the business sector and the dialogue with it; (iv) separation of the policymaking function from the programming, promotion, execution, and evaluation functions, and the assignment of responsibility for the two sets of functions to different government agencies.

A conceptual and intellectual change that made a major contribution to creating and shaping the climate for reform was the increasing acceptance in the region of the systemic concept of productive innovation as a social practice conducted by a wide variety of actors. Most S&T policy elites in the region adopted the conceptual tools of the national innovation systems approach and applied them to strategic, institutional and policy issues. A number of countries have formally incorporated the systemic concept into the legal reforms of the 1990s, as will be seen shortly.

The wind of reform blew in most of countries in the region. To illustrate the extent of the legal-institutional transformation in the 1990s, it is appropriate to mention some of the legal milestones in this process. These took the form of laws that reformed the pre-existing science and technology agencies (or created them where they did not previously exist), created instruments to promote scientific research and technological innovation, and gave legal status to the national innovation or national science and technology systems.[13] One important

[13] By country in alphabetical order, the main legal changes in the 1990s were as follows. In Argentina, the Law for the Promotion of Technological Innovation was passed in 1990; in 1996, the Technological and Scientific Cabinet and the National Agency for the Promotion of Science and Technology were created. In Brazil, the National Council for Science and Technology (CCT), an advisory body, was created in 1996. In Bolivia, in 1991, the government issued Supreme Decree 22908 to regulate science, technology and innovation activities, and in 2000 the Senate passed the Law for the Promotion of Science, Technology, and Innovation. In Colombia, in 1990, Congress gave legal status to the National System of Science and Technology; and in 1995 the National Innovation System was legally created. In Ecuador, in 1994, the new institutional framework was established by Executive Decree 1603, which reorganized the National System of Science and Technology, and Decree 1605, which created the Science and Technology Foundation. In 1992, the National Council of Science and Technology was set up. In Guatemala the Law for the Promotion of Science and Technology was passed in 1991. The Honduran Council of Science and Technology was created in 1992 and the Nicaraguan Council of Science and Technology in 1995. The Law that regulates science and technology activities was passed in 1997 by the Panamanian legislature. In Paraguay, Law 1028 of 1997 established the National System of Science and Technology. In Uruguay the

organizational change was the legal creation of ministries of science and technology in three Latin American countries, namely Brazil, Costa Rica, and Venezuela.

New management practices were (and are still being) introduced to strengthen the planning of activities, the coordination of organizations and efforts, and the evaluation of results. One of these practices is the drafting, participatory discussion, and formal approval of multi-annual strategic plans. These plans typically define the conceptual framework, objectives, strategies, policies, priorities, intermediate goals, guidelines, action programs, and quantitative targets for governments and their agencies. They also evaluate the system's accomplishments in previous years and diagnose the policy challenges that need to be addressed.

The Technology Funds. The most important public-policy instrument to support technological innovation evolved by countries in the region is the technology fund. Technology funds provide loans, subsidies or grants to firms undertaking technological innovation and modernization. This is also the instrument *par excellence* for drawing a clear line between the strategy-driven and the demand-driven approaches. The Brazilian scheme of sector-oriented funds is a clear example of a long-term policy aimed at selectively strengthening a particular set of productive sectors. The 14 Brazilian funds are designed to promote R&D in the natural gas, information technology, water resources, energy, agribusiness, infrastructure, mining, land transportation, space, telecommunications, health, biotechnology, and aviation sectors, as well as technological cooperation between university research centers and enterprises.[14] The Brazilian sector funds are typically financed from revenue from the sector enterprises. For firms in these sectors, the laws setting up the individual sector funds define the share of company income to be set aside for R&D activities (ECLAC, 2004). Table 6 shows the characteristics of seven of the Brazilian sector funds.

Institutional System of Science of Technology was reformed in 1999 in the context of a general reform of the Uruguayan state. Also in 1999 the Ministry of Science and Technology was set up in Venezuela.

[14] The fund concerned with this is the *Verde e Amarelho* Fund.

