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THE INTRA AND INTER INDUSTRY TRADE OF CUBA (2000-2014)

ABSTRACT

The aim of this study is to analyze Cuba's foreign trade with three main partners during the so-called Special Period, a result from the dissolution of the Soviet Union in 1991. With the absence of the Mutual Economic Assistance Council (MEAC), Cuba had to make structural changes in its economy and foreign trade. A center-periphery model of doing business between Cuba and its trade partners was implemented. Under this model, China became Cuba's main supplier of manufactured goods and Cuba supplied raw materials. Foreign trade in Cuba was limited due to the economic embargo from the United States. Nowadays, the relation between these two countries has become more of a trading collaboration. The United States has turned into one of Cuba's main food suppliers, while Cuba exports art pieces and antiquities to that country. Russia also became a main exporter of manufactured goods and machinery to Cuba, just as China. In return, Cuba is sending raw materials to both of those countries.

Key Words: foreign trade, intra-industrial trade, inter-industrial trade

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INTRODUCTION

The Cuban economy is highly dependent on foreign trade. It is scarce in energy resources and it has also been historically dependent on exportable goods with low or null economies of scale, and low elasticity-demand production (Quiñones-Chang and Rubiera-Morollón, 2008). This study intends to explain the evolution of trade in Cuba during the 2000s. The analysis includes the business relation of Cuba with its main trade partners: China, the United States, and Russia.

During 2001-2014, the Cuban economy experienced a moderate rate of accumulated variation of 4.07% on the Gross Domestic Product (GDP) at the fixed prices from 1997. During this thirteen-year period, the economy experienced two significant phases: Between 2001 and 2007, when the growth rate reached its highest level (6.32%); and the second one between 2008 and 2014 when the rate decreased to 2.39% (ONEI, 2009, 2014).

During the six-year period of 2001-2007 the economy reached significant growth compared to the complete decade of the 1990s, especially during the first five years (1990-1995) when the country entered a period of economic crisis as a result of the so-called Special Period in Time of Peace. It is noted that an important number of people and specialists in the field consider that this crisis is still prevailing (García-Fernández, López-Arévalo, and Sovilla, 2010). During the second half of the 1990s, the economy started to move towards more modest growth rates, determined by a set of factors. Among the most important factors are the exhaustion of the effects of the economic reforms implemented in the beginning of 1990s, the absence of new policies to boost productivity, and the regression effect of several reforms that were applied to farming and agricultural markets, and self-employment.

In the early 1990s, as a result of the Special Period, Cuba experienced an economic crisis derived from the dissolution of the former eastern socialist economies. The economic, financial and trading ties with those countries disappeared; they represented 85% of Cuba's foreign trade. Additionally, Cuba lacked an internal economic system to grow endogenously. These and other accumulated determinants shaped the island's foreign trade. In this context, the research questions addressed in this study are: What is the new structure of Cuba's foreign trade? Who are new trade partners and what type of participation do they have in the Cuban economy? What are the effects of the economic embargo imposed by the United States in Cuba's current economy? Has any "new" sector been created to boost the Cuban economy?

The study begins with a description of the Special Period and some of its determinants and consequences. It next presents the economic structure and international participation that had emerged in Cuba. The second part details the composition, allocated by the type of goods, of Cuban's foreign trade with its main partners. The role of the United States initially as an adversary of foreign trade with Cuba evolved to become one of the key business partners for the island. By contrast, the participation of Russia in the Cuban economy diminished. It was not until recent years that Russia started to retake its participation as a main business ally. Finally, the study concludes that Cuban's foreign trade is basically of an inter-industry type, since it is characterized by the international division of labor which assigns the function of exporting raw materials to peripheral economies, while central economies export manufactured goods with added value.

THEORETICAL PERSPECTIVE

Traditional theory of international trade has dominated economic thinking for a long time. With Ricardo's Comparative Advantage Concept, trade among countries benefits everyone. Each country specializes in the production of those goods that have lower costs, depending on, to a greater extent, the exchange of the productivity of its factors, rather than on the allocation of resources. In this Ricardian world, international trade always generates profits, because even in conditions of absolute disadvantage in all sectors (in two goods according to the model), the country will specialize, and provide a relative advantage to the one that has less absolute disadvantage.

The Ricardo Concept suffers its neoclassical reformulation in the model by Hecksher-Ohlin – Samuelson (Faccarello and Kurz, 2016), which based trade on a different scope of factors (basically capital and labor, although later models have broadened the factors to include skilled work, expenditure on research and development, and number of patents). Each country specializes in a product which relies intensively on its most abundant factor. Classical and neoclassical models were based on a series of restrictive assumptions of the concrete reality: perfect competition, constant returns to scale, national mobility of factors - a single factor for the classical case - and international immobility, identical preferences of consumers, free diffusion of technology, and mainly specializing in inherent elements given to an individual economy.

