

# 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: Sánchez-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

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