

Industrial development strategies in Costa Rica: When structural change and domestic capability accumulation diverge*

6

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“The most fundamental barrier to sustained development is local capabilities.”

Lee (2009, p. 1)

6.1 Introduction

Economic development is a process of economic and social transformation in which production is increasingly shifted to activities with higher value added and rising demand in international markets (McMillan and Rodrik, 2011; Ocampo, Rada and Taylor, 2009; Shapiro and Taylor, 1990). The key driver of such structural change is the ongoing advancement of domestic capabilities at the level of firms, the economy, the labour force and society. Such collective capabilities are defined by a structural and a process dimension. On the one hand, capabilities are reflected in the feasible options that firms or the economy have within the product space for diversification and switching into new products and economic activities. On the other hand, they determine the competences of firms, the economy and society to take advantage of these options (Nübler, in this volume). In particular, technological capabilities at the level of the firm are very important drivers of productive transformation; local firms adopt and adapt existing technologies and eventually innovate and become internationally competitive in

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more knowledge-intensive activities (Astorga, Cimoli and Porcile, in this volume; Cimoli et al., 2009). Such firm-level capabilities will not advance without a properly structured space for learning and the requisite co-development of social capabilities (Paus, 2012).

This chapter analyses the links between structural change and the development of domestic technological capabilities in Costa Rica, a middle-income country in Central America with a population of nearly 5 million and a GDP per capita of US\$8,675 in 2011. Costa Rica has long stood out among middle-income countries. During the period of import-substituting industrialization (ISI), from the early 1960s to the early 1980s, the country combined rapid economic growth with the consolidation of a welfare state. Subsequently, under the new economic model (NEM) of liberal market policies, its export structure changed dramatically from primary products to medium- and high-tech products. This transformation stands in stark contrast to the re-specialization in natural resource exports in South American countries and the increasing dominance of low-tech, labour-intensive goods in the rest of Central America.

In light of these achievements, it is not surprising that Costa Rica has been hailed as a “model for development” (Trejos, 2009) and “a clear success story” (World Bank, 2009). However, when we shift the focus from export transformation and growth to the development of domestic capabilities, a different picture emerges. We find that the success story is chequered and the model of development is flawed.

The change in the export structure has been driven chiefly by foreign direct investment (FDI) in the high-tech sectors and does not reflect local firm capabilities. The accumulation of social capabilities under ISI enabled the rise of FDI under the new economic model. But the subsequent deficiencies in the advancement of social capability have created a binding constraint on broad-based upgrading. The development of local firm capabilities has been limited under both strategies. Costa Rica’s experience demonstrates that, in the catch-up phase, latecomers need a development strategy that focuses explicitly on the accumulation of local firm capabilities and pays attention to the co-evolution of social capabilities to support both local firms and movement up the value chain by the affiliates of transnational corporations. These findings are reflected in the dynamic framework of catching up, which models catching up as an interrelated process of collective learning and accumulating productive capacities, with inter-related learning taking place at different collective levels, and in which collective capabilities are both causes and consequences of productive transformation in the economy (Nübler, in this volume).

6.2 The development of technological capabilities in small latecomers in the time of globalization: Analytical considerations

6.2.1 *Social and firm-level capabilities*

A long-established tradition of structuralist thought holds that what a country produces and exports matters for growth and development. Different activities have unequal potential to generate technological spillovers, are characterized by different returns and face different demand elasticities. As a result, economic development is a process in which production is shifted increasingly towards activities that generate greater dynamic benefits.

To analyse the dynamics behind the accumulation of technological capabilities, we need to understand the endogenous processes of transformation in the country. Evolutionary economic thought is particularly germane to this endeavour, with its focus on path dependency and cumulative causation and the recognition that in production learning takes time (Nelson and Winter, 1982). Social and firm-level capabilities have to develop in a synergistic way to enable and, indeed, to force such learning over time (Paus, 2012).

Social capabilities are the broadly diffused capabilities that enable, complement and push the advancement of firm-level capabilities. They have educational, infrastructural, institutional and organizational components (Abramovitz, 1986). This notion of social capabilities differs from the knowledge-based concept of capabilities developed by Nübler in this volume. For example, Abramovitz refers to physical infrastructure also as a form of capabilities, whereas Nübler considers it to be part of productive capacities, which she distinguishes from capabilities.

The educational component is particularly important, since accumulation and diffusion of learning and skills are such a critical factor in a sustained move up the value chain. Basic and advanced schooling and training enable people to master new ways of organizing, producing and distributing in a changing domestic and international environment.

The infrastructural component refers to physical infrastructure and the quality of infrastructure services. In today's global economy, the advancement of ICT-related infrastructure is particularly important for enabling a country's move towards more knowledge-based production.

The organizational component includes coordination capabilities among key institutional entities and private actors in promoting education, training and infrastructure in a way that is in sync with or anticipates the needs of the productive sector. Moving to a knowledge-based economy requires a qualitative jump

in social and firm-level capabilities, with an increased demand for coordinating capabilities. Investing in knowledge and technology means expanding research capabilities, building collaborative networks in research and innovation, translating ideas into patents and patents into commercialized outputs; in other words, building a national innovation system. If the capabilities for coordinating such activities are lacking or fragmented, then an important element is missing to support a broad-based move towards more knowledge-intensive production.

Institutions comprise the broad set of rules governing the accumulation process. Economic signals generated by these institutions have to be favourable to private sector investment in upgrading and production diversification. Furthermore, the institutional support and incentive structure that allows and compels local firms to reach a threshold capacity to absorb technology spillover and then move up the technology ladder is particularly important.

During the catch-up process local firms focus initially on learning how to adapt foreign technology to the domestic context, through imitation, reverse engineering, learning by doing and learning by using. But the more a country catches up, the more important innovation becomes for upgrading and competitiveness. Eventually, the endogenous development of new products, services and processes has to become the key source of competitiveness.

The increasing fragmentation of production processes across national borders and the ease with which transnational corporations reorganize their value chains around the globe are distinctive characteristics of the current globalization process. As transnational corporations expand their global networks, latecomers have more opportunities to attract foreign direct investment to their shores, as they have to be a competitive location for the production of only part of a product or service. This is particularly important for small development latecomers such as Costa Rica. Foreign direct investment can help advance domestic technological capabilities if it generates technological spillovers. But there is nothing automatic about such spillovers (Goerg and Greenaway, 2004; Paus and Gallagher, 2008). They will occur only when there is both spillover potential and local absorptive capability (Paus, 2005).

6.2.2 The right incentive structure for dynamic structural change

Tariff protection under ISI gave local companies time to become competitive in the production of new products. But opportunities for learning render pay-offs in knowledge accumulation only if they are accompanied by disciplining measures that control rent-seeking and by support policies that provide the necessary

complementary inputs for the move towards new activities. In the successful East Asian countries, the reciprocal control mechanism (a term coined by Amsden, 2001) often consisted of export performance standards, under which firms that benefited from protection and infant industry support had to start exporting a growing percentage of their output fairly early in the learning process. Most Latin American and African countries did not have such disciplining measures, or, if they did, they did not enforce them.

