



TECHNOLOGY GOVERNANCE

Working Papers in Technology Governance and Economic Dynamics no. 45

THE OTHER CANON FOUNDATION, NORWAY  
TALLINN UNIVERSITY OF TECHNOLOGY, TALLINN

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# Natural resource and service-based export performance: Cuba after 1989

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December 2012

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## Abstract

This article sets out to examine the growth strategy promoted by the Cuban government in the aftermath of the economic crisis of the 90s. This crisis, catalyzed by the collapse of the Soviet Union and Eastern European communism, imposed on Cuba the need for both new international insertion patterns and therefore a redesign of its development strategy. Without reaching the pre-crisis levels, this strategy led, however, to a significant recovery of GDP during the period 1994-2008. Nevertheless, the stagnation of the tourism industry and the fluctuation of international nickel prices have made it necessary to rethink the current development strategy. Here it is argued that the strategy of mostly relying on low-tech-, natural-resource- or service-based activities will not raise the life standards of the Cuban population. A sustainable development strategy in the long term means to upgrade and introduce industries, such as biotechnology, which contain manufacturing capabilities that can prove competitive on the international level. This is consistent with the historical evidence on economic development and innovation; but also with the performance shown by the Cuban economy during the last 20 years.

Keywords: Cuba, Industrial upgrading, economic development, natural resources, services

## Introduction

There is an important difference between the international insertion patterns of Cuba's economy in the period 1959-1989 and the reinsertion strategy from the 1990s onward. While the former was based in the preferential compensation terms established by the Council for Mutual Economic Assistance (COMECON) in times of *real existent socialism*, the latter period of insertion in the capitalist world market had to be done in competitive terms. Here it will be argued that, even with the relative successes of both the tourism and the mining industries, such a competitive insertion is still to be achieved. Not only by improving the performance of these industries, but by radically changing the development strategy.

Whereas a significant body of literature and commentary has been written on the performance of the Cuban economy during the last 20 years, most of them focus on a perspective based on the *state/market* dichotomy. In this perspective, the over-centralized Cuban state has been systematically choking the development of free market forces, which is said to be the reason behind the poor performance of the economy. While there is some truth in this argument, in this article it will be argued that the main

found in the existence of an interventionist state or in the absence of free markets (whatever this could mean), but rather in the lack of economic policies promoting productive diversification and the development of high manufacturing industries, particularly the ones with export potential.

Until today, the fact remains that Cuban policy makers (with the exception of biotechnology) have paid much more attention to low-end products and services. Even after the results of the widely publicized Sixth Congress of the Communist Party of Cuba<sup>2</sup>, there is no clear sign of measures towards a profound reform in the productive structure. Emphasis has been put on the increase of productivity and to the stimulus of small private business, fundamentally in non-tradable goods and services. While these measures have a lot of value for the Cuban context, they may do little to really make the country internationally competitive.

Despite the high abundance of historical evidence supporting the notion of structural transformation as a prerequisite for economic development (Chang 2008, 2010, Reinert 2007, Cimoli et al. 2009) contemporary economic thinking on policy reforms has paid little attention to this argument during the last thirty years. The present-day view is that once the “economic fundamentals” – macroeconomic stability and well-functioning markets – are in place, structural transformation is an automatic process (Rodrik 2006, 2). This factor together with the country’s specialisation according to the principle of comparative advantages should complete the circle of measures proposed to developing countries during the last decades.

Cuban policy makers have somewhat, partially, and maybe unconsciously, also bought into this mantra. As Monreal states, the take-off during the 1990s only “represented an additional expansion of natural resource-based exports, rather than the emergence of a new ingredient for the country’s development pattern that could be augmented with other assets, such as skilled labor, science or technology” (Monreal 2005, 62). However, historical evidence shows that nations which achieved economic development have always gone beyond the limits of their static comparative advantage and diversified into new activities that belong to the rich countries’ area.

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<sup>2</sup> The first congress held by the Cuban Communist Party in 14 years (which took place on 16-19 April 2011) was almost specifically aimed to introduce economic, social, and political reforms in order to modernize the country’s economic system. Delegates approved about 300 economic proposals, including measures to legalize selling and buying of private property, decentralisation of production, etc. For further details see <http://www.cubanews.ain.cu/2011/0419sixth-congress-communist-party.htm>, <http://www.guardian.co.uk/world/2011/apr/19/cuba-castro-communist-congress>, <http://www.granma.cu/ingles/cuba-i/16-abril-central.html>, <http://www.bbc.co.uk/news/world-latin-america-13998167>

For example a comparison between the economic performance of Latin America and East Asia since the 1960s confirms that the composition of exports rather than their volume is the determining factor linked to the export's ability to generate sustained GDP growth (Palma 2009, Rodrik 2006, 5-6). "If countries like China and India (and South Korea, Taiwan, Singapore, and Malaysia before them) have done so well, it is not primarily because their labor endowment advantage gave them the ability to compete in labor-intensive manufactures.<sup>3</sup> It is because they were able to quickly diversify into more sophisticated, technically-demanding activities that supported higher rates of economic growth" (Rodrik 2006, 7-8).

The Cuban economy started to recover in 1994, showing a positive average growth rate during the period 1994-2008. Indeed, the recovery process during the nineties has been one based on the intensive use of natural resources, with the biotechnology industry as an exception.<sup>4</sup> Low value-added tourist services and nickel-extraction industries have played the key role in the recovery process of the economy since the 1990s. Export diversification on behalf of value-added innovative manufactures has not been systematically and articulately promoted in Cuba in the last twenty years. This brings about some doubt regarding the sustainability of the development strategy.

The Cuban biotechnology industry remains the exception in Cuba's industrial landscape (see Cárdenas 2009 and Lopez et al. 2006). The Cuban biotech has shown a very positive evolution during the last two decades and has shown the real potential of frontier technologies operating within the economy. However this industry still shows relatively few linkages within the domestic economy, which limits its developmental impact. In terms of developmental policy, the broader the manufacturing base, the better the opportunities to get into new economic activities with untapped productivity prospects.

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<sup>3</sup> Even if China has done well by exporting labour-intensive products (toys, garments, simple electronics assembly) the fact is that China's export portfolio is much more sophisticated than what would be normally expected. China is an outlier in terms of the overall sophistication of its exports given that its export bundle is equivalent to the export bundle of a country that should have an income-per-capita level three times higher than China's. For more detail, see Rodrik (2006)

<sup>4</sup> It is worth to remember that even if the industrial structure developed in Cuba during the pre-crisis period (1959-1989) was, in most of the cases, unable to compete in the international markets, there was on the part of the government at least an explicit intention of developing an industrial base for the country. However, as we will see in this paper, the development strategy of the post-crisis period has not been based on the upgrading of the industrial structure developed during the previous period, but on a departure from the industrialisation strategy. The experience of the Cuban biotechnology industry should be understood in this context as its development actually began during the 1980s. Even though strong investments were made during the 1990s to further develop this industry, it should not be conceived as a result of the post-crisis strategy. Therefore, in the middle of the pervasive deindustrialisation of the post-crisis period, it can be said that it is a fortune that policy makers have decided to continue to fund this industry.