On the other hand, relative advantages based on international specialization, arise from the comparison of the sector structure of relative costs between countries, such as how international sectorial structures are compared. In contrast, the absolute advantage as a

result of absolute differences in the levels of cost -based on the concept from Adam Smith about specialization in international trade- relegated economic thinking until the end of the 1980s, comes from intra-industry comparison between countries.

The requirements of classical and neo-classical models and the assumptions on which those analyses are based, have shown the inability of these to explain convincingly and successfully the reality of recent years, especially the growth of intra-industry trade. From the theoretical point of view, the problem of the intra-industry trade was first addressed during the decade of the 1960s with the studies of Verdoorn (1960); Balassa (1963) and Grubel (1967). These authors found that an increasing proportion of trade occurred in the same industries and in the same sectors. This new form of international trade led to the current concept of economics called *intra-industry trade*. Other authors such as Krugman (1995) or Grossman and Helpman (1990) analyzed the intra-industry trade and found notable developments based on new theories of international trade. The modern theory of trade provides a series of explanatory elements that focus on imperfect competition, economies of scale, and different varieties of products. Intra-industry trade emerges because of increased revenues, differentiation of products, and consumer preferences. First, scale economies promote the concentration of production in response to the great demand of a small number of production centers. Second, each company can differentiate their products before rival companies in order to segment the demand and maintain a degree of monopoly on its own variety. Third, the existence of a mass of consumers with different preferences on a variety of products is essential for the intra-industry trade. These three elements tend to be more visible in developed economies, which explains why some areas of integration, such as the European Union, have done so well in those exchanges (López-Arévalo, Rodil, and Valdez, 2014).

In Dosi, Pavitt, and Soete (1990), the key contributions of the Neo-Schumpeterian economic theory of technical change were applied to international trade as synthesis and development of the economic thinking in that area. These authors, from an unorthodox approach, have developed the concept of structural competitiveness based on absolute advantages. Technological gaps between countries, derived from an unbalanced distribution of scientific and technological capabilities, thereby generate significant differences in the productivity of factors resulting in absolute advantages of trade. This situation leads to a trade specialization based on an absolute advantage of the country. They do not have to turn into relative cost, since their competitors may not be capable of imitating the potential production, due to the available technology (Alonso, 1992). Posner (1961) pointed out this

asymmetry or incapability of free dissemination of technology as a "technological gap," which draws a group of countries to specialize in lower technological content products and, as a result, have less elasticity on income.

This relationship leads to limiting "the future ability for country growth, and questions if it is important to study the comparative advantages from a cross-sectorial analysis of the country, or to analyze the ability to compete internationally in various industries" (Carrera-Troyano, 1990: 114-115). The empirical study of Dosi et al. (1990) found "the predominance of technological advantages on factors concerning wage cost, in the formation of international competitiveness: in a number of industries, the international composition of trade (within each industry) is explained by specific patterns of gaps/leadership technology sector and, in particular, by several degrees of innovation" (Dosi et al., 1990: 160).

Under these circumstances, the absolute advantages and disadvantages play a dominant role, as determinants on sector competitiveness of countries and their participation in global markets. Thus, competitiveness, understood as the practice of absolute advantages in that context, conditions the framework in which the mechanisms on price and cost adjustment operate through its competitive advantage. It is observed that sectors at technological level in the core of the country are of less significance in comparison with those in the intra-industry trade between countries. So, the adjustments related to comparative advantages and relative profitability in sectors have a narrower framework of action.

In conditions of accelerated technological change, as the one Cuba experienced from the 1990s until now, the adjustment mechanism of absolute advantage/disadvantage produces change in the competitiveness of the country; in real income and international participation, regardless any comparative advantage. So, through variations in international participation –by modifying the sectorial participation of each country in the market- the absolute advantage is manifested through the efficiency levels in the allocation of resources and the development of technological capabilities, conditioning the framework of mechanisms of adjustment via prices and costs (Dosi, et al., 1990; Granda and Fonfría, 2009).

Unlike the neoclassical conception, which historically insisted on steady advantages as a source for international trade, this structural perspective focuses on the importance of competitive advantages of a country that socially constructed their decisive role in the creation of a model for competitive participation in the global economy.

The Cuban case is not typical since it is the only Latin American economy that is standardized. Given the 1989 crisis, with the collapse of the socialist's bloc, Cuba had to make institutional changes of great spread in 1992 and 1996. North (1993) defines institutions as the rules of the game of a society and defines the institutional change as the mode where societies evolve in the long term. North (1993) establishes a relationship between the role of institutions and economic performance.