Table 6. Brazil: Main Technological Sector Funds*

Sector funds	Objectives	Origin of financial resources	Activities
CT-PETRO (1999) Sector fund for the oil and natural gas sector. Established by Law No. 9487 of 1997.	Sector development through promotion R&D and human resources training	25% of value of royalties exceeding 5% of production of oil and natural gas	Collaboration in the definition of policies and implementation of specific programs. In 2001, 144 projects worth 7 million reales were approved by the CNPq. Expenditure between January and November 2003: 16,431,002.70 reales
CT-ENERG Sector fund for the energy sector. Establishing instrument: Law No. 9991 of 2000	Sector development through promotion of R&D	Between 0.75% and 1% of the net income of enterprises with concessions for the generation, transmission and distribution of electricity	In 2001 the CNPq approved 132 R&D projects involving the investment of 8 million reales by the fund. In 2001 an association agreement was signed between the National Electric Power Agency and the CNPq to promote cooperation between research centers and enterprises. Total expenditure between January and November 2003: 8,397,983.70
CT-HYDRO Sector fund for water resources. Establishing instrument: Law No. 9993 of 2000	Reduction of disparities between regions through investments in science and technology activities of importance for the sector. Strengthening of water resource sustainability.	4% of the financial revenue of electricity generation enterprises	Financing of scientific and technological development projects and programs designed to improve water quality and use. In 2002, 28.6 million reales were invested, of which at least 4 million were for training specialized personnel. Expenditure between January and November 2003: 3,735,635.85 reales
CT-INFO Sector fund for information technology. Establishing instrument: Law No. 10176 of 2001	Promotion of competitiveness through R&D programs and projects	At least 5% of the gross annual sales in the domestic 1T-related goods and services market of enterprises producing goods and services related to IT which receive tax incentives under the law to promote the IT industry	It is estimated that over 50 million reales are spent each year on promotion of R&D activities in this sector. Expenditure between January and November 2003 was 9,917,983.70 reales
Sector fund for agribusiness. Establishing instrument: Law No. 10332 of 2001	Strengthening of competitive position of products of this sector on international markets	Law No. 10168 of 2000 establishes the sources of financing for this fund, which receives 17.5% of the amount covered by the law.	Financing of R&D and science and technology activities. Expenditure between January and November 2003: 2,140,277.92 reales
FVA "Green and Yellow fund." Establishing instrument: Law No. 10168 of 2000	Promotion of technological cooperation among universities, research centers and enterprises	Contributions in the form of royalties from enterprises holding user licenses or acquiring technological know-how abroad	A minimum of 30% of the fund is earmarked for technological training and modernization in the Northern, Northwestern and Midwestern regions. Expenditure between January and November 2003: 58,071,768.19 reales
CT-INFRA (2002) Infrastructure fund. Establishing instrument: Law No. 10197 of 2001	Subsidies for maintenance and modernization of the technological infrastructure of public universities and research centers to improve the competitiveness of the productive sectors	20% of the resources allocated to each sectoral fund from the National Technological Development Fund (FNDCT) and from the other funds for financing science and technology activities	In 2002, 100 million reales were provided to create suitable conditions for activities in science and technology bodies. The Northern, Northwestern and Midwestern regions will receive at least 30% of the amount. Expenditure between January and November 2003: 70,284,331,.74
*This table only includes the funds that spent more than 1,500,000 reales in 2003. The excluded funds were mining, land transport, the space sector, telecommunications, health, biotechnology and the aeronautical sector.			
Source: ECLAC (2004).			

On the other side of the divide, technology funds in most other countries are demand-driven. In a typical fund of this type, the public budget provides the funds, often as a counterpart to loans from the Inter-American Development Bank and the World Bank, which have been very active on this front. The funds are accessed through competition in line with a horizontal management approach (ECLAC, 2004). The Chilean system of funds appropriately illustrates this demand-subsidy-based approach (see Table 7).

Table 7. Funds to Support Science and Technology Activities in Chile

Fund and administering body	Objectives	Beneficiaries	Origin and destination of financial resources
National Fund for Scientific and Technological Development (FONDECYT). Administered by CONICYT	Promote the development of basic scientific and technological research in order to create or improve methods and means of production of goods and services	Natural persons or research institutes using various financing programs	Contributions allocated under the National Budget law, legacies, and domestic and international donations which do not have any other specific purpose. The beneficiaries are selected by public competition
Fund for Promotion of Scientific and Technological Development (FONDET). Administered by CORFO	Strengthen the scientific and technological capacity of universities and research centers in order to increase the competitiveness of enterprises. To finance projects in priority areas (natural resources, promising areas for the creation of value added, and others with high social impact)	Not-for-profit institutions, individually or in association, which carry out R&D activities and have legally existed for at least 5 years. The fund requires the participation of enterprises, especially in the technology area.	The fund finances up to 60% of the cost of projects, with a ceiling of 450 million pesos. Institutions and enterprises must contribute at least 20%. The beneficiaries are selected by competition based on R&D projects, on an open-window basis for technology transfer projects
Development and Innovation Fund (FDI). Administered by CORFO	Improve technological innovation in areas with strategic impacts in terms of economic and social development.	Not-for-profit institutions and technology centers engaged in R&D activities, technology transfer and related services. Technological-entrepreneurial consortia of at least 3 enterprises not ownership-related before the date of application, associated with one or more technology centers.	Project completions; tenders for the execution of specific lines of work; and open-window arrangements (new form of allocation). The fund finances expenditure on operations, administration, human resources, subcontracts, and any other areas needed for the project.