## On natural resources and raw materials

The actual and quintessential challenge for Cuba's policy makers is to be able to increase the economy's productivity. However, it should be emphasised that productivity does not mean any kind of productivity but the right one. This is, all economic activities are different in quality and offer dissimilar opportunities for innovation and industrial upgrading. Specialising in natural resources activities (such as *sun and sand* tourism and mining) and low-tech services does not pay much for a developing country (Chang 2010, Palma 2009, Reinert 2007).

There is nothing intrinsically wrong in a country using its stock of natural resources as an export item. However, the history of economic development is the tale of countries trying to catch up with more technologically advanced nations in order to acquire higher technological capabilities. Historical evidence shows that almost no country has been able to develop into a sophisticated economy by relying solely on the export of raw materials or services (Chang 2007, 2008, 2010, Reinert 1999, 2007). To understand that, it is important to acknowledge the qualitative difference between economic activities.

Raw-material activities are to be classified within the realm of the decreasing-returns activities (Reinert 1999, 2007). This is, while manufacturing activities present opportunities to achieve higher value-added products through innovation, raw-materials-based activities are based on a limited stock of resources. For example the amount of productive exploitable land will gradually shrink, as the need for more production increases. Introducing technological innovation in these activities alone will tend to reduce the prices of raw materials (agricultural products, minerals, etc.) on the international markets. This, the rest remaining equal, will tend to diminish export gains and the national real-wages average. In order to remain profitable, these activities must be embedded in a successful industrial economy (ibid.). "A country with a broad-based manufacturing sector is more likely to take advantage of new opportunities than one which has specialized in a few primary based products" (Rodrik 2006, 12).

The same happens with services. This sort of activities generally shows low levels of both productivity and tradability (and therefore low levels of scalability) (ibid.). Contrasting with domestic services, tradable economic activities provide scale opportunities for an economy (particularly a small one) in such a way that it can expand output without running into diminishing returns. No matter how productive a restaurant, a rental house or a barber can be, it will not be

enough to raise the real-wage levels or to increase international competitiveness.<sup>5</sup>

Domestic low-tech services do not provide much scope for innovation and therefore for productivity improvements. Therefore, to increase the share of low-tech services within the economy could lead to a decrease in the export earnings, which means becoming more dependent on external borrowing. To be sure, some services (engineering, consulting, etc.) could provide the economy with new windows of innovation and more tradability opportunities; however, they depend on the existence of a productive manufacturing sector. Traditional domestic services alone do not show high chances of increasing productivity. While manufacturing activities can increase productivity through mechanization and automation, services tend to remain more or less the same across time.

Investing in non-traditional tradable activities supposes that an economy absorbs more sophisticated technologies and increases its chances of participation in the international market with more elaborated products of higher long-term productivity potentials. It also brings other opportunities such as trained “workers and managers who can be employed in other firms, and they provide inputs (and demand) for other activities which may not have started up otherwise. The social value of such investments greatly exceeds their private value” (Rodrik 2006, 2).

Cuba experienced a sudden decline of its foreign earning during the last few years. This, together with other aggravating factors<sup>6</sup>, led to a very poor export performance, which negatively affected the economic growth and the country’s ability to honor its financial obligations with external creditors (Vidal 2010). External debt had been increasing since 2004 but the country was able to maintain this trend as long as the ratio of external solvency remained controlled by the growth of GDP. When the growth trend stopped, the necessity for adjustment became apparent.

Even though many authors concede that the reduction of debt, which is of course a very important goal, is much more significant, some sort of intuitive sense is telling us that growth is much more important. In the

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<sup>5</sup> This has been a very flexible term, which has been employed simultaneously to justify both wage reduction and wage increase. This article refer to the latter, adopting the Reinert’s (2007, 227) definition of competitiveness as the degree of a country to produce goods and services “that meet the test of foreign competition while simultaneously maintaining and expanding domestic real income.”

<sup>6</sup> In 2008, three strong hurricanes hit the island provoking damages estimated at \$ 9.7 billion, mainly in the housing and food sectors. Another element is the global financial crisis.

case of Cuba this means having to come up with the necessary institutional transformation that allows creating higher capabilities in value-added manufacturing activities.

## **Nickel extraction**

The production of nickel, the principal Cuban export product, has experienced important increases during this period. Major national and foreign investments have been made in the sector since 1991.<sup>7</sup> This allowed production plants to be renovated with the introduction of modern extraction technologies, which improved industry productivity and positioned Cuba as the 8<sup>th</sup> largest international nickel producer in 2005.<sup>8</sup> The Joint Venture agreement signed between the Canadian Sherritt and the Cuban SOE Compañía General de Níquel S.A. resulted in three jointly owned subsidiaries: 1) A processing plant in Moa, Cuba; 2) a refinery plant in Alberta, Canada; and 3) a sales-and-marketing company in the Bahamas. Cuban managers were trained in modern management techniques and already in 1997 there were 30 Cuban professionals based at the Alberta plant in Canada. According to a study edited in 2004 by the US-based Geological Survey, in this year, nickel accounted for about 61% of the country's total exports (Minerals Yearbook 2004, 91-94).

Additionally, the increase in the world nickel demand (mostly Chinese) for the production of stainless steel led to a record increase of the international market prices, peaking at \$US24 a pound in 2007.<sup>9</sup> This allowed earnings for Cuba to be collected in the order of approximately \$US 2.33 billion in 2007.<sup>10</sup>

However, as is already known, depending on natural resources can expose a country to many handicaps. One of them is the price volatility of these products, whose consequences for the economic development are widely known<sup>11</sup>; and this is exactly what happened when the nickel price collapsed. In 2008 nickel prices tumbled, but the impact of the decline on export earnings was fully offset by a new revenue stream from

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<sup>7</sup> The formation of joint ventures with the Canada-based Sherritt International allowed it to improve the commercialization expertise and market shares for Cuban nickel (see Everleny 2002).

<sup>8</sup> <http://www.indexmundi.com/minerals/?product=nickel&graph=production>.

<sup>9</sup> <http://thecubaneconomy.com/articles/2010/06/bad-news-for-cuba%E2%80%99s-nickel-industry-and-sherritt/>.

<sup>10</sup> Ibid.