Governments need to complement control over rent-seeking with support for the acquisition of new firm capabilities. The larger the gap between firms' existing capabilities and the capabilities needed for new activities, the greater the need for deliberate public policies to support a jump in capability development.

Macro policies play a critical role in shaping the relative prices that influence production and export decisions. The real exchange rate is of particular importance. If it is geared towards inflation control or cheapening of imports and not towards incentivizing exports, it will hinder capability accumulation, and production will shift towards non-tradables.

Progress in the development of national technological capabilities depends critically on the co-evolution of capability accumulation at the levels of firms, individuals, and organizations. If the different elements complement and reinforce each other, if they advance in a co-evolutionary way as part of a coherent, purposeful whole, then national technological capabilities can grow. However, if key institutions are missing, if policies work at cross purposes, or if key complementary inputs are not developed (e.g. specific infrastructure elements or skills), then the development of national technological capabilities will be slowed or even blocked.

6.3 The uneven accumulation of technological capabilities in Costa Rica under ISI

6.3.1 A strong foundation for import-substituting industrialization

Historically, Costa Rica, like all other Latin American countries, depended on a small number of export commodities to generate economic growth, most importantly coffee starting in the early nineteenth century and bananas in the late nineteenth century. Unlike other Latin American countries, however, Costa Rica has a long history of commitment to human development. In 1886 the government established free and compulsory primary education. As a result literacy rates rose dramatically, from 10.9 per cent in 1864 to 67.2 per cent in 1927 (Deneulin, 2005).

During the 1940s successive governments put in place key building blocks for a welfare state and for capability building at different levels of society: social security reform, with both social insurance and social welfare programmes; labour laws with an eight-hour work day and a minimum wage; compulsory and free secondary education, and the second public university, the University of Costa Rica, as well as important research institutions such as the Tropical Agronomical Centre of Research and Teaching.

The commitment to political stability and peace is reflected in the abolition of the army in 1949 and the devolution of political power in the way that the roles and rights of the executive and legislative branches of government were structured (Lehoucq, 2006; Wilson, 1998). The 1949 constitution also created autonomous institutions, semi-independent government agencies responsible for specific tasks. Two other reforms were particularly important for capability accumulation under ISI. First, the nationalization of the banking sector (1948) gave the government tight control over the allocation of credit. Credit was used for the modernization of agriculture and to support the industrialization process (Sánchez-Ancochea, 2004). Second, the establishment of a civil service based on merit rather than patronage (1953) created capacity for policy implementation.

6.3.2 Goals of import-substituting industrialization and government policies

The 1959 Law of Industrial Protection and Development put structural change at the centre of development strategy. Domestic manufacturing of previously imported goods was to generate growth and reduce the balance of payments constraint; the generation of local technologies was to allow a more dynamic development of the primary goods sector; and membership in the Central American Common Market (CACM) was to overcome the scale limitations of a small domestic market.

Governments used mainly horizontal policies to promote private sector movements towards new activities with higher value added: tariff protection, subsidized credit, an overvalued exchange rate (which lowered the cost of imported capital goods), and tax exemptions for the use in domestic production of imported primary, intermediate, and capital goods.

In the 1970s ISI entered a second phase in Costa Rica. The anti-export bias of the policy package had exacerbated the balance of payments problems, which led the government to establish incentives for maquila production and export incentives in 1972. In addition, the government aggressively expanded its role

from regulator to producer, starting with the establishment of the Costa Rican Development Corporation (CODESA).

Overall, ISI policies opened a learning space for local producers and supported local production of new products. But they did not entail disciplining measures that would have forced local companies to use the rents provided by protection and subsidized credit to become internationally competitive. In addition, the anti-export bias of a fixed exchange rate cum high tariff protection provided a disincentive for exporting to markets outside the CACM.

6.3.3 *Structural change and capability accumulation of local firms*

Between 1962 and 1980 the Costa Rican economy grew at an average annual rate of 6.1 per cent – 6.9 per cent during the first phase of ISI (1962–73) and 4.8 per cent during the second phase (1974–80) (Cordero, 2000). Between 1960 and 1979 the share of manufactured value added in GDP increased from 13.2 to 22 per cent, and the share of manufactured exports in total exports rose from 2.4 to around 30 per cent (Buitelaar, Padilla and Urrutia-Alvarez, 2000). The Central American market played an important role in export expansion. Exports to Central America rose from less than 5 per cent in the 1960s to over 20 per cent in the 1970s and 1980s (Rodríguez, 1998).

Structural change was not limited to an expansion of the industrial sector; it also occurred in agriculture and manufacturing. Agricultural production modernized, especially in coffee and bananas (Sánchez-Ancochea, 2004), and new

Table 6.1 The structure of Costa Rica's industrial sector
(percent distribution), 1960–80

	1960	1970	1980
Food, beverages, tobacco	69.1	54.4	49.3
Textiles and clothing	11.3	10.3	7.9
Wood and wood products	7.9	5.7	5.0
Paper and paper products	2.2	4.3	4.8
Chemicals and chemical products	4.8	12.1	18.7
Non-metallic mineral products	2.2	2.6	2.6
Fabricated metal products	1.4	8.9	10.1
Other	1.1	1.7	1.6

Source: Sanchez-Ancochea (2004), based on *Costa Rica en cifras*.

Table 6.2 Breakdown of growth, taking into account schooling of workers, 1963–2000 (percentages)

	GDP/L	K/L	Schooling	TFP
1963–73	3.31	1.18	1.06	1.07
1972–80	1.81	1.49	1.27	–0.95
1980–84	–1.67	–0.18	1.33	–2.83
1984–2000	1.45	0.41	0.81	0.23
1963–2000	1.68	0.76	1.02	–1.10

GDP/L = labour productivity; K/L = capital/labour ratio; TFP = total factor productivity.

Source: Rodríguez-Clare, Sáenz and Trejos (2004).

non-traditional agricultural products were cultivated for export, including flowers, decorative plants, fruits and vegetables (Ulate, 1992).

Within the manufacturing sector the share of the traditionally dominant food sector declined, while the participation of chemicals and fabricated metal products increased (table 6.1). The latter also accounted for a major share of the increase in manufactured exports (*ibid.*). Structural change towards new and higher value added activities was reflected in higher productivity growth. On an aggregate level labour productivity increased at an average annual rate of 3.3 per cent during the first phase of ISI and 1.8 per cent during the second (table 6.2). However, local firms were only partially responsible for the structural change and productivity growth. Foreign producers played a prominent role in both domestic production and exports (Ulate, 1983).