Table 7., continued

Associate Development Projects (PROFOs). Administered by CORFO	Improve the competitiveness of a group of enterprises aimed at solving management and marketing problems on a joint basis	SMEs with annual sales of 2,400 to 100,000 UF. Minimum sales are 1,200 UF for agricultural enterprises, while maximum sales rise to 200,000 UF for manufacturing enterprises which are associated in groups of at least 5	Open-window basis: the enterprises must contact CORFO intermediaries who will provide application forms and appoint professionals to diagnose the stage of preparation of the project
Technical Assistance Fund (FAT). Administered by CORFO	Introduce management techniques into the operations of enterprises or new technologies into their production processes through consultants	Chilean companies which require specialized outside support and have net annual sales under 100,000 UF. The consultants are appointed on an individual basis (at least 3 companies in the latter case)	Open-window basis (both cases): Individual FAT assistance: for the initial diagnosis, CORFO contributes 17 UF and the enterprise 3 UF, while CORFO subsequently finances up to 50% of the consultancy costs. In the case of collective arrangements, CORFO finances up to 50% of the consultancy costs, with a maximum of 100 UF per company
National Fund for the Technological and Productive Development (FONTEC). Administered by CORFO	Promote, guide, and sponsor, through 5 lines of assistance, projects in the areas of technological innovation, associative technology transfer, and implementation of technological infrastructure	Lines 1, 2, 3 and 5 finance private enterprises producing goods and services which demonstrate the necessary technical, administrative and financial capacity and are not in payment arrears. They can apply individually or in association, provided in the latter case that they are not commercially linked. Line 4 finances enterprises producing goods and services in a single production sector, and are applying for assistance in tackling technological problems of an associative nature.	Open-window basis: for lines 1, 2, 3, and 5, an application for the finance must be submitted to FONTEC or CORFO, which will consider the project in line with their rules for applications, together with information on the legal and financial status of the enterprises. Open-window basis: line 4 requires application for a diagnostic stage involving the preparation of a Relevance Analysis for FONTEC or CORFO
Source: ECLAC (2004).			

Fiscal Incentives. In a number of countries in the region, fiscal incentives for technology innovation are utilized as a policy instrument. They typically include: 1) reduction of corporate income tax; 2) reduction of VA taxes; 3) accelerated depreciation of capital goods and equipment acquired in the context of an innovation project; and 4) granting of tax credits on expenses and additional investments in R&D. In addition to this basic set, some individual countries grant

certain special incentives. Colombia allows a 125 percent deduction of the costs of innovation projects carried out by firms, and grants exemption from VA taxes on imports of equipment and instruments for innovation projects by research centers, technological development institutes and the universities. Brazil grants exemption from the Tax on Industrialized Products to firms producing information technology products provided that they spend more than 5 percent of their gross sales on R&D. It also allows the deduction as operational expenses of royalties and other technical assistance payments made by advanced-technology firms.

3.4.2 Policies to Foster the Integration and Strengthening of Production Networks

In discussing enterprise networks, two alternative classifications, from different standpoints, can help organize information on the varied array of policies adopted in the region. The first classification distinguishes between production chains and clusters. Production chains comprise firms that are linked through the successive transformations of inputs into final goods (e.g., the production chain that links cotton producers with textile producers and apparel manufacturers). These producers may or may not be geographically concentrated. In contrast, clusters are defined as local concentrations of producers that benefit from economies of agglomeration, precisely because of their geographical concentration. In clusters, producers generally (but not always) belong to different industries.

The second classification is proposed by Dini (2002), who distinguishes among horizontal, vertical, and territorial networks. Horizontal networks are cooperation schemes among small- and medium-sized enterprises (SMEs). Vertical networks are formed by linkages between large enterprises and their suppliers (which are frequently SMEs). Territorial networks are cooperation schemes between firms and other actors (local governments, universities, non-governmental organizations, etc.) in local communities (towns, regions, districts, etc.) aimed at developing competitive advantages appropriable by the participating firms.

The two alternative classifications will be used to draw an admittedly incomplete picture of support policies aimed at developing the potential collective efficiencies existing in the different type of entrepreneurial networks.

Production Chains. As an illustration, let us consider the sectors whose production chains are given priority by the Colombian, Mexican, and Honduran governments through an array of actions and instruments. Colombia targets the following production chains: cotton-

fibers-textile-apparel; electrical appliances industry; auto parts-automotive; agribusiness; the *Vallenato* culture cluster;[15] leather-footwear-leather-manufactures; electrical machinery and equipment and professional electronics; forestry-furniture-wood products; forestry-pulp-paper-graphic-industry; metal-mechanic industry; petrochemicals; hygiene-cosmetics; vegetable-based natural products; engineering, consulting, and construction services; the health services industry; and the software industry (Colombia Compite, 2004).

Mexico targets the production chains of six sectors: electronic and high technology industries; software industry; automotive industry; *maquiladoras*; leather and footwear industry; and the fiber-textile-apparel chain (Secretaría de Economía de México, 2004).

Finally, Honduras identified the following production (or "value") chains as having high potential: agribusiness and foodstuffs with high valued added; "differentiated" tourism; electric power generation; forestry-furniture; and textiles with high value added (Alonso, 2003).