Institutional changes in Cuba were instrumented to avoid the collapse of the economy since it was highly dependent on the Union of Soviet Socialist Republics (USSR). The major changes were: (1) Constitutional reforms to reorganize the State, (2) economic opening to global markets, (3) easing internal market, and (4) survival strategy and a macroeconomic adjustment policy.

Institutional makeover in Cuba played an important role in the international reintegration and the new division of labor, requiring new rules of the game.

The economic crisis: The special period

The economic growth during 2001 and 2014 was preceded by a decade of economic crisis and major structural and institutional changes which severely impacted the Cuban economy and society. This time is known as the Special Period, which has been studied from different perspectives for many years by Cubans and foreign scholars (García-Fernández et al., 2010; Marquetti, 2004; Mesa-Lago, 2009a). Most of the economists agree that the crisis was due to multiple causes; therefore, overcoming this situation required structural and institutional reforms.

The crisis was associated to a set of internal and external factors. For instance, external conditions such as the termination of commercial, financial and technological ties that Cuba had with the Soviet Union and the rest of socialist countries. This represented a loss of 85% of the country's foreign trade, causing a severe impact on the country's economy. It lost more than one third of its GDP.

From a perspective of internal conditions, since 1985 the Cuban economy had shown signs of stagnation. The accumulated average annual growth index between 1985 and 1989 was 0.2% (CEE, 1989). Therefore, the crisis was preceded by an irregular slippage (1985-1989) that became a strong downfall starting in 1990 when the conditions to access international markets radically changed and all kind of external financing ceased. Additionally, a galloping inflation depreciated the Cuban currency by 300% and minimized the purchasing power that even today is still in recovery. All these resulted in a budget deficit

of more than 30% of the GDP and an external sector with 75% less in its foreign trade compared to the previous decade (García-Fernández et al., 2010; Mesa-Lago, 2009a).

The process of the crisis showed the extenuation of internal mechanisms in the economic organization, which evidenced the null capability for non-commercial incentives (socialists) to boost economic growth. According to Sovilla and García-Fernández (2013), in the mid-1980s there was a process of re-centralization on decision-making that denied the administration methods and economic planning and the implementation of a Process for Error-Correction and Negative Tendencies (PRETN).

According to the official speech, the rise of several economic problems in early 1980s threatened the construction of socialism. One of the solutions was the termination of economic methods to stimulate work –the closure of the incipient free agricultural market, the penalization to the "macetas" (a new class of businessmen that abiding to the law or not, accumulated cash flow and goods in private ventures), the elimination of the limited economic independence for business organizations, and the disappearance of autonomy in the foreign trade. Hence, the PRETN created a "correction on the road" towards the construction of socialism and the advancement by a set of methods merely socialists that pursue economic efficiency without renouncing the social and political principles (Sovilla and García-Fernández, 2013).

The Special Period is also associated to an interesting phase of experimentation on institutional regulation. After the first years of institutional immobilization (1990-1992), the Cuban government was forced to make significant changes on the state's intervention and in public institutions in order to activate the economy and recover it from this critical condition. The most important actions were the opening for foreign investment, the re-introduction of free agricultural markets, the free flow of the US dollar, the opening of the industry-products market, de-centralization of foreign trade and opening of free economic zones. The Basic Units of Cooperative Production (UBPC) were created to solve farm inefficiency, and their purpose was to receive non-productive lands of free usage for an unlimited time. An Enterprise Perfecting System (SPRE) was introduced in a progressively manner for managing state owned companies. This new system was the management experience implemented in the 1980s for the military companies owned by the state. The system was renowned by its success on labor productivity and the quality on results (Mesa-Lago, 2008, 2009a; Sovilla and García-Fernández, 2013).

With this crisis, there was a loss on the state's economic capability, due to the suppression of the Soviet subsidy and, thereafter diminishing all kind of economic activity.

This forced the opening of spaces for the private sector, legalizing activities such as the sale of homemade food ("paladares"), the sale of food and beverages, handcraft products, and the small shops operation. This authorization for business activity was only allowed in marginal areas, not in strategic sectors. The main objective was to mitigate the economic and social crisis by providing complementary employment aside with the government.

By the end of the decade during the 1990s, Cuba grew to an annual rate of -1.4%, the lowest in Latin America (CEPAL, 2002). Nevertheless, between 1995 and 2000, the economy experienced acceptable growth rates (more than 7% of the average annual growth), which were considered positive impacts from the economic policy implemented during 1993-1994. These policies allowed the recovery of some import capacity that was lost; they reactivated a segment of the productive structure that was paralyzed from the beginning of the period, and the increase in the consumption and demand from family remittances, from the extension of independent work and the effects of tourism (García-Fernández et al., 2010).

ECONOMIC STRUCTURE AND INTERNATIONAL PARTICIPATION

Cuba has a similar economic structure of developed countries due to its heavy dependence on services, which contribute to more than 76% of the total value