6.3.4 *Strong accumulation of social capabilities*

Throughout the ISI period successive governments were committed to expanding and deepening access to education and health and to improving infrastructure. In some instances the accumulation of social capabilities was intentionally linked to the needs of the private sector, and at other times the connection was more tenuous.

Public education expenditures increased from 2.6 per cent of GDP in 1960 to 6.2 per cent in 1980 (table 6.3). By the end of this period, enrolment in primary school was universal. Enrolment rates in secondary school doubled between 1965 and 1975, rising from 26 per cent to 53 per cent. The 1970s also saw a major expansion in higher education, with the establishment of three additional public universities, which helped to supply the scientists and engineers that were needed for ISI (Rodríguez-Clare, 2001). The creation of several institutions in the area

Table 6.3 Education and vocational training indicators for Costa Rica, 1950–2000

	1950	1955	1965	1975	1985	1990	2000
Illiteracy rate (%)							
Total	21.2		14.3	10.2	6.9		4.7
Men	20.9		14.1	10.2	7.0		5.0
Women	21.5		14.5	10.3	6.9		4.5
Gross enrolment rate							
Primary school		91.5	105.2	107.1	98.8	102.5	107.8
Secondary school		17.4	26.5	52.7	49.7	50.5	64.7
Public education expenditure/GDP	1.5	2.6 ^a	5.2 ^b	6.2 ^c		3.9	4.7
Enrolments in INA courses			261	13 605	30 405	38 976	118 488

^a 1960 ^b 1970 ^c 1980 INA = National Training Institute.

Source: CONARE (2008) for education data; INA (2009) for INA enrolments.

of science and technology reflected some awareness of the importance of promoting indigenous efforts in science and technology, although Segura and Vargas (1999) suggest that these efforts were not part of any overall strategy of capability building. The setting up of the National Council for Science and Technology (CONICIT) in 1972 was not primarily a response to any perceived needs of the productive sector, but rather to the desires of the academic sector to promote research (Buitelaar, Padilla and Urrutia-Alvarez, 2000). In 1965 the National Training Institute (INA) was established as a response to studies about national education and projections about future production, and studies by similar institutions in Latin America, such as the Servicio Nacional de Aprendizaje (SENA) in Colombia and the Serviço Nacional de Aprendizagem Industrial (SENAI) in Brazil (Rosal, 2001).

The government also invested heavily in new infrastructure. An expanding road system improved the transportation network in the country. And ICE, the Costa Rican Electricity Institute – a semi-autonomous institution – extended electricity coverage considerably, at subsidized prices, to remote parts of the country.

By 1980 the ISI model had run into trouble. The CACM had collapsed, as civil wars were raging in El Salvador and Guatemala; foreign debt had reached unsustainable levels; inefficiencies in government enterprises were accumulating; and the political coalition underlying the Costa Rican social democratic model was starting to fray. After banana and coffee prices plummeted and interest rates on foreign debt soared at the beginning of the 1980s, Costa Rica declared a moratorium on its foreign debt in July 1981. Its currency, the colón, was devalued by 600 per cent between August 1980 and May 1982.

The economic crisis forced Costa Rica to seek help from Washington institutions, and under pressure from the IMF, the US Agency for International Development and others, the Monge Administration (1982–86) opted for the new economic model (NEM) of market liberalization with a substantially reduced role for government in the economy.

6.4 Structural change and domestic capabilities under the new economic model: Diverging trajectories

The goal of the NEM was macro stabilization and growth through full integration into the global economy. Import liberalization, export promotion, and inflows of foreign direct investment were supposed to give the country access and exposure to new technology, marketing and global networks and so to enhance the competitiveness of local firms.

The biggest achievement under the NEM has been the large inflow of efficiency-seeking foreign direct investment in the high-tech sector. Attracted by the high level of social capabilities that had been accumulated during the ISI period, the country's location, and special incentives, foreign investors have used Costa Rica as an export platform in electronics, medical devices and services based on information technology (IT). But social capabilities have not kept up with the needs of the private sector. Growing deficiencies in education, innovation and infrastructure have become binding constraints on broad-based upgrading.

The lack of coherent support for capability accumulation by local firms has resulted in a highly diverse landscape of production capabilities. The local software sector has thrived, and in both agriculture and manufacturing there are numerous successful local producers and exporters. Particularly in manufacturing, however, most companies are micro and small enterprises, which produce for the local market, have low productivity, and are in no position to benefit from potential spillovers from foreign direct investment.

6.4.1 International trade and investment policies under the NEM

Promoting trade and attracting foreign direct investment have been the cornerstones of Costa Rica's NEM strategy. Import liberalization proceeded gradually, as the average tariff rate fell from over 60 per cent in 1985 to 11.7 per cent in 1995 to 4.6 per cent in 2007. To counteract the anti-export bias entailed in the tariff

protection of the early 1980s, the government in 1984 established tax certificates (*Certificados de Abono Tributario*, or CATs) worth up to 15 per cent of the export value and continued a modified drawback scheme that had been in place since 1972.

While the CATs were successful in stimulating non-traditional exports, they led to over-invoicing and fictitious exports and a growing fiscal burden. As a result, they were reduced in the early 1990s and abolished in 1999. In 1996 the Active Processing Regime (*Régimen de Perfeccionamiento Activo*, or PA) became the new structure for the drawback scheme.

To promote exports and attract foreign direct investment, in the early 1980s Costa Rica established Free Zones that offered duty-free imports and a variety of tax exemptions, most importantly from profit taxes. Even though production in the Free Zones is open to both foreign and national companies, the investment and export requirements are too high for a Free Zone to be a feasible option for most local companies. The government also provided incentives for investments in the tourist industry, with the goal of promoting ecotourism.

Since the mid-1990s Costa Rica has aggressively pursued free trade and investment agreements. The goal, according to national authorities, was to mitigate the country's vulnerability to unfair trade practices and guarantee market access. To date, Costa Rica has signed agreements with Canada, the CARICOM, Chile, China, Mexico, Panama, Peru and the United States.

The policy shift to liberal trade and foreign investment was accompanied by changes in the institutional architecture. Some entities were abolished (e.g. ODESA in 1990) or became marginalized (e.g. the Ministry of Economics, Industry and Commerce), while others were newly created and acquired substantial political clout. Most important among these are the Costa Rica Investment Promotion Agency CINDE (1982), the Ministry of Foreign Trade (COMEX) and PROCOMER, a non-State public entity in charge of export promotion and the administration of special export regimes (both established in 1996).

Active government policies were seen as inherently problematic in a strategy where relative prices in international markets were expected to determine production patterns and competitiveness. To be sure, the export contracts and subsidies via tax certificates (CATs) were intended to entice producers to export to new international markets. But these incentives were as deficient in their design as they had been under ISI. In both periods they provided the opportunity for firm learning, but they lacked built-in, enforced disciplining measures that would have obligated companies to turn the created rents into learning pay-offs. The export contracts did not include any mechanisms to force domestic producers to learn, to incorporate technological change and to become competitive by the time that the CATs were phased out.