Cluster Promotion. Interest in cluster promotion has multiplied in the last decade. As ECLAC (2004) has pointed out, there are hundreds of cluster projects in Latin America, which makes reviewing what is being done in the region on this front nothing short of a daunting task. However, a reasonable approach is to rely on Dini's (2002) survey of the main government programs that support the association of SMEs in clusters. Dini lists the following programs: *Faroles de Desenvolvimento* y *Polos de Desenvolvimento* supported by *Banco do Nordeste* in Brazil; the Technological Platform Program of the Brazilian Ministry of Science and Technology; the Cluster Promotion Program in the Brazilian states of Minas Gerais, Pernambuco, and Rio Grande do Sul; CORFO's *Programa Territorial Integrado* and *Proyectos Asociativos de Fomento* (PROFO) in Chile; SECOFI's Programa de Agrupamientos Empresariales in Mexico; the UNIDO Project in Nicaragua; El Salvador's Cluster Program; and PROMPYME's Cluster Program in Peru.

Horizontal and Vertical Networks. To the extent that the territorial networks examined by Dini (2004) are essentially the same as clusters, this short discussion of the policy initiatives to support production networks can be completed with Dini's summary of the countries that have programs aimed at promoting horizontal and vertical networks. Table 8 provides this information.

[15] The *Vallenato* culture cluster revolves around the production, recording, and export of the folk music of Colombia's Caribbean coast.

Table 8. Programs to Promote Horizontal and Vertical Production Networks

Country	Horizontal Networks	Vertical Networks
Argentina		x
Brazil	x	x
Chile	x	x
Colombia	x	x
Costa Rica		x
Ecuador	x	
El Salvador	x	
Honduras	x	
Mexico	x	x
Nicaragua	x	x
Peru	x	
Uruguay	x	

Source: Dini (2002).

3.4.3 Policies to Extend and Deepen the Use of Information and Communication Technologies

Countries in Latin America and the Caribbean have been developing national strategies to expand and deepen the utilization of modern information and communication technologies (ICT). Table 9 summarizes the most important features of those strategies in 12 countries of the region. In terms of thematic priorities the deployment of a universal and modern ICT infrastructure; the reduction of the digital divide; the development of e-government; and ICT dissemination in the school system occupy center stage in the existing strategies (ECLAC, 2004).

Table 9. National Strategies for Information and Communication Technologies (First Part)

		Argentina	Bolivia	Brazil	Chile	Colombia	Ecuador
Coordination	**Current Stage**	Strategic Vision	Policy formulation	Policy formulation	Implementation and monitoring	Implementation and monitoring	Strategic vision
	Principal coordinator in the current stage	PSI, SGP and SeCyT www.psi.gov.ar www.sgp.gov.ar www.secyt.gov.ar	Agency for the Development of the Information Society in Bolivia (ADSIB) www.adsib.gov.bo	Executive Committee on Electronic Government	Digital Action Group www.economia.cl	Connectivity Agenda www.agenda.gov.co	National Connectivity Commission www.connectividad.gov.ec
	Guideline Document	Strategic: NO Operational: NO	Strategic: YES Operational: NO	Strategic: YES Operational: NO	Strategic: YES Operational: YES	Strategic: YES Operational: YES	Strategic: NO Operational: NO
	Launch Date	March 2000	March 2002	December 1999	July 1998	February 2000	August 2001
	Decree	Decree 1018/98, amended by Decrees 252/00 and 243/01	Supreme Decree 26553, March 2002	Decree 3294, December 1999	Supreme Decree of July 1, 1998 and Decree of June 2000	CONPES 3072 February 2000	Executive Decree 1781
	Existence of previous programs	YES	NO	YES	NO	NO	NO
	Change of Government	YES	YES	YES	YES	YES	YES
	Three main thematic ideas	Infrastructure, e-training, e-government	e-government, infrastructure, e-training	e-government, generic services, infrastructure	e-government, infrastructure, e-training	e-government, infrastructure, e-business	Infrastructure, e-government, e-training
Resources	**Leading topic**	-	e-government	Previously science and technology, now to be defined	e-government	Neutral	Infrastructure

Table 9 (First Part), continued

	Hierarchical level of strategic design	D PSI, SGP, SeCyT under various ministries	B Office of the Vice President in inter-ministerial coordination	C SOCINFO program coordinated by the Ministry of Science and Technology	A Presidential commission	A Office of the President	B Inter-ministerial
	Hierarchical level of the operational secretariat	- Various programs at different levels	B Office of the Vice President	- Various programs at different government levels	D Under-secretariat for Economic Affairs	B Management board headed by the Ministry of Communications	D CONATEL
	Coordination style in strategic phase	Parallel networks	Decentralized network	Previously centralized network, now decentralized	Decentralized network	Centralized Network	Decentralized network
	Coordination style in operational phase	Parallel networks	To be defined	Previously centralized network, now to be defined	Decentralized network	Centralized network	-
	Telecom regulator	+++	++	++	+++	++	L
	Ministry of Educational	+++	++	0	+++	++	+