<sup>11</sup> See <http://www.iisd.org/markets/policy/price.asp> or [http://siteresources.worldbank.org/INTPOVERTY/Resources/3356421210859591030/Food\\_Price\\_Watch\\_May2010.pdf](http://siteresources.worldbank.org/INTPOVERTY/Resources/3356421210859591030/Food_Price_Watch_May2010.pdf).

oil processing (US\$ 800 million) at the Cienfuegos (Cuban province at the centre of the island) oil refinery.<sup>12</sup>

In 2009, however, earnings from both nickel and oil products were severely hit by falling international prices, reducing total goods exports revenues by 21.4% (EUI 2010b), showing again the risk of relying on primary products. International nickel prices experienced an overall reduction by 40% in 2009 (Estudio económico de América Latina y el Caribe 2009-2010), and in the same year Cuba's unrefined nickel plus cobalt production oscillated between 60,000 and 65,000 tonnes, the lowest number in a decade out of an average between 74,000 and 75,000 tonnes for most of the period.<sup>13</sup>

Although the joint ventures allowed the introduction of new mining technologies and the process has become somewhat a capital-intensive one, Cuba's contribution to the international markets continues to be basically the unrefined product which has to be refined (as in soviet times) outside the country, in Canada. In fact, the Cuban nickel industry remains one with low domestic added-value as there seems to be little evidence of the formation of strong domestic capabilities in this direction.

In 2003 a diversification attempt led the government to restructure the steel industry by creating six enterprises, which were to be part of ACINOX<sup>14</sup>, one of the relatively most successful Industrial Groups of the Cuban metallurgy, devoted to the commercialization of steel products on the domestic and foreign markets (Minerals Yearbook 2004, 91-94).<sup>15</sup> The supply for the plant comes from steel scrap, from industrial and naval equipment, old railways, imported ferroalloys and nickel sinter produced in Cuba. ACINOX controls several plants that produce billets, flat slabs and other unfinished long products, mainly for export to the Caribbean and Central America, and to a lesser extent to Colombia and Mexico.<sup>16</sup>

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<sup>12</sup> Cuba consumes a minimum of 150,000 barrels per day in petroleum products, of which up to 92,000 bpd come from Venezuela. The rest is pumped from the Cuban northwest coast along with natural gas and power generation. However, in December 2007 a joint venture with Venezuela's state-run Petroleos de Venezuela S.A (PDVSA) was established in order to upgrade Cuba's downstream operations. In 2008 PDVSA reported deliveries of 115,000 bpd of crude and refined products to Cuba, of which 93,300 bpd were sold to Cuban state-run Cubapetroleo (CUPET) and 27,500 bpd was PDVSA's equity share. Revenues seem to represent CUPET's share of the Cienfuegos joint-venture refinery exports. Based on data of the Cuban Foreign Trade Ministry, Reuters reports that nickel accounted for 39% of exports and oil for 22%, becoming Cuba's second leading export good in the merchandising sector, overtaking pharmaceuticals (9%). See Oil now second leading Cuban export-gov't reports, 10 June 2009, in: <http://www.reuters.com/article/idUSN1049707420090610>.

<sup>13</sup> Cuban nickel output seen lowest in a decade, in: <http://www.reuters.com/article/idUSN3021507420091230?type=marketsNews>.

<sup>14</sup> ACINOX official web site at <http://www.steels-net.cu/>

<sup>15</sup> Additionally, ACINOX was awarded the exporter prize.

<sup>16</sup> [http://www.bnamericas.com/news/metals/Technology\\_improves\\_Acinox\\_exports](http://www.bnamericas.com/news/metals/Technology_improves_Acinox_exports).



Some equipment is also domestically produced. However, its relevance in the country's overall exports and GDP so far is rather modest.<sup>17</sup> There is neither a policy aimed to articulate a strategy for products with higher value-added nor domestic linkages capable of absorbing and disseminating new technology. As stated by Bateman and Chang (2012), as long as the circumstances are not transformed into opportunities for the formation of linkages within the local economy, i.e. the creation of a quality local structure of suppliers and new technology-intensive, innovation-driven local enterprises with the technology, market and scale requirements to benefit from cooperating with their counterparts, there will be little room for industrial upgrading and in turn for economic development.

### **A possible low-cost substitute for the Cuban nickel**

Another element is that wealth based on natural resources can be quickly swept away by the creation of a more cost-effective, technologically more advanced synthetic alternative. It is happening with sugar substitutes such as high-fructose corn syrup, it had already happened with dye products in the 19<sup>th</sup> century and with many other products throughout the 20<sup>th</sup> century. The same has also begun to happen with nickel.

A substitute for refined nickel, described as "nickel pig iron" or "NPI", already has a major impact on the nickel market and is causing reductions of the price of nickel. NPI is a low-cost and low-tech innovation in the production of stainless steel, developed in China and increasingly used there since 2006. It now accounts for about 10% of the world's \$US 21-billion-a-year nickel market and will have evident repercussions for countries such as Cuba, Canada, Russia and Australia. According to a report of the Toronto-based *Globe and Mail*, the average Chinese producer of NPI can now be profitable at nickel prices of about \$US 8.5 a pound. Therefore "the days of \$ 24 (U.S.) a pound nickels, last witnessed in 2007, are unlikely to ever return."<sup>18</sup>

Given this scenario, it would be a healthy policy for Cuba to create linkages and clusters of activities that create new opportunities for the pro-

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<sup>17</sup> In 2007 the portion of export of machinery and transport equipment, which corresponded to metal-based value-added productions, made up 4.6% of the total exports. This share actually represented a decrease in comparison with the 7.8% of 2006 (based on data from ONE 2010)

<sup>18</sup> A breakthrough in China, another blow for Sudbury, 11 June 2010 In: <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/a-breakthrough-in-china-another-blow-for-sudbury/article1601530/> See also Bad news for Cuba's Nickel industry and Sherritt, 28 June 2010. In: <http://thecubaneconomy.com/articles/2010/06/bad-news-for-cuba%E2%80%99s-nickel-industry-and-sherritt/>.

duction and export of technology-intensive products in this sector, which can move up the “value chain” in global commodity networks. But this would require redirecting investments that are made today in other sectors, which would necessarily represent a major structural shift in the current Cuban government policy conception.

Additional efforts to import technology could be made by encouraging the creation of foreign-based networks within the Cuban diaspora. Of course, a more proactive role of the government would be necessary in order to provide financial resources, as well as capacity-building through specialized assistance and guidance.<sup>19</sup> China’s success in manufacturing exports and India’s in software can at least in part be explained by the strategic role played by their respective diasporas, stemming from the position of these diasporas in global production networks (Kapur 2001). Also higher-income countries, such as Taiwan, Ireland and Israel, have been able to take advantage of technology transfers from their diasporas to the highest degree (Lucas 2005).

### **Tourist-service-based growth**

Another characteristic of the period from the 90s on has been the increasing reliance on the export of services. The most successful and sustained case is the tourism industry and ultimately the medical services (see next section). In actual fact, the tourism industry is the sector that has played the most important role in that process. Beginning in the 90s, the tourist industry introduced new operational modes through diverse forms of association with foreign capital that led to a restructuring of that sector. In 1994 the Ministry of Tourism was created, with the aim to accomplish the priorities established by the government strategy.