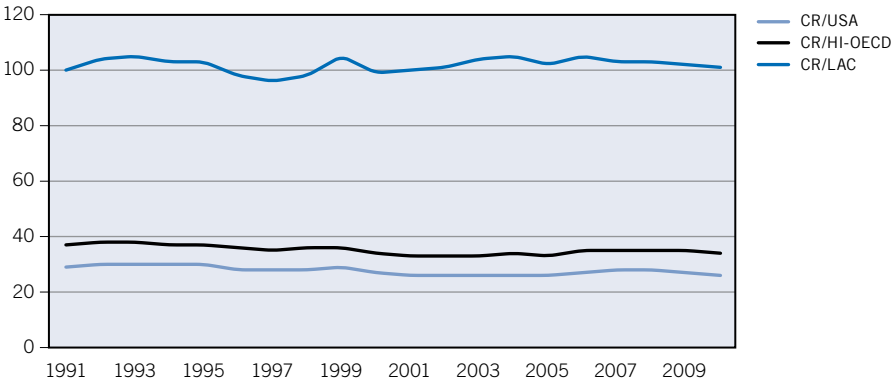
*6.4.2 Structural transformation of the export structure:
The critical role of foreign direct investment*

After the "Lost Decade" of the 1980s, Costa Rica's GDP per capita grew at an average annual rate of 3.7 per cent between 1990 and 2008, although growth was very uneven. The economy did not narrow the gap with the high-income countries of the OECD (figure 6.1). Factor growth continued to be the main driving force behind the growth in labour productivity.¹

Exports of goods and services (especially tourism) have been a key driver of economic growth. Between 1991 and 2008 the value of merchandise exports increased by 250 per cent to US\$6.7 billion. The export share increased from 27 per cent in 1980 to nearly 50 per cent in 2000 and then stabilized around that level. The import share, in contrast, kept rising, reaching 56 per cent in 2008. The resulting trade deficit has been funded largely by growing revenues from tourism and foreign investment inflows (Alonso, 2009). The share of agricultural value added in GDP continued to decline; it accounted for only 7 per cent by 2008. The industrial share remained steady at around 30 per cent, while the service sector grew considerably.

The most remarkable change during the NEM period has been the transformation of the export structure (figure 6.2). The share of agricultural exports

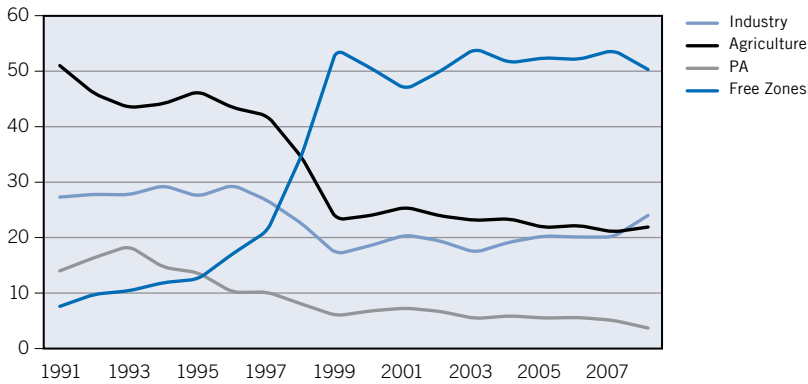
Figure 6.1 GDP per person employed: Costa Rica in comparison with high-income and Latin American countries (in constant 1990 PPP US\$)



Source: World Development Indicators.

¹ In a more recent study of the growth of total factor productivity (TFP) in Costa Rica, covering the period up to 2008, Jiménez, Robles and Arce (2009) estimate a higher rate of TFP growth for the NEM period. It is not clear, however, to what extent the difference is due to the difference in the data used for the calculations.

Figure 6.2 Costa Rica's export structure, 1991–2008 (per cent shares)



Source: Based on *Prográma Estado de la Nación* (2009).

declined from 50 per cent in 1991 to 22 per cent in 2008, and their composition changed considerably. Traditional exports (coffee, bananas, sugar, meat) accounted for over three-quarters of agricultural exports in 1991, but by 2008 non-traditional agricultural exports (e.g. pineapple, melon and yucca) made up 50 per cent of agricultural exports.

Costa Rican export statistics distinguish between three different export regimes: Free Zones, PA, and the regular export regime with no special incentives. Free Zones drove the dramatic transformation of Costa Rica's exports over the last 25 years. In 2008 Free Zone exports accounted for half of Costa Rica's exports, compared with a mere 7.6 per cent in 1991. The two largest sectors are electronics and electrical equipment and precision and medical instruments; together, they accounted for 71 per cent of Free Zone exports and 37 per cent of the country's total exports in 2008 (table 6.4).

Alonso (2009) estimates that, in 2008, 78 per cent of all companies in the Free Zones were of foreign origin and that they accounted for 93 per cent of the Zones' export value. No similar data are available on the national origin of exporters under the PA regime or the regular regime, but we know that there are large foreign investors operating under each regime. In 2008 foreign investment under the Free Zone regime amounted to US\$445 million, compared with US\$770 million under the regular regime, US\$286 million in tourism, and US\$35 million in the financial sector (Alonso, 2009).

The location-specific assets that attracted foreign investors included the education level of the labour force, political stability, the attractive tax incentives available in the Free Zones and the geographic location of the country. Initially, the

Table 6.4 Costa Rica's goods exports by sector and export regime, 2008
(in US\$ million)

	Regular export regime	PA regime	Free Zone regime	TOTAL
Agriculture, livestock, fish	2 215.5	3.5	82.8	2 302.4
Industry	2 010.8	357.4	4 899.6	7 267.8
Electronics and electrical equipment	279.4	2.5	2 563.3	2 845.2
Foodstuffs	413.0	116.4	495.1	1 024.5
Precision and medical instruments	4.6	0.7	983.5	988.8
Chemicals	370.4	14.6	206.6	591.7
Metal and mechanics	261.9	39.3	94.0	395.2
Textiles, clothing, leather products	48.5	114.8	201.4	364.6
Plastic products	143.7	1.0	69.0	213.7
Rubber products	46.0	0.0	166.9	212.9
Paper and paper products	158.0	48.6	1.3	207.9
Non-metallic minerals	90.2	0.0	12.9	103.1
Total	4 226.3	360.9	4 982.4	9 569.7

Source: PROCOMER (2009, p. 9).

foreign investment promotion agency CINDE was indiscriminate in its pursuit of foreign direct investment. Much of this investment was in apparel assembly, given the United States' special market access provisions under the Caribbean Basin Initiative and the shared production regime under regulation 807 of the US tariff system. But when the other Central American countries became more attractive sites for assembly operations after the end of the civil wars in the early 1990s, CINDE began to pursue foreign direct investment in higher value added sectors: electronics, medical devices and, later, IT-based services.