	Table 9 (Second Part)						
		Jamaica	**Mexico**	**Peru**	**Dominican Republic**	**Trinidad and Tobago**	**Venezuela**
Hierarchical Level Topics	Current Stage	Policy formulation-implementation	Implementation and monitoring	Policy formulation	Policy formulation	Policy formulation	Strategic vision
	Principal coordinator in the current stage	Central Information Technology Office (CITO)	National System e-Mexico www.e-méxico.gob.mx	Multisect-oral Commis-sion for Develop-ment of the Information Society (CODESI)	CNSI for strategy UDD for operational stage	Steering team of the National Information and Communication (ICT) Plan www.nict.gov.tt	Ministry of Education, Culture and Sport, Ministry of Infrastructure, and Ministry of Science and Technology
	Guideline document	Strategic: YES Operational: YES	Strategic: YES Operational: NO	Strategic: YES Operational: In preparation	Strategic: NO Operational: NO	Strategic: In preparation Operational: In preparation	Strategic: NO Operational: NO
Coordination	Launch date decree	March 2002	May 2001 National Development Plan 2001, 2006, and Sectoral Plan for Telecommunications and Transport 2001-06	June 2003 Ministerial Resolution 181-2003-PCM June 2003	August 2002 Decree 686 2002	October 2002 To be approved in November/December 2003	May 2000 Decree 825 in May 2000
Resources	Existence of previous programs	NO	NO	NO	NO	NO	NO
	Change of government	YES	NO	YES	NO	NO	NO

Table 9 (Second Part), continued

	Three main thematic areas	e-training, e-government, infrastructure	e-services, Infrastructure, integration of efforts	Infrastruc-ture, e-government, e-training	Infrastructure, e-government, e-training	Infrastructure, e-government, e-training	Infrastructure, e-training, human capital
	Leading topic	Neutral	Generic services	-	-	-	-
	Hierarchical level of strategic design	B Interminis-terial	C Ministry of Communicatio ns and Transport	B Office of the President of the Council of Ministers	A Technical Secretariat of the Office of the President	B Ministry of Public Administration and Information in interministerial cooperation	C Three different ministries
	Hierarchical level of the operational secretariat	D Independent, linked to the Ministry of Trade and Science and Technology	C Ministry of Communicatio ns and Transport	D Vice-Ministry of Communicat ions of the Ministry of Transport and Communicat ions	A Technical Secretariat of the Office of the President	B Steering team	C All ministries
	Coordination style in the strategic phase	Centralized network	Centralized network	Decentralize d network	Centralized network	Decentralized network	Parallel networks
	Coordination style in operational stage	Decentralized network	Centralized network	To be defined	Centralized network	To be defined	Parallel networks
	Telecom regulator	++	+++	++	L	+++	+++

3.5 Fiscal and Financial Incentives for Production and Investment

Fiscal and financial incentives for production and investment are, at least in principle, open to all producers that meet certain conditions (depending on the credit line or the fiscal incentive in question) regardless of whether they produce for the domestic or external markets. For the purpose of the current discussion these incentives can be appropriately broken down into two broad categories, depending on whether a horizontal-incentive scheme or selective policies predominate. Horizontal policies are employed both by countries that practice a strategy-driven approach and by countries that favor a demand-driven approach. In contrast, selective policies are characteristic of the subset of countries practicing a strategy-driven approach; with the proviso that a number of countries in the region in both categories have traditionally enacted sector-specific tax incentives to attract foreign direct investment into their natural-resource sectors (mainly hydrocarbons and mining).

This discussion of investment and production incentives starts with a description of the way selective policies have been implemented in the most recent period in the countries where the strategy-driven approach is dominant. The discussion then gives an overview of the horizontal financial and fiscal support provided by the public-sector entities in the region.

Selective Policies: The Old and the New. In the last few years there has been a sizeable shift in the way selective policies are implemented in the region. To appreciate the contrast between the new and the old ways, it is illustrative to begin by recalling how things were as late as 2001. In that year, one of the authors[16] found, in the Latin American and Caribbean countries that employed selective financial and/or fiscal incentives to promote production and investment, that natural-resource-based sectors were the most frequent target of these incentives, which in most cases were designed to attract foreign direct investment (see Table 10).

[16] See Melo (2001).