The revenues from tourism were a crucial factor in the recovery experienced by the Cuban economy since 1994. In 1990, Cuba received 3% of the visitors to the Caribbean area and placed 23<sup>rd</sup> in Latin America in the ranking of the most visited tourist destinations (Figueras 2001). In 2000, the former had risen to 10% and Cuba had moved up to place 10 in the latter. The number of hotel rooms increased from 12,900 in 1990 to 45,000 in 2007 (Everleny 2009). Its share in the overall exports raised

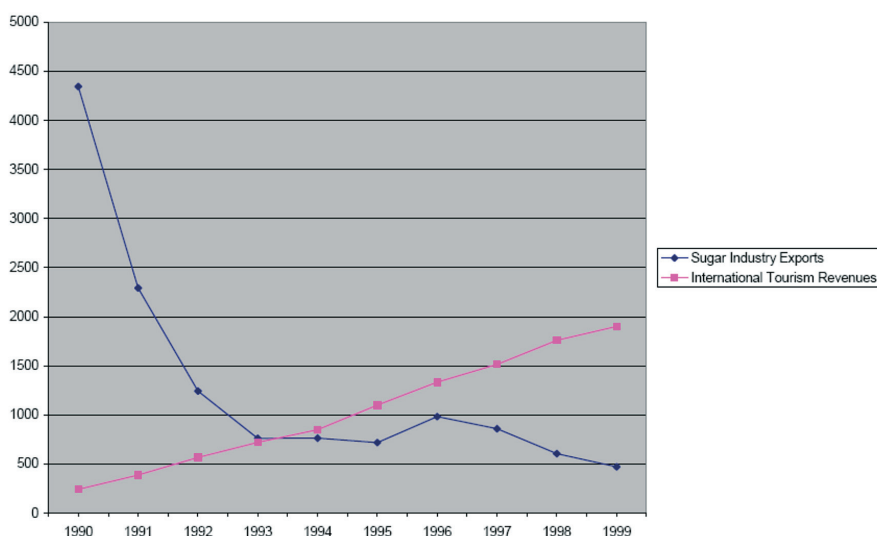
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<sup>19</sup> The new updates in the Cuban emigration policy announced by the Cuban government at 17 October 2012 might open new spaces in this direction. However, it is too early to make any sensible analysis. For further details on the new regulations see <http://www.granma.cu/ingles/cuba-i/17oct-EDITORIAL.html>, see also <http://www.nytimes.com/2012/10/17/world/americas/cuba-lifts-much-reviled-rule-the-exit-visa.html?pagewanted=all> and [http://www.washingtonpost.com/world/the\\_americas/cuba-to-ease-travel-abroad-for-many-citizens/2012/10/16/4f54607a-17a9-11e2-a346-f24efc680b8d\\_story.html](http://www.washingtonpost.com/world/the_americas/cuba-to-ease-travel-abroad-for-many-citizens/2012/10/16/4f54607a-17a9-11e2-a346-f24efc680b8d_story.html)

from 4.1% in 1990 to about 40% in 2000 (Figueras 2001). Gross earnings from tourism increased from \$US 243 million in 1990 to \$US 2.4 billion in 2005. Overall income figures from tourism surpassed \$US 25 billion during the period 1990-2007 (Everleny 2009, 13).

While other sectors of the Cuban economy struggled in the early 1990s, the number of international tourist arrivals and tourism revenues increased steadily with the number of international tourists more than doubling and revenues more than quadrupling between 1990 and 1995. By 1994, tourism exports surpassed sugar-industry<sup>20</sup> exports, making international tourism Cuba's top export industry. Gross revenues from tourism made up 66% of Cuba's service exports in 1998, which made tourism the most important source of service exports on the island.<sup>21</sup>

**Figure 1:** Sugar Exports and Tourism Revenues, 1990-99 (*million pesos*)



Source: Perez-Lopez (2002)

In order to reduce the import component in the tourism sector the Cuban government encouraged the formation of domestic backward linkages. In doing so, the industry became a catalyser for other industries and services. Such opportunities to supply the tourism sector created favourable condi-

<sup>20</sup> The constant decreasing and fluctuating nature of sugar prices and the termination of the preferential relations with the former Soviet Union led to the eventual dismantling of the industry in 2002 (for more details see Nova 2006, see also Peters 2003)

<sup>21</sup> Since 1994, export earnings from tourism have been, on average, about 39 percent of total foreign exchange earnings; in 1998 the ratio of gross revenues to total goods and services exports was 43 percent, compared to 22 percent in 1992. See Espino (2008).

tions for the constitution of a considerable number of joint ventures in the agricultural, industrial and services sectors, which enjoyed an injection of foreign know-how. Even if the data supporting this process are scarce, scattered and mostly of anecdotal nature, some evidence of the relatively successful reanimation can be found in industries such as the textile industry, the furniture industry, the beverages industry and so on; as well as in more technology-intensive industries and services such as construction materials, transportation, telecommunication, IT and air transportation.<sup>22</sup> As shown in Table 1, in 2000 61% of the tourism demand was covered by local producers. This industry has been referred to as an engine of growth (Figueras 2001). However, as Figure 2 shows, the impact of manufacturing activities in the Cuban economy experienced a dramatic reduction during the period.

**Table 1:** Tourism's interrelation with the local producers

	1990	2000
Total tourism income in the balance of payments	4%	41%
Purchases from local producers out of total tourism entity purchases	12%	61%
Total employment in tourism enterprises (workers)	54,000	100,000
Indirect employment (workers producing goods for tourism)	30,000	200,000

Source: Figueras (2001)

## Pitfalls of the tourism industry as growth engine

In recent years, however, the industry has experienced a number of setbacks, leading to negative growth in tourist arrivals in 2006 and 2007. Although tourism reached a record high of 2.35 and 2.4 million tourists in 2008 and 2009 respectively, this falls far below the Cuban government's 2000 long range forecast of 5-7 million annual tourists by 2010. International factors such as 9/11, high oil prices and the American embargo<sup>23</sup> as

<sup>22</sup> For example the manufacturing and furniture industries introduced new technologies and designed new products, which were able to compete with imports from different countries. For instance, the company Suchel-Camacho S.A now supplies all hotels with minibottles of shampoo, small soaps, body lotions and the like. In 2000 local breweries supplied 95% of the tourist market, with bottled-water companies covering almost the entire market. New types of bottles, metal containers for beer and soft drinks were introduced, as well as new packaging technologies. In 2000 a joint venture was constituted with capital and technology from different countries in order to restart the bus production. See Figueras (2001).

<sup>23</sup> In 2002, following the terrorist attacks of 2001, the 2.7% decrease in international tourist arrivals to the Caribbean was cushioned to a large extent by a 7.1% increase in cruise passengers. But Cuba was unable to participate because the US embargo prohibits US-based cruises from including Cuba in their itineraries. Without this cushion, Cuba suffered a 5% decline in visitor arrivals, the first retreat since 1983. (See Espino 2009). Besides, US tourists account for 52 percent of all tourists in the Caribbean.

well as national factors such as maintenance difficulties in some hotels and most of all the limited diversification of services or increasing prices have influenced the low rate of return. Probably with the exception of the Canadian market, all evidence indicates that Cuba's competitiveness in all major markets has been declining (Espino 2009). Cuba has been able to offset the low rate of return by attracting tourists from new markets, but the fact is that even though 2008 showed some increases, this industry has entered a period of stagnation, aggravated by the current global economic conditions.