In 1996 Intel chose Costa Rica as the site for its first microchip test and assembly facility in Latin America. That decision played a huge role in the magnitude and nature of subsequent foreign investment flows to Costa Rica (table 6.5). It put the country on the map for transnational corporations in the high-tech sector. Today, foreign direct investment in Costa Rica is concentrated in three major sectors: advanced manufacturing in electronics and components, medical devices, and IT and IT-enabled services.

Many of the activities in the Free Zones are at the lower end of the skills spectrum within the high-tech area, e.g. in the assembly and not the design of medical devices. Nonetheless, that can be a good starting point for moving up to higher value added activities within those sectors subsequently.

Table 6.5 Net inward foreign direct investment, by sector (in US\$ million)

Sectors	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Agriculture	-11.2	0.5	-8.6	-36.3	50.6	+37.1	62.2	0.5	447.6	68.0	-6.4	34.9
Agroindustry	11.5	5.2	2.8	8.4	-0.3	29.6	-3.2	32.3	19.4	4.8	37.0	3.6
Other retail	15.5	11.1	15.2	6.0	23.9	47.6	56.3	72.8	79.6	-3.0	62.1	71.4
Supermarket												257.5
Manufacturing	296.2	231.6	483.0	386.7	456.0	344.9	439.3	689.2	554.7	407.3	965.9	714.6
Offshoring services	17.3	57.4	52.8	83.2	17.3	73.3	60.4	55.0	80.4	29.9	59.4	244.1
Public works concession	-	-	-	-	-	-	-	2.5	65.0	211.5	26.0	22.7
Telecommunication	-	-	-	-	-	-	-	-	-	-	-	339.0
Electricity generation	-	-	-	-	-	-	-	-	-	-	-	18.2
Financial sector	27.1	43.1	17.2	2.2	22.6	40.9	343.4	74.0	29.0	87.1	70.0	107.4
Tourism	51.3	102.5	76.0	88.3	41.4	53.5	136.1	321.3	291.5	253.6	81.0	113.5
Real estate	15.0	9.0	21.0	31.0	178.4	234.6	364.5	644.6	485.1	265.6	147.0	228.1
Other	-14.1	0.0	0.0	5.7	3.9	-0.5	10.3	3.9	25.9	21.8	23.5	1.8
Total	408.6	460.4	659.4	575.1	793.8	861.0	1469.1	1896.1	2078.2	1346.5	1465.6	2156.6

Source: BCCR, CINDE, PROCOMER, COMEX and ICT (courtesy of Sandro Zolezzi, CINDE).

6.4.3 *Limited capability accumulation of local firms*

While a small number of local companies have become successful exporters, the vast majority of local firms are small, lack access to information about technology, export markets and financing, and do not export. In the manufacturing sector the successful local exporters are mainly those that had accumulated export experience under ISI and took advantage of the CAT subsidy to develop the requisite capabilities for international competitiveness, e.g. Atlas Electrica (small refrigerators and stoves), Durman Esquivel (tubes for construction) and Abonos Agro (construction materials).

Capabilities in the agricultural sector have increased considerably. Advances in technology have led to yields in coffee cultivation that are among the highest in the world. And smart marketing and upgrading of coffee have moved some Costa Rican coffee into the gourmet and higher value category, e.g. Café Britt.

The local software sector is one of the most significant areas of new local capability development. With no barriers to entry and plenty of opportunities for niche production, software companies find it easier to establish themselves on a small scale, given requisite training and funding. When major transnational corporations in the IT area started operating in Costa Rica and Panama in the 1970s, the University of Costa Rica and the Institute of Technology of Costa Rica established the first bachelor's degree programmes in computer science to produce employees with the necessary skills for the sector. Graduates of these programmes were among the first to set up local software companies (Alonso, 2008). The increase in connectivity through fibre optics at the end of the 1990s gave additional impetus to the sector. In 2006 there were an estimated 600 local software companies, with sales of US\$300 million and 9,400 employees. They focused mainly on the development of horizontal and vertical software solutions (Mata and Mata Marín, 2009).

IT firms are an exception, however. Most local firms in Costa Rica have not thrived under the NEM. Formal micro, small and medium-sized enterprises make up 18 per cent of all businesses, and informal microenterprises account for another 81 per cent of production units (World Bank, 2009, p. 30). More than 80 per cent of firms consider the home market their primary market (MICIT, 2009). Among the small number of companies that did export, many ceased to do so after just one year (World Bank, 2009).

In a strategy where the emphasis is on trade and integration into the global economy, provision of economic opportunity has been understood narrowly as access to markets, not as learning space with the requisite support policies and the disciplining measures to force learning. During the first phase of the NEM, the

government adopted export subsidies as an enticement to enter the international market. As under ISI, however, there were no built-in mechanisms that forced companies to do so. In addition, there was no general recognition that local producers need to be supported with policies that allow them to learn and meet the challenges of international competition, particularly in the face of widespread information failures, coordination problems and market inadequacies.

Many studies have identified lack of information and access to financing as key obstacles to the advancement of firm-level technological capabilities. In recent years various public funds have been established to promote technical change in small and medium-sized enterprises (SMEs). For example, in 2002 the PROPYME Fund was established in support of SMEs. But its budget is small (US\$1 million in 2008), and, even at that low level, it was greatly underutilized.

Costa Rica is not alone in its lack of strategic advancement of technological capabilities. Based on an analysis of 12 clusters in Latin America, Pietrobelli and Rabellotti (2004) argue: “The major shortcoming of the current policy approach in most countries is the lack of an integrated and consistent vision of local SME development and upgrading.”

6.4.4 Limited technological spillovers from foreign producers

The realization of spillovers depends on the complex interactions between the absorptive capability of the host country and the spillover potential of foreign direct investment (Paus, 2005). Many of the large transnational corporations in Costa Rica’s Free Zones (e.g. Intel, Baxter) source their major inputs from their affiliates worldwide or from vetted input suppliers who supply the corporation on a global scale. In addition, some key inputs simply cannot be produced currently in Costa Rica, either because the requisite scale is too large or the necessary technology is too sophisticated. In contrast, small and medium-sized transnational corporations, of which Costa Rica has many, are frequently much more eager to source in the host country, because they do not have the same global networks of suppliers.

A main channel for technological spillovers in Costa Rica is backward linkages, the mobility of human capital trained in high-tech transnationals, and transnationals’ impact on other production-relevant areas such as logistics and educational standards, especially in technical areas. Backward linkages from foreign investment have risen in absolute terms but not necessarily in relative terms. Foreign producers’ national expenditures increased from US\$99 million in 1997 to US\$645 million in 2007, amounting to 17.8 per cent of imports (table 6.6).