Table 10. Financial and Fiscal Incentives for Specific Sectors in Latin America and the Caribbean

Country	Loans to specific sectors (other than agriculture)	Tax incentives to specific sectors
Argentina		Mining, forestry
Bahamas		Hotels, financial services, spirits and beer
Barbados		Financial services, insurance, information technology
Belize		Mining
Bolivia		Mining
Brazil	Oil, natural gas, shipping, power sector, telecom, software, motion picture industry	
Chile		Forestry, oil, nuclear materials
Colombia	Motion picture industry	
Costa Rica		Forestry, tourism
Dominican Republic		Tourism, agribusiness
Ecuador		Mining, Tourism
El Salvador	Mining; services sector[17]	
Guyana		Agribusiness
.Honduras	Transport sector, shrimp	
Jamaica		Motion picture industry, tourism, bauxite, aluminum, factory construction
Mexico	Motion picture industry	Forestry, motion picture industry, air and maritime transportation, publishing industry
Nicaragua		Tourism
Panama		Tourism, forestry
Peru		Tourism, mining, oil
Surinam		
Trinidad and Tobago		Hotels, construction,
Uruguay		Hydrocarbons, printing, shipping, forestry, military industry, airlines, newspapers, broadcasters, theaters, motion picture industry
Venezuela		Hydrocarbons and other primary sectors
Source: Melo (2001)		

Apart from the bias towards the natural-resource sectors, the salient feature of the information provided by Table 10 is that tax incentives are used much more intensively than credit lines as instruments to stimulate investment and production; which, naturally, again reflects the fact that most of the incentives are intended to promote foreign direct investment in traditional primary sectors. As is well known, foreign investors are not usually credit-constrained and therefore credit lines are not a great incentive for them.

It can be safely presumed that most of the incentives in Table 10 are still in place[18] and are an integral part of the set of productive development policies in these countries. However,

[17] The services industries included with credit lines of their own are: tourism, transport, software, and other services.

alongside them, new methods and policies have developed with the characteristic that they represent the future whereas the policies in Table 10 mostly represent the past.

To illustrate the thrust of the new policies, consider the way in which the idea of the competitiveness fora as the expression of a public-private partnership has been developed in Argentina and Brazil in the last few years. Starting in 2000 in Brazil and in 2003 in Argentina, competitiveness fora for a number of selected production chains have been instituted by the authorities. Although, it is a safe bet that the idea of organizing such fora as the appropriate space for public-private dialogue and cooperation was largely inspired by the galvanizing Colombian experience of the National Competitiveness Conferences, the idea has undergone considerable changes in the hands of Argentinean and Brazilian policymakers. As already pointed out, the main change is that the competitiveness fora now exist in the context of a strategy-driven approach and as a tool of that policy approach. In addition, the Argentinean and Brazilian organizational format introduces two major changes vis-à-vis the Colombian model. First, the fora are production-chain specific; consequently, there is nothing to compare with the National Competitiveness Conferences, which have played such a prominent role in the Colombian experience. Second, Argentina and Brazil have not replicated the thematic networks of the Colombian scheme.

Not unlike the Colombian model, the Argentine and Brazilian fora are intended to diagnose the obstacles to competitiveness faced by the selected production chains and to agree on action plans and commitments to remove those obstacles. The Brazilian initiative also introduces the device of Competitiveness Contracts between government, entrepreneurs and workers, which define the commitments assumed by all the stakeholders represented in a particular forum. At this time, nine competitiveness fora have been established in Argentina and 16 in Brazil.

Obviously, the idea and practice of the competitiveness fora include a strong element of demand-side determination of policy measures. However, it is still the case that, in Brazil and Argentina, the priority sectors include not only the existing export sectors, but also the production chains to which national industrial polices have given priority. Moreover, some of the priority sectors have the status of infant industries for economic development purposes, and

[18] A well-known exception is the change in the taxation and royalty regime for private investment in the hydrocarbons sector in Venezuela under President Chávez's administration.

receive treatment as such. This is especially clear in the Argentine case, where these production chains have received differential treatment and are now the subject of special promotion legal regimes.[19] These special legal regimes include tax stability over a 10-year horizon; exemption from income tax on profits; exemption from import duties on inputs, materials, and equipment to be used in R&D projects; and the establishment of sector-specific funds to finance investment projects and contribute venture and seed capital to the creation of new firms in the selected sectors.[20] More consolidated sectors participating in the competitiveness-fora framework, such as the civil-construction materials sector and the wood-and-furniture chain, are supported in a variety of ways (in areas such as labor training, quality improvement, foreign trade facilitation, market information, and strategic planning), but they do not have a special promotional regime and thus do not receive any substantial fiscal or financial incentives. In particular, unlike the cases of software and biotechnology, they do not receive the benefit of a sector-specific financial fund for investment projects.

Horizontal Policies. According to Melo (2001), horizontal credit is provided by public national development banks[21] in 15 countries in the region. Most of them operate as second-tier institutions and charge market-determined interest rates. In most countries, credit for producers is usually granted in two basic modalities: (1) medium-term loans to finance working capital; (2) long-term loans to finance investment projects (including the discrete purchase of fixed assets).

Table 11, taken from ECLAC (2004), provides an overview of the credit activities and portfolio structure of six major public development banks (including two banks specializing in export finance). It is interesting to note that, in descending order, industry, agriculture, and the category of other services are the largest beneficiaries of public development bank lending in the sample considered.

[19] For instance, the Promotional Regime for Software and the Promotional Regime for Biotechnology Industries.
[20] Among the sector-specific funds, the biotechnology and software-industry funds have received special attention from the authorities.
[21] A number of provincial and, more generally, sub-national public development banks will not be taken into account in this discussion, which is mainly concerned with the productive development policies of national governments.