Still, the Cuban tourism industry will probably remain an important source of foreign exchange in the years to come, which is not undesirable in itself. However the question is whether this industry should continue to be promoted in the way it has been so far. Or in other words, should Cuban prosperity rely on the export of services such as tourism?

The choice of tourism was a very circumstantial one. The country needed short-term cash after the outbreak of the crisis and disposed of unquestionable static comparative advantages in this area. As already mentioned, this allowed for a relative reactivation of some industrial activities within the country. However, most of the reactivated industrial structure has been almost exclusively in low-tech manufacturing activities and has not meant the diversification of the tourist services or the competitive overcoming of the de-industrialisation experienced since the 90s. The main success factor of Cuban tourism remains to be one based on natural resources; i.e. sun and beaches and with a limited availability of more sophisticated services.

As suggested above, low-tech and natural-resource-based service offers, even if productive, are usually non-tradable and offer little room for high productivity gains. Low tradability means that unlike manufactures they cannot be shipped to the rest of the world. Little productivity gains means that there are not too many chances to innovate and to boost profits. Increasing the share of this sort of service in the economy will tend to bring low export gains (Chang 2010, Reinert 2007). This means a deficit in the balance of payment and the impossibility to access financial resources, which in turn brings with it an increasing dependence upon external loans. With no effort made to diversify into more high-tech services (e.g. highly tradable consulting, banking or engineering services), which, in turn, demand the existence of a strong and innovative manufacturing sector, the service branch ends with decreasing returns.

This can explain, at least partially<sup>24</sup>, why even if the number of tourists increased during the period 1995-2000 (part of the best period of the industry), the income per tourist steadily declined year by year, and in 2000 was at the same level as in 1992, that is, just when the tourist boom started. This indicator has remained (with few exceptions) decreasing during the period 2001-2011. Alternatives such as health tourism and historic tourism<sup>25</sup> commonly linked to high-tech, knowledge-based creative industries (the latter only in the case of historic tourism) make up a very small share of the total revenues provided by the industry.

Cuba has been a popular health tourism destination for more than 20 years. This choice offers great potential in the case of Cuba, given its long-term investments in health and biotechnology. Such unique Cuban treatments as the one for *retinitis pigmentosa*, often known as night blindness, has attracted many patients from Europe and North America. Cuba's medical-tourism products and services provided care for a total of 19,670 tourist patients in 2006, and it is said to generate revenues of around \$US 40 million a year.<sup>26</sup> However, this number obviously makes up only a small fraction of the total revenues generated by the sector. In fact, until 2007 this segment represented only 2% of the overall tourist services offered by the Cuban tourist industry.<sup>27</sup>

It is an interesting fact that tourist medical services are provided by Servimed Cuba, which belongs to Cubanacan, the most important Cuban holding company in the tourism sector (40% market share in 2007<sup>28</sup>). This means that cross-financing of more technology-based segments could be perfectly possible, if the policy makers and the executives of the industry had the will to follow this strategy. This sort of strategy might not deliv-

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<sup>24</sup> There is also the problem of the international tour operators. Most of the segments in a typical tourist package to Cuba are dominated by strong tour operators. It was estimated that in 2002 out of the total spending by a typical tourist on a package tour to Cuba, the tour operators (TO) get 20 per cent, the airlines 40 per cent and the remaining 40 per cent are spent in Cuba (Brudenius 2002): Still another reason to diversify the industry and to improve marketing abilities.

<sup>25</sup> For space reasons we cannot get into details here about this segment. But to get an idea, the Buena Vista Social Club phenomenon, of course, recognizes the imperialistic notion involved in that project, an example of the potential of this kind of tourism modality when the right marketing strategies are put in motion. According to Farley, the project has sold 8 Million copies up to today, which makes it a major recording-industry success, all the more extraordinary when considering that their record company World Circuit (a non Cuban label) is a small independent affair headed by one man, Nick Gold, in East London. See Farley (2009). Cuban agencies specialized in tourism such as Paradiso S.A. could learn to emulate this success.

<sup>26</sup> Cuba sells its medical expertise. at <http://news.bbc.co.uk/2/hi/business/3284995.stm>.

<sup>27</sup> Evolución del turismo como locomotora de la economía cubana: Simposio "Desarrollo local y Turismo", 5-23 July 2007, Universidad de Málaga, Espana, In: <http://www.eumed.net/eve/resum/07-07/alb.htm>.

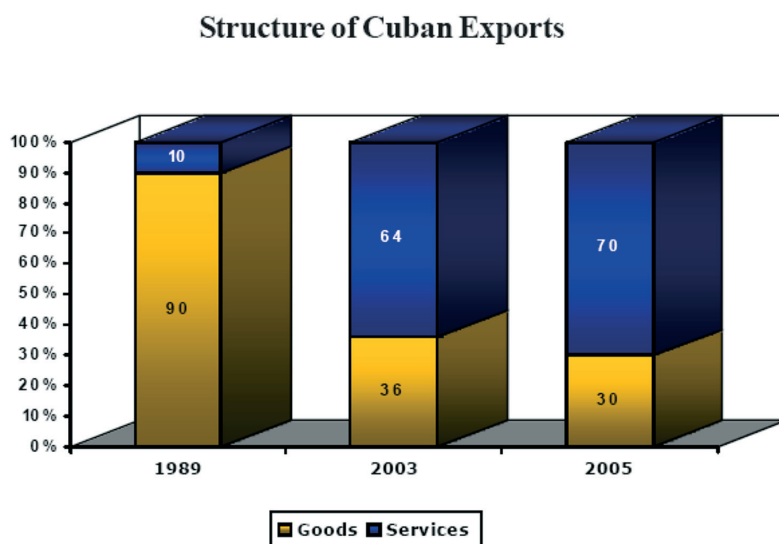
<sup>28</sup> Ibid.

er revenues in the short term, but it may become an alternative for the long-term sustainability of the industry.

For example, historical evidence tell us how the long-term bets on a range of radical technologies in communications made by former government enterprises such as Telia, Telenor and Sonera, shaped the technologies which made Ericsson and Nokia world leaders (Hauknes and Smith 2003). Nokia's electronic subsidiary was allowed to register losses for 17 years before getting some profits, while it continued to be cross-subsidised by the central division. Similar examples are found in Samsung or Toyota (Chang 2009).

However, notwithstanding the fact that some diversification in tourist activities could be found, services alone do not grant economic development. These circumstances do not create much incentive for value-added industrial exports to emerge; since tourism booms tend to increase demand for non-tradable resources, which could otherwise be employed in the tradable sector; and this scenario may lead to de-industrialization. In fact, a clear structural change has taken place in Cuba's balance of payments in the last 15 years. Services have definitively displaced goods as the main cash earner, moving from just 10% of total revenues in 1989 to about 70% in 2005 (Figure 2).