Table 6.6 Backward linkages from Costa Rica's Free Zones, 2004 and 2008

	Number of companies		Exports (in US\$ million)		Imports (in US\$ million)		Purchase of national G&S (in US\$ million)		Employment		National purchases/imports	
	2004	2008	2004	2008	2004	2008	2004	2008	2004	2008	2004	2008
Machinery, electrical materials and parts	37	40	1 560.2	2 436.5	1 655.3	2 487.2	44.9	49.7	8 647	8 331	2.7	2.0
Services	54	112	146.9	307.8	151.9	271.0	48.0	163.4	6 985	21 736	31.6	60.3
Textiles, clothing, leather and footwear	31	22	333.6	196.2	261.1	176.5	21.5	18.8	7 689	6,557	8.2	10.7
Precision instruments and medical equipment	19	18	541.5	965.9	213.0	363.4	13.6	53.3	4 367	6 437	6.4	14.7
Agroindustry	17	17	306.9	511.6	21.9	43.1	114.8	218.6	2 982	3 226	524.2	507.2
Plastic, rubber and their manufactures	11	12	138.8	233.3	83.5	148.5	26.9	34.7	1 568	2 098	32.2	23.4
Metal products	10	14	48.5	89.8	34.6	53.6	21.1	44.7	740	1 200	61.0	83.4
Agriculture, livestock	3	5	24.7	63.9	0.4	0.9	14.4	28.6	749	1 263	3 600.0	3 177.8
Chemicals and drugs	6	3	67.5	83.4	17.5	19.1	15.7	18.8	114	103	89.7	98.4
Others	16	16	73.2	94.7	51.0	62.0	14.1	15.0	1 772	1 792	27.6	24.2
Total	204	259	3 241.7	4 983.2	2 490.3	3 625.2	334.9	645.5	35 613	52 742	13.4	17.8

Source: COMEX, PROCOMER (2009) and Alonso (2009).

Services and agro-industry spent the most on national goods and services (G&S), both absolutely and relatively. But in the high-tech sectors, the electronics and medical instruments sectors, the relative expansion of backward linkages has been more limited. When we exclude services and agroindustry, the ratio of national purchases to imports has risen only slightly in recent years, from 7.4 per cent in 2004 to 7.9 per cent in 2008. Sourcing from domestic companies is often limited to printing, packaging, services, and logistics; nonetheless, some companies have become competitive suppliers of material inputs to transnational corporations, mainly of metal and plastic parts (Cordero and Paus, 2010).

Domestic sourcing does not necessarily mean purchases from Costa Rican companies. Monge (2005) suggests that the domestic suppliers that provide Intel with high-technology products and services are predominantly foreign companies, part of Intel's global supply network, while mainly national companies provide low-tech services and logistics. Giuliani (2008) comes to similar conclusions on a more general level.

One of the reasons for the limited backward linkages is the insufficient domestic absorptive capacity. There were no sustained efforts to support linkage promotion until the establishment of *Costa Rica Provee* (Costa Rica Provides, or CRP) in 2001. CRP was charged with assisting Costa Rica's potential input suppliers to transnational corporations to become actual suppliers. Its formal integration into PROCOMER in 2004 was an important step towards institutionalizing linkage promotion. CRP supported 18 linkages in 2003 and 213 in 2009, with cumulative supplier sales of US\$28.8 million. Two-thirds of these linkage connections were with companies in electronics and medical devices (Programa Estado de la Nación, 2009).

At the end of 2010, CRP was renamed the Export Productive Linkage Department, following the establishment of the Committee on Backward Linkages. Its resources continue to be limited; it has a staff of seven people and a budget of less than US\$400,000. With such limited human and financial resources, it is hard to see how the new department can bring about a qualitative jump in domestic linkages.

Studies suggest the potential for many spillovers through labour mobility, but there is no hard evidence of its actual extent in Costa Rica. Monge-González, Bonilla and Rodríguez (2012) find that about one-third of the roughly 41,000 workers who left employment with transnationals between 2001 and 2007 were subsequently employed in local firms. But they did not find statistical evidence that labour productivity in these firms was higher.

Foreign investors have had a considerable impact on technology education in Costa Rica. Intel has been at the forefront in this area. Intel CR has worked

with the three public universities on curricula and donated labs to ensure that the required curricula were in place. Also, it has initiated many programmes at the K–12 level to get students and teachers more involved in the sciences through science fairs, workshops for teachers and other activities (Monge-González and González-Alvarado, 2007).

6.5 Social capability accumulation under the new economic model: Falling behind private sector needs

Under ISI Costa Rican governments had an unwavering commitment to deepening access to formal education, providing vocational training, and expanding the country's infrastructure networks. But under the new economic model, social capability accumulation has increasingly fallen short of the needs of the private sector. The lack of strategic vision and funding has resulted in growing difficulties on different educational fronts and huge deficiencies in infrastructure, especially in roads and ports.

6.5.1 Education and vocational training

In the course of economic stabilization and adjustment in the 1980s, spending on education declined considerably, both as a percentage of the government budget and per student. Public expenditures on education as a share of GDP reached a low of 4 per cent in 1988. It was not until 2003 that the share had returned to the 6 per cent level of 1979 (Programa Estado de la Nación, 2009). This has had serious consequences for those who were left out of schooling during those years as well as for society and the economy at large. It has constrained the expansion of the proportion of the labour force with secondary education force and, therefore, the option space for the domestic economy to expand manufacturing. This became obvious in the shift of Costa Rica from a “strong middle” to a “missing middle” educational attainment structure and, consequently, a loss in options for broad-based industrial development (Nübler, 2013 and forthcoming).

Between 1976 and 2008 the average education level of the labour force improved considerably (table 6.7). Nonetheless, graduation rates at the secondary level remain low. According to cohort statistics of the Ministry of Education, only 27 per cent of those who entered primary school in 1990 reached the 11th grade

Table 6.7 Education level of the labour force, Costa Rica, 1976 and 2008 (percentages)

	1976	2008
University	5.2	19.7
Secondary completed	5.2	11.7
Secondary not completed	16.3	25.1
Primary completed	28.5	27.6
Primary not completed	34.6	13.1
No schooling	10.2	2.8

Source: Jimenez, Robles and Arce (2009), based on data from Instituto Nacional de Estadística y Censos household surveys.

(Programa Estado de la Nación, 2005). To improve the low graduation rates, the Arias Administration (2006–10) started the programme *Avancemos*, which provides a monthly stipend to poor families as long as the child remains in secondary school, with the stipend increasing with the grade level.

The gap between the skills needed by the productive sector and the skills supplied by the educational and training systems has grown in recent years. There is a shortage of workers with good proficiency in English and of workers with the requisite technical preparation, both at the level of mid-level technician and PhDs, in the natural sciences and engineering. This gap is felt most acutely by companies that have been successful under the NEM, i.e. many affiliates of transnationals and successful local producers of tradable goods and services.