Table 11. Public Development Banks in Five Latin American Countries, Credit and Portfolio Structure by Sector, 2002

	Agriculture and fishing*	Mining	Construction++	Industry	Commerce	Transport	Tourism	Other services	Other+++	Total
Millions of dollars credit approved										
BNDES (Brazil)	1516	84	264	5811	417	894	47	3509	0	12542
BANCOMEXT (Mexico)	1650	n.a.	651	3557	n.a.	n.a.	326	809	0	6993
COFIDE (Peru)	125	15	100	102	42	18	3	32	0	437
Portfolio										
BANCOLDEX (Colombia)	223	30	n.d.	619	n.a.	n.a.	n.a.	41	239	1152
BNCR (Costa Rica)	133	n.a.	25	130	162	11	29	115	449	1053
NAFIN (Mexico)	2	9	209	12	158	0	0	84	16256	16730
Percentage structure Credit approved										
BNDES (Brazil)	12.1	0.7	2.1	46.3	3.3	7.1	0.4	28.0	0.0	100.0
BANCOMEXT (Mexico)	23.6		9.3	50.9			4.7	11.6	0.0	100.0
COFIDE (Peru)	28.7	3.5	22.9	23.4	9.5	4.2	0.6	7.2	0.0	100.0

Table 11, continued

Portfolio										
BANCOLDEX (Colombia)	19.4	2.6		53.8				3.5	20.7	100.0
BNCR (Costa Rica)	12.6		2.3	12.3	15.4	1.0	2.7	10.9	42.6	100.0
NAFIN (Mexico)	0.0	0.1	1.2	0.1	0.9	0.0	0.0	0.5	97.2	100.0

Source: ECLAC (2004).
*For BANCOLDEX and BANCOMEXT, figures include the agribusiness sector.
++ For BANCOMEXT and NAFIN, figures correspond to financing for public-enterprise infrastructure projects.
+++For NAFIN, the activity breakdown only includes the private sector. Others include: the financial, public and external sectors, other non-specified activities, and interbank credit. For BANCOLDEX, the figure corresponds to unclassified loans in portfolio, excluding discounted bills totaling US$6.3 million. For BNDES, figures exclude stock market operations totaling US$270 million.

Following Melo (2001), horizontal tax incentives in one form or another were used by 10 countries in Latin America and the Caribbean. These horizontal tax schemes take two basic forms. First, in the case of the Caribbean countries, they are mostly tax holidays designed to attract foreign investment, namely in Bahamas, Barbados, Belize, Haiti, Surinam, and Trinidad-Tobago. Chile has tax incentives for investment (including re-investment of profits). Paraguay has a five-year tax holiday for investment. Uruguay has a tax exemption on profits reinvested in manufacturing firms, farming, and hotel facilities, while Venezuela gives a 20 percent tax rebate to investments in most non-mining and non-oil industries and has a capital gains tax of only 1 percent.

3.6 A Preliminary Assessment of Current Productive Development Policies in the Region

The task of critically assessing the productive development policies in the region faces a major obstacle with the absence of systematic quantitative data on the scale of interventions, as well as on their outcomes and impacts. In regard to the scale of interventions, to the best of our knowledge there are no reliable data on the fiscal cost of industrial policies for the countries. Even the data on the resources used by the financial public sector to provide credit and other forms of financial assistance to enterprises are incomplete. In regard to outcomes and impacts, the scant development of the results-oriented approaches to public-sector management in Latin American and Caribbean countries means that public-sector interventions to promote productive development typically lack the battery of base-line and outcome and impact indicators that third-party observers need to evaluate their effectiveness in achieving the stated objectives. Under these circumstances, assessments can only be qualitative and preliminary until a sufficient amount of hard data becomes available.

To begin with, we would like to repeat the claim of one of the authors in a recent paper (Rodríguez-Clare, 2005) that Latin America's incursions into activist development policies have been timid and inconsistent. To a great extent, this has to do with the fact that productive development policies have been hampered by their association in the minds of many with the old-type, import-substitution industrial policies. Although they are staging something of a comeback, there is still some way to go before a broad consensus on their potentialities and limits is formed. Moreover, in an era of increasing globalization, quite a few analytical and institutional issues have to be settled before the emerging productive development policies for

open economies can become as reliable a part of the policymakers' toolbox as, say, fiscal and monetary policies are at present.