**Figure 2:** Structure of Cuban Exports



Cited in Molina (2009)

Historic evidence shows, however, that manufacturing has been, although not the only, but certainly the most important path to prosperity for nations. The single most relevant aspect that has historically distinguished rich countries from poor ones is their manufacturing capabilities, where productivity is generally higher. For Cuban policy makers it should not become an obsession to increase competitiveness in natural-resource-based services and industries, but to focus on a high-tech-based export-led strategy, which promotes innovation and product diversification in technology-intensive industries. Unrelated diversification into technologically dynamic industries can bring the highest return, but after a long gestation period. For that reason it is important that profitability is defined from a long-term point of view. In developing countries, investment in capability-building is a long but crucial process (Chang 2007).

### **Professional-services-based growth**

The increase in exports of professional services confirms the above-illustrated pattern of a service-based economy. However this new trend could (but need not necessarily) encourage the exports of medical equipment and other related value-added manufactures. Still, the sustainability of this new path has yet to be achieved. Being high-value-added services, mostly based in the existence of both a well-developed health system and a relatively prosper biotechnology industry, these kind of services show interesting prospects for the future. But in order to become sustainable, the core markets for these services need to be diversified as they are still highly dependent on only one market.

The political alliance with Venezuela and the framework of ALBA<sup>29</sup> have evolved into various formal trade agreements. In 2000, an agreement was signed in which Venezuela agreed to provide Cuba with 53,000 barrels of oil a day at preferential prices from this country's extensive oil stock. In exchange, Cuba compromised to supply Venezuela with 20,000 medical professionals and educators. At the beginning, trade agreements took the form of barter exchanges, but since 2003 payments for professional services have been made in cash.

In August 2004, the agreement was expanded: Venezuela was to provide over 90,000 barrels a day and Cuba increased the number of medical, public-health officials and teachers to 40,000 in order to help staff the

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<sup>29</sup> **The Bolivarian Alliance for the Peoples of Our America** ([Spanish](#): *Alianza Bolivariana para los Pueblos de Nuestra América*, or ALBA) is an international cooperation organization based on the idea of social, political and economic integration between the countries of [Latin America](#) and the [Caribbean](#).



increasing number of health care and teaching centres there are in Venezuela.<sup>30</sup> In 2005 further agreements were signed on 192 joint projects worth \$US 800 million. Among these projects was the construction of 600 health clinics, 600 rehabilitation and physical-therapy facilities and 35 fully equipped medical centres in Venezuela with the assistance of Cuban medical personnel assistance. Further agreements with this country have been signed on a yearly basis. Similar medical services have been provided in other third-world countries on a much smaller scale. In July 2006, 28,664 Cuban health professionals were serving abroad in 68 countries.<sup>31</sup>

Even when the Cuban government does not offer disaggregated services statistics, thus making it more difficult to define the nature of service trade, rough estimates from several sources provide some evidence that seems to indicate that the amounts of traded professional services are truly significant, having even become the Cuban economy's biggest earner in the tertiary sector. For example, a US-based report states that the increase in non-tourism services exports between 2003 and 2005 was around US\$ 1.2 billion of a total of US\$ 2.4 billion, which puts non-tourism services ahead of gross tourism earnings (of US\$ 2.3 billion) in 2005. Most of these are medical services (Feinsilver 2006). Another US-based report states that the Economic Intelligence Unit (EIU) estimated that in 2006 Cuba earned as much as US\$3 billion from professional services, mostly medical services, and that this revenue came almost exclusively from Venezuela (Perez et al. 2008, 334).

According to data from the World Trade Organization, non-travel commercial services<sup>32</sup> amounted to US\$ 5.1 billion in 2006, compared to US\$ 2.1 billion in travel services (Table 2). The increasing significance of non-tourist services, easily attributable to medical and other services mostly in Venezuela, can be easily observed during the period 2004-2008.

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<sup>30</sup> For more details of the Cuba-Venezuela relationship see Perez et al. (2008), see also Romero (2009).

<sup>31</sup> Cuba & the Global Health Workforce: Health Professionals Abroad. in: <http://www.medicc.org/ns/index.php?s=12&p=0>

<sup>32</sup> According to WTO definition, the commercial-services category is defined as being equal to services minus government services. Commercial services are further sub-divided into transportation services, travel and other commercial services. (See [http://stat.wto.org/StatisticalProgram/WSDBStatProgramTechNotes.aspx?Language=E#Def\\_Meth\\_Services](http://stat.wto.org/StatisticalProgram/WSDBStatProgramTechNotes.aspx?Language=E#Def_Meth_Services)).

On the other hand, commercial services are defined as opposed to governmental services. "A service supplied in the exercise of governmental authority" means any service which is supplied neither on a commercial basis, nor in competition with one or more service suppliers. However, commercial services in Cuba result from governmental authority, still are of commercial nature and certainly compete with other suppliers. See [http://www.wto.org/english/tratop\\_e/serv\\_e/1-scdef\\_e.htm](http://www.wto.org/english/tratop_e/serv_e/1-scdef_e.htm).

**Table 2: Cuban service exports, US\$ current prices**

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Commercial services	2643	2572	2450	2962	3789	7075	7201	8588	9252	8427
Tourist services	1876	1827	1764	1994	2068	2322	2127	2141	2267	2015

Source: ONE (Cuba), WTO Statistic Database, United Nations Service Trade Statistics Database

In this context, Cuban exports of medical products and equipments have received a significant push. According to data collected by the World Bank<sup>33</sup>, high technology exports, as percent of total manufactured exports, experienced an increase during the period 2004-2006, growing at rates even larger than the ones of OECD in 2006.

**Table 3: High-technology exports (% of manufactured exports)**

Year	2004	2005	2006
Cuba	11.8	18.3	33.5
OECD	17.4	19.5	18.5

Source: The World Bank

No data available for Cuba during the period 2007-2010

However, this seems to represent a rather circumstantial situation given that the amount of exported professional services is based on preferential conditions given by Venezuela. This means that the profitability of them depends on the political and economic conditions of just one country. Any situation, any external shock (for instance the 2008-2009 crisis) could bring serious setbacks to the already fragile Cuban economy. For example, an agreement links the prices of Cuban exports of medical services to the price of imported oil from Venezuela. According to EUI (2010a), the services surplus is expected to increase only modestly in 2010, with non-tourism earnings boosted by the higher oil price, given the agreement, and to fall in 2011 as oil prices ease modestly for the same reason. In other words, Cuba's higher export revenues continue to be, in fact, dependent on the instable performance of natural-resource primary products.

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<sup>33</sup> The World Bank defines High-technology products as products with high R&D intensity, such as aerospace, computers, pharmaceuticals, scientific instruments and electrical machinery. See <http://data.worldbank.org/indicator/TX.VAL.TECH.MF.ZS>.