By the late 2000s there was growing recognition that the problems in the education system were imposing serious constraints on upgrading. This recognition led to several new initiatives. The number of technical high schools has increased. The shortage of mid-level professionals in the technical areas, e.g. graduates of two-year technical colleges, led to the establishment of a fifth public university, the National Technical University (UTN) in 2009. In the area of K–12, there has been an increased focus on using digital technology in teaching and on improving the quality of teaching English. Beginning in 2014, the University of Costa Rica will offer a PhD programme in computer science, and the Costa Rican Institute of Technology will offer a PhD programme in software engineering and a Master's programme in electronics. However, there is no overall framework that sets priorities and guides the coherence and continuity of these different actions across sectors and institutions.

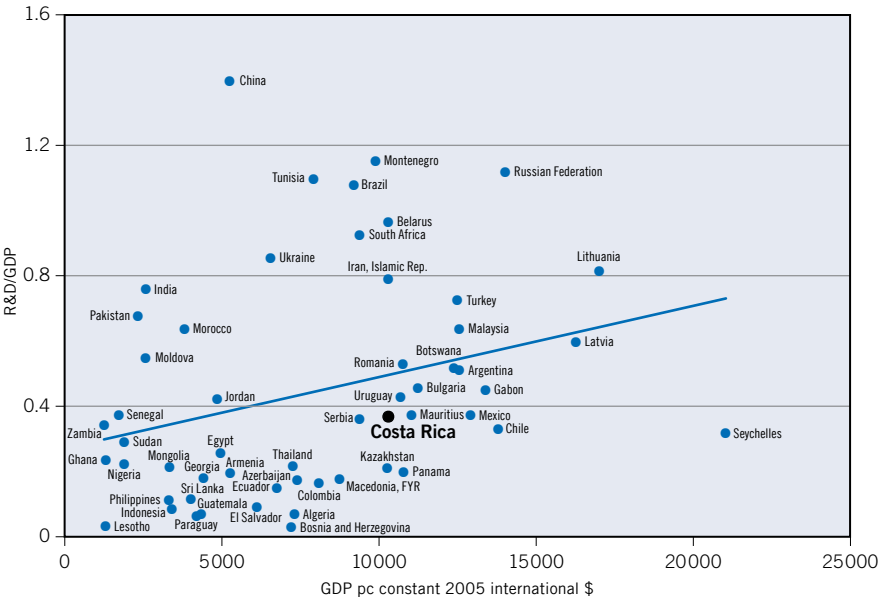
6.5.2 Low capabilities in research and development

The main channel for the acquisition of foreign technology has been capital goods imports. Licensing of foreign technology has been relatively unimportant, and domestic spending on science and technology activities has been small. In 2007 capital goods imports amounted to about US\$2 billion, compared with a mere US\$52 million in royalty payments for licences and domestic expenditures on science and technology of US\$350 million.

Research and development (R&D) expenditures in 2007 amounted to 0.36 per cent of GDP, 0.11 percentage points below the trend line for middle-income countries (figure 6.3). The R&D ratio has changed little over the past 20 years. The private sector accounts for only one-third of Costa Rica's R&D expenditures. Most Costa Rican companies are not involved in R&D, and research activities of transnational corporations in Costa Rica, although increasing, are small (table 6.8).

During the NEM era a number of laws were passed, institutions established, and initiatives launched to promote the advancement of technological capabilities, of science and technology in university circles, and of applied research through linkages between academia and industry. In fact, in 1990 Law No. 7169 created

Figure 6.3 Research and development expenditure relative as a share of GDP, middle-income countries, 2007 (percentages)



Source: Based on World Development Indicators.

Table 6.8 Breakdown of Costa Rica's expenditures on science and technology (S&T) (US\$ million)

	2006	2007	2008
<i>Public sector</i>			
Total	87.2	114.0	130.6
R&D	13.0	15.3	19.9
Teaching and training	20.6	26.6	27.6
Scientific and technical services	53.6	72.1	83.1
<i>Academic sector</i>			
Total	158.5	195.1	237.2
R&D	35.4	47.0	56.9
Teaching and training	102.5	120.3	142.9
Scientific and technical services	20.7	27.8	37.4
<i>Private enterprises</i>			
R&D	43.7	27.7	35.9
<i>All sectors</i>			
Total	301.4	350.3	416.1
R&D	97.2	96.2	118.8
Teaching and training	124.4	148.1	171.5
Scientific and technical services	79.8	106.0	125.7

Source: MICIT (2009).

the National System of Science and Technology (Sistema Nacional de Ciencia y Tecnología, or SNCT), which was conceived as the government's instrument for planning the development of science and technology and was considered part of the national development programme. The Figueres Administration (1994–98) made a great effort to boost the country's innovation system. The Ministry of Science and Technology was established in 1996 to steer this endeavour, and the CENAT (Centro Nacional de Alta Tecnología) was set up in 1999 to connect government, industry and academia in high-tech research. The Figueres Administration's all-out effort to bring Intel's first Latin American production facility to Costa Rica can be seen as an element in this larger picture.

Many of these initiatives have generated positive outcomes, but the overall problem has been that too many actions have been short-lived, underfunded and uncoordinated and often did not survive a change in government. There has been no coherent, comprehensive and sustained science and technology strategy.

As transnational corporations increasingly look to tap talent on a global scale, their subsidiaries often seek to build research capabilities in host countries to maintain or enhance their position within the corporate structure. The fact that Hewlett–Packard and Intel have opened small research centres in Costa Rica demonstrates the willingness of affiliates of transnationals to upgrade into more

technology-intensive activities in the country. A much larger potential could be realized if the deficiencies in technical education were overcome.

Another example of Costa Rica's potential comes from one of its own: Franklin Chang, a NASA astronaut from 1981 to 2005. Chang established Ad Astra Rocket in Costa Rica in 2005 in Guanacaste; it is a wholly owned subsidiary of the eponymous US parent company. The company's goal was to bring the Vasimir engine to full operational deployment in space by late 2013. There is now a mini-cluster of small local companies around Ad Astra Rocket collaborating in the Costa Rican Aerospace Alliance.

In the agricultural sector, well-established public research institutions have collaborated successfully on applied research with private sector actors, e.g. Colegio Universitario para el Riego y el Desarrollo del Trópico Seco, the Escuela Centroamericana de Ganadería (ECAG), the Costa Rican Coffee Institute, and the Instituto Nacional de Biodiversidad (INBio). Overall, however, it is widely agreed that cooperative projects between the academic research sector and the productive sector are few and far between (e.g. Macaya Trejos and Cruz Molina, 2006). The main reasons are lack of knowledge on the part of enterprises of what is happening in the universities, lack of knowledge regarding enterprise needs on the part of universities and research institutes, and the cost of innovation (MICIT, 2009).