The clearest expression of the widespread timidity in implementing existing productive development policies is the scarce resources devoted to them. Although available information is limited—as noted above—the amount of resources mobilized by public development banks as a percentage of GDP, shown in Table 12, indicates how limited they are. Taking South Korea as a benchmark, the table shows that even Mexico and Brazil, which make a sizeable effort in absolute terms, fall short of the South Korean figure of 6.5 percent of GDP. The only country in the same effort-category is Costa Rica, where the loan portfolio of the *Banco Nacional de Costa Rica* amounts to an impressive 6.5 percent of GDP. All along the funding of productive policies has suffered from the chronic budgetary constraints on the public sectors in countries with low tax-to-GDP ratios—an almost universal characteristic of Latin American tax structures. These constraints intensify during periods of fiscal adjustments

Table 12. Credit Granted by Public Development Banks

	Brazil (BNDES)	Colombia (BANCOLDEX)	Costa Rica (BNCR)	Mexico (BANCOMEXT + NAFIN)	Peru (COFIDE)	South Korea
Total credit (in US$) millions	12,542	1,152	1,090	23,723	573	45,844
As a percentage of GDP	2.8	1.4	6.5	3.7	1.0	6.7

Sources: ECLAC (2004), except for Korea, Costa Rica and Peru. Credit figures for these three countries are from the Korean Development Bank (http://www.kdb.co.kr/), Costa Rica's General Superintendency of Financial Entities (http://www.sugef.fi.cr/), and Peru's Financial Corporation for Development (http://www.cofide.com.pe/). Note: GDP figures for calculations are from the World Bank. World Development Indicators, 2004, http://www.worldbank.org/.

Among the pressing needs competing for budgetary funds (for instance, the need to increase social spending), industrial policy funding requirements tend to get overlooked or simply rejected. In part, this outcome is also attributable to a more vigilant (and very healthy) attitude towards rent-seeking. The lessons learned from the social costs of the pervasive rent-seeking of the import-substitution era have not been forgotten; as a result, many see industrial policies—most of the time with no real justification—as suspicious. Frequently, a vicious circle sets in: agencies responsible for industrial policies, lacking adequate support and a strong

constituency, are allocated limited budgetary resources; they perform below needs and expectations and lose reputation and weight in the state power structure; their limited constituency tends to shrink further; new budgetary allocations become even scarcer, and a new round of under-performance, loss of reputation and new budgetary restrictions gets under way. As ECLAC (2004) concludes, implementation failures and the perception that "policies do not work" undermine the agencies' legitimacy among the entrepreneurs and, paradoxically, lead to a situation where "entrepreneurs bemoan the lack of resources available for policies while at the same time failing to make full use of what is available."

Budgetary constraints are not, however, the only factor explaining underperformance. Weak institutional capacity is widespread in the region's public sectors and goes a long way to explaining the ineffectiveness of many policies. We hasten to add, however, that a number of the institutions responsible for productive development policies belong to the islands of competence and efficiency that can be found in almost every country in the region. These include some of the technology institutions, public development banks and export promotion agencies where some of the best human capital in the region's public sectors is employed.

Apart from funding, implementation, and institutional capacity issues, some weaknesses have to do with the fact that policymakers are still finding their way even as they are immersed in the daily challenges of policymaking and implementation. A lot of experimentation is going on in the region. Trial and error and learning by doing are unavoidable in a historical circumstance where unprecedented challenges are faced. Just to name a few: the WTO agreements impose constraints on industrial policies; regional and bilateral trade agreements impose additional—sometimes even stronger—constraints; international competition is fiercer than ever; technological gaps literally increase by the day, and so on. Much of this experimentation is relevant, fresh and promising but there is also a good deal that is reactive, improvised, or inspired by passing fads.[22]

A particular weakness in the intellectual climate of industrial policy formulation in a number countries in the region—but by no means all—is that, judging by the existing policies, the lessons from other regions of the world have not really been learned. For instance, two key policy principles from the East Asian experiences—that subsidies must be contingent on

[22] For instance, in our view much of what is said and done in relation to clusters has the appearance of a superficial, unreflective adherence to a fashionable trend.

performance, and that they must be temporary—are absent in many of the support policies adopted in countries in the region.

However, on the positive side, some features of the emerging productive development policies constitute genuine contributions to the arsenal of economic development thinking and practice. First, the idea of a public-private partnership working towards key development objectives (such as improving competitiveness and raising productivity), together with systematic, organized public-private dialogues to discuss problem diagnoses, policy measures, and action commitments are major contributions to shaping the industrial policies of the future. In these public-private dialogues the joint effort to identify the problems and possible solutions is a harbinger of the new style of industrial policymaking taking shape the world over where the process of discovery—or self-discovery as Hausmann and Rodrik (2002) call it—of the potential competitive advantages and the obstacles to their development is as important as the content of the policies adopted to overcome them.[23]

Second, the sheer amount of experimentation currently taking place in the region is a feature of all processes of innovation. New ways and means of policymaking are tried and put to the hard tests of reality, conflicting domestic interests, and competition from abroad. The ongoing learning process is a necessary stage in the move towards new more consistent and less timid policy frameworks where productive development policies can develop their potential to effectively contribute to the goals of economic growth and modernization. As the Spanish poet Antonio Machado wrote: "Wayfarer there is no road; you find your way as you walk."

[23] This issue is intelligently discussed in a penetrating article by Rodrik (2004).

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