This indexation would not be so risky if Cuba had a more diversified export structure and partners, but actually the opposite is happening, at least in the professional-services sector. Since 2008 Venezuela is Cuba's main import partner, which gives Venezuela the role of the great subsidizer of the Cuban economy that the USSR played during real existent socialist times. To be sure, country's commercial relations have become far more diversified than in the soviet period. Not only Venezuela, but also China and East Asian countries, and even Russia, are important partners. However, the weight of Venezuela's partnership plays a crucial role, and this element could become counterproductive in crisis situations, even if it now represents an important push for the Cuban economy.

Cuba has already experienced the risks involved in the excessive dependence on these kinds of preferential bilateral treaties and should therefore avoid them as much as possible. It is no problem to set preferential partnerships that take into account the specificities of the partners, but if we get into this, we should try at least to set long-term end dates. Cuba's oil debt is estimated at about \$US 2.5 billion, and the total debt jumped up 148% to \$US 15.4 billion in 2007 (Perez et al. 2008), without any guarantees of long-term economic growth.

However, much more important is the fact that these services do not provide any significant backward linkages with the domestic industry. On the other hand, it is true that the medical services could serve as a platform for the export of biotech products, medical equipments and the like. But this suggests a diversification of partners, and so far, no sign of such a market-diversification strategy can be seen.

## **Conclusions**

The crisis of the 90s imposed the need for a competitive upgrading of the industrial structure and a redesign of the development strategy in Cuba. The introduced institutional innovations helped the country to partially recover from the impact of the crisis and to increase its participation in the global market. They, however, are not enough to build a sustainable development strategy.

With the exception of the biotechnology industry, financial commitment has concentrated on natural-resources-based industries such as tourism and mining. Growth has mostly relied on low-tech, natural-resource- or service-based activities; which contain little international competitive manufacturing capabilities. The economy began to experience positive growth rates since 1994, but the stagnation of tourism industry and the permanent reduction of nickel international prices has imposed the need

to rethink the current development strategy. No linkages with value-added activities have been created. In addition, a worrisome structural change is the overall tertiarisation experienced by the Cuban economy over the last 20 years.

Opposing this trend, historic evidence shows that manufacturing has been, although not the only, but the most important path to prosperity for nations. The single most relevant aspect that has historically distinguished rich countries from poor ones is their manufacturing capabilities, where productivity is generally higher. For Cuban policy makers it should not become an obsession to increase competitiveness in natural resource based activities, such as traditional tourism and mining. A sustainable strategy must focus fundamentally on product diversification and innovation in dynamic-sector industries, and on the export of technology-intensive goods.

Among the general guidelines that emerged from the last congress held by the Cuban Communist Party, there are explicit proposals demanding a more focused innovation policy and a more aggressive industrial policy. Time will tell.

## References

- Amirahmadi, H. and W. Wu. (1995), Export Processing Zones in Asia, *Asian Survey* 35(9), 828-849
- Bateman M and Chang H-J (2012), Microfinance and the Illusion of Development: From Hubris to Nemesis in Thirty Years, *World Economic Review*, Vol 1, pp 13-36
- Brundenius, C. (2002), *Tourism as an Engine of Growth: Reflections on Cuba's New Development Strategy*. Working Paper 02.10. Copenhagen: Centre for Development Research
- Cárdenas A (2009), The Cuban Biotechnology Industry: Innovation and Universal Health Care, theAIRnet Working Paper # 2009-01. Available at <http://www.theairnet.org/V2/healthcare-technology.php> (last accessed December 6, 2012)
- Chang, H.J (2010), *23 Things they Don't Tell you about Capitalism*, London, Penguin.
- (2008) *Bad Samaritans: The Myth of Free Trade and Secret History of Capitalism*, New York: Bloomsbury.
- (2007). *State Owned Enterprise*, New York: United Nations DESA.
- (1999), The Developmental State, In: M. Woo-Cumings (ed.). *The developmental state*. Ithaca and London: Cornell University Press, p 182-199

- Chocarro, J (2003), *Las Corporaciones Cubanas*. La Habana: Oficina Económica y Comercial de la Embajada de España en La Habana, Instituto Español de Comercio Exterior
- Cimoli, M, G. Dosi and J.E. Stiglitz (eds) (2009), *The Political Economy of Capabilities Accumulation: The Past and Future of Policies for Industrial Development*. Oxford: Oxford University Press.
- Informe de Comercio Exterior Uruguay-Cuba,: Exportaciones e Importaciones , Uruguay XXI, 2009, available at [http://aplicaciones.uruguayxxi.gub.uy/innovaportal/file/523/1/uruguay\\_-\\_cuba.pdf](http://aplicaciones.uruguayxxi.gub.uy/innovaportal/file/523/1/uruguay_-_cuba.pdf) (last accessed December 6 2012)
- Dewhurst M et. al. (2009), *Motivating People: Getting beyond Money*, *McKinsey Quarterly*, November, available at [http://www.mckinsey-quarterly.com/Motivating\\_people\\_Getting\\_beyond\\_money\\_2460](http://www.mckinsey-quarterly.com/Motivating_people_Getting_beyond_money_2460), (last accessed December 6, 2012)
- Dominguez J et al. (2004), *The Cuban Economy at the Start of the Twenty-First Century*. Cambridge, Mass., London: Harvard University Press
- Economist Intelligence Unit (EIU) (2010 a), *Country Report Cuba August 2010: Outlook for 2010-11: External Sector*.
- (2010 b). *Cuba economy: Structure of exports shifts* Jul 08, 2010. New York, NY: Alacra Store. Retrieved Dec 06, 2012 from <<http://www.alacrastore.com>>
- (2007), *Cuba Country Report*, Economist 1<sup>st</sup>-4<sup>th</sup> Quarter, Available at <http://www.eiu.com> (last accessed 10 December 2007).
- Espino M (2008), *Internacional tourism in Cuba: An update*, Cuba in Transition, ASCE, available at <http://www.ascecuba.org/publications/proceedings/volume18/pdfs/espino.pdf> (last accessed December 6, 2012)
- Estudio económico de América Latina y el Caribe 2009-2010: Cuba, Report Economic commission for Latin America and the Caribbean (ECLAC), available at [http://www.one.cu/publicaciones/cepal/Estudio%202009\\_2010/Nota%20de%20Cuba.pdf](http://www.one.cu/publicaciones/cepal/Estudio%202009_2010/Nota%20de%20Cuba.pdf) (last accessed December 6, 2012)
- Evans, P, D. Rueschemeyer and T Skocpol (eds) (1999), *Bringing the State back in*. Cambridge: Cambridge University Press
- Everleny O (2009), *The Cuban Economy: A Current Evaluation and Proposals for Necessary Policy Changes*, Institute of Developing Economies – JETRO, Discussion paper 217, <http://www.ide.go.jp/English/Publish/Download/Dp/pdf/217.pdf>, last accessed at December 6, 2012
- Everleny O (ed.). 2006. *Reflexiones sobre economía cubana*. La Habana: Editorial ciencias sociales.
- Everleny O (2002), "Cuba: An Overview of Foreign Direct Investment."

- Carleton working papers. Carleton, Canada, 16-18. Available at <http://www1.carleton.ca/economics/ccms/wp-content/ccms-files/cep02-04.pdf> (last accessed December 6, 2012).
- Farley J (2009), *The Rejuvenating Power of Buena Vista Social Club*. Online-Publikationen des Arbeitskreis Studium Populärer Musik e.V. (ASPM)
- Feinsilver J. 2006. *Cuban Medical Diplomacy: When the Left has Got it Right*. Washington: Council of Hemispheric Affairs (COHA). Available at <http://www.coha.org/cuban-medical-diplomacy-when-the-left-has-got-it-right/> (last accessed December 6, 2012).
- Figueras, M.A, (2001), International Tourism and the Formation of Productive Clusters in the Cuban Economy, Paper prepared to the Latin American Studies Association (LASA) 22<sup>nd</sup> Congress, Washington, D.C., September 2001
- Hauknes, J. and K. Smith. (2003), *Corporate Governance and Innovation in Mobile Telecommunications: How Did the Nordic Area Become a World Leader?* STEP Report R-12. Maastricht, Oslo: Institute for New Technologies United Nations University.
- Jäntti, M. and J. Vartiainen (2009), "The Finnish Developmental State and its Growth Regime." UNU-WIDER Research Paper 2009/35.
- Kapur, D (2001), Diasporas and Technology Transfer, *Journal of Human Development* 2(2), pp 265-286
- Lopez E et al. (2006), Biotechnology in Cuba: 20 Years of Scientific, Social and Economic Progress." *Journal of Commercial Biotechnology* 13, 1-11, Available at <http://www.palgrave-journals.com/jcb/journal/v13/n1/full/3050038a.html> (last accessed December 6, 2012).
- Lucas, R. 2005. *International Migrations and Economic Development: Lessons from Low-Income Countries*. Stockholm: Ministry of Foreign Affairs Sweden
- Bermúdez-Lugo O (2004), Minerals Yearbook. 2004. *Minerals Yearbook, Vol. 3: Area Reports, International: Latin America and Canada*. Place: Geological Survey (USGS), 91-94.
- Molina E (2009) Cuba: Economic Restructuring, Recent Trends and Major Challenges, The IDEA Working Paper Series 02/2009.
- Monreal, P (2005), *The Problem of Development in Contemporary Cuba*, Journal of the Faculty of International Studies, Utsunomiya University 19, 59-71
- Nova A (2006), Redimensionamiento y diversificación de la industria azucarera, In Everleny O (ed.). *Reflexiones sobre economía cubana*. La Habana: Editorial ciencias sociales, 108-57.
- Oficina nacional de Estadísticas (ONE)(2010), Anuario estadístico de Cuba 2010, Havana, <http://www.one.cu/> (last accessed December 6, 2012)

- Palma, J. 2009. "Flying Geese and Waddling Ducks: The Different Capabilities of East Asia and Latin America to 'Demand-Adapt' and 'Supply-Upgrade' their Export Productive Capacity." In M. Cimoli, G. Dosi and J.E. Stiglitz (eds). *The Political Economy of Capabilities Accumulation: The Past and Future of Policies for Industrial Development*. Oxford: Oxford University Press, 203-238.
- Perez, O/ A Haddad/ F Klackle (2008), Cuba's New Export Commodity: A Framework, In (Font M, J Arias, J Slater) ,A Changing Cuba in a Changing World, New York: Bildner Center for Western Hemisphere Studies City University of New York, pp 327-344.
- Perez-Lopez, J. (2002) *The Cuban Economy in an Unending Special Period*. Miami: ASCE.
- Peters P (2003), *Cutting Losses: Cuba Downsize its Sugar Industry*, Arlington, Virginia, Lexington Institute
- Peters, P. 2001. *State Enterprise Reform in Cuba: An Early Snapshot*, Arlington, Virginia, Lexington Institute,
- Pu, C. 2005. "Ownership and Management Issues in Taiwanese Public Enterprises." *Asia Pacific Journal of Public Administration* 27(2), 163-180.
- Reinert, E. (2007), *How Rich Countries Got Rich...and why Poor Countries Stay Poor*, London: Constable.
- (1999), The Role of the State in Economic Growth, *Journal of Economic Studies* 26(4/5), 268-326.
- Rodrik D. (2006), What's so Special about China's Exports?, Paper prepared for the project on "China and the Global Economy 2010" of the China Economic Research and Advisory Programme, Harvard University.
- . (2004), Industrial Policy for the Twenty-First Century, Paper prepared for UNIDO, Harvard University.
- Romero C (2009), South-South Cooperation between Venezuela and Cuba, The Reality of Aid Network, pp 107-114 Available at [http://realityofaid.org/userfiles/roareports/roareport\\_e48ca78931.pdf](http://realityofaid.org/userfiles/roareports/roareport_e48ca78931.pdf) (last accessed December 6, 2012).
- Sánchez, J. and J. Triana. (2008), Un panorama actual de la economía cubana, las transformaciones en curso y sus retos perspectivas, Madrid, Instituto Real Instituto Elcano Documento de Trabajo 31, available at: [http://www.realinstitutoelcano.org/wps/portal/rielcano/Imprimir?WCM\\_GLOBAL\\_CONTEXT=/elcano/Elcano\\_es/Zonas\\_es/DT31-2008](http://www.realinstitutoelcano.org/wps/portal/rielcano/Imprimir?WCM_GLOBAL_CONTEXT=/elcano/Elcano_es/Zonas_es/DT31-2008) (last accessed December 6, 2012)
- Shaw A (1999), *A Guide to Performance Measurements and Non-Financial Indicator*. Place: The Foundation for Performance Measurement, Mattison Public Relations
- Travieso-Díaz, M. 2001. *Cuba's Perfeccionamiento Empresarial Law: A Step towards Privatization?* Miami: ASCE.

- Vidal P (2010), *Cuban Economic Policy under the Raúl Castro Government*, Place: Institute of Developing Economies of Japan's External Trade, available at [http://www.ide.go.jp/Japanese/Publish/Download/Report/2009/pdf/2009\\_408\\_ch2.pdf](http://www.ide.go.jp/Japanese/Publish/Download/Report/2009/pdf/2009_408_ch2.pdf) (last accessed December 6, 2012)
- Wade, R (2003) *Governing the Market*. Princeton: Princeton University Press.
- World Bank (2008) *The Growth Report: Strategies for Sustained Growth and Inclusive Development*, Commission on Growth and Development, Conference Edition, available at <http://www.ycsg.yale.edu/center/forms/growthReport.pdf> (last accessed December 6, 2012)
- Woo-Cumings, M. (ed.). 1999. *The Developmental State*. Ithaca and London: Cornell University Press.



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