6.5.3 *Serious deficiencies in infrastructure*

Changes in the productive structure, economic growth and growing tourism have increased the demands on Costa Rica's infrastructure significantly. In 2008 there were about 1 million vehicles in the country, three times more than in 1991. Over the same period the number of international passengers coming through San José's international airport quadrupled, reaching 4 million in 2008. The freight handled in the port facilities of Limón–Moín went from 2.1 million metric tonnes in 1980 to 9.9 million metric tonnes in 2007.

Infrastructure expansion, regulation and planning have been woefully inadequate to meet the growing demand. The 2012–13 *Global Competitiveness Report* ranks Costa Rica 57th in overall competitiveness among the 144 countries considered, and 95th for overall infrastructure: 60th for air transport infrastructure, 131st for quality of roads, 140th for port infrastructure (ahead of only Haiti, Bosnia and Herzegovina, Tajikistan and Kyrgyzstan).

The growing deficiencies have elicited constructive responses. Under the Chinchilla government (2010–14), four major road improvement projects have

begun, three funded by outside loans (the Inter-American Development Bank and the Development Bank of Latin America) and one by private concession. Also, the government has granted a concession to APM Terminals to build and operate a new terminal for shipping containers. The expected investment is US\$1 billion, and the terminal should be operational by 2016.

6.6 Conclusions

Over the last 15 years, Costa Rica has achieved a remarkable transformation of its export structure, moving away from primary products to medium- and high-tech goods. This positive structural change is all the more remarkable as the exports of most other Latin American countries have come to be dominated by natural resources or low-tech products. Nonetheless, Costa Rica's export success does not translate into unequivocal development success. On the one hand, the country has been highly successful at attracting foreign direct investment into higher-tech sectors, the result of social capabilities accumulated under ISI, location advantages, and attractive incentives. Using Costa Rica as an export platform, foreign producers have been the driver of the country's export growth and transformation. On the other hand, the domestic production sector has become increasingly dual, as a limited number of companies have become internationally competitive, while a huge number of micro and small enterprises produce for the domestic market and face profound challenges to compete.

Governments' consistent proactive policies to attract foreign investors stand in stark contrast to the lack of coherent and proactive policies in support of the development of local firm capabilities. Furthermore, the public sector's underinvestment in education, infrastructure and R&D under the NEM stands in stark contrast to the emphasis on development of social capabilities under ISI. In other words, the country has developed the options and collective competences to attract foreign direct investment in products and services classified as medium and high technologies; however, its institutions are less "smart" in creating and sustaining high-performing learning processes at the domestic enterprise level (Nübler, in this volume). One of the main lessons that the Costa Rican experience offers for other countries is the importance of consistent proactive policies that foster the co-evolution of social and firm-level capabilities over time.

Costa Rica is an upper middle-income country that needs to compete and develop by increasing productivity and making a concerted shift to a knowledge-based economy. In this chapter I have argued that a disjuncture in the development

of social and firm-level capabilities has prevented a move to broad-based upgrading. The recent success of Costa Rica's software industry demonstrates how, with the co-evolution of the right factors, capability can be accumulated. The analysis presented here highlights three major challenges that need to be addressed to put the country's development on a sustained path: the dual nature of the production sector, the lack of coordination in policy articulation and coordination, and the inadequate tax ratio.

The market does not and cannot play a coordinating role in many areas that are critical for the development of local capabilities. Institutional, non-market mechanisms are needed to ensure, for example, that the skills provided by the educational and training system are in sync with the skills needed by the productive sector. A coherent strategy for the production sector has to focus squarely on capability advancement, with the policy design cognizant of the country's dual production structure. This means that government policies need to support aggressively a move towards greater innovation activities, aimed primarily at successful national producers and the affiliates of transnationals in high-tech sectors.

Strategic support for a cohesive strategy to advance national innovation is important and urgent, especially as several development latecomers in Asia have forcefully moved in this direction. In 1996 China's GDP per capita was only 28 per cent of Costa Rica's (constant 2005 PPP US\$), but its R&D ratio was nearly twice that of Costa Rica. In 2008 China's per capita income had reached 55 per cent of Costa Rica's level, and its R&D ratio was nearly four times larger than Costa Rica's. China's ability to compete in products across the spectrum of technology intensity poses a profound challenge to the development prospects of Costa Rica and other developing countries.

At the same time, different policies need to target the many SMEs in the country, providing financing and information about technological and market possibilities and advancing the supplier connections with affiliates of transnationals. Developing the SME sector is important because it needs to be able to generate decent jobs for many Costa Rican workers. PROCOMER provides one-stop services for exporters. If support for SMEs was also more "bundled," outreach and support could be more effective. The scale of the policy efforts matters as well. For example, seven dedicated employees with a budget of less than US\$500,000 is just not enough to bring about a major increase in linkages between local firms and the affiliates of transnationals.

This lack of support is not unique to Costa Rica; under the free market policies of the Washington Consensus it has been widespread in Latin America. The result of these policies has been equally widespread: the productive sector consists

of a dynamic group of foreign producers, a small number of successful domestic companies, and huge numbers of SMEs and particularly of micro enterprises with low levels of productivity (Khan and Blankenburg, 2009).

The lack of coordination among different institutional entities in the prioritization and implementation of policies has proved to be a major obstacle to the implementation of a cohesive development strategy in pursuit of a knowledge-based economy.² The 2006–10 National Development Plan argued that “a serious atomization of the competencies in the public sector regarding productive sector policies makes it impossible for the State to develop unified and efficient actions for the development of competitiveness”³ (cited in Alonso, 2008). There are now over 100 autonomous institutions, most with budgetary autonomy, and no institutionalized mechanisms to hold them accountable or make them coordinate activities. Overcoming this challenge and finding ways to connect the dots in the political landscape of institutionalized, atomized policy-making and implementation may require reform of a governance structure where, currently, “much of what is public about public policies is done outside of executive ministries” (Lehoucq, 2006).

Advancing local capability accumulation will require more public resources than the government currently has at its disposal. While concessions to the private sector can overcome some of the infrastructure problems, there are many areas where the government will have to step in and step up. Theoretically, there is considerable room for increasing the tax ratio, since it is three to four percentage points lower than the average rate of countries at a similar level of GDP per capita. However, to translate this theoretical possibility into reality will require a shared understanding among the major interest groups and political parties on the key elements of tax reform.

Achieving broad-based, growth-inducing structural change requires a shift in the analytical focus from growth to capability accumulation and a shift in policy focus from the current faith in a market-led process of upgrading to an embrace of a proactive State to support the synergistic advancement of social and firm-level capabilities. An effective State and coordination of activities may be hard to build, but they have become essential in the current environment of globalization dominated by China (Paus, 2009).

² In a study of policy interventions in key productive development areas in Costa Rica, Monge-González, Rivera and Rosales-Tijerino (2010) find that, in five out of six cases, market failures were not addressed optimally and that stronger institutional coordination would have been needed.

³ Author's translation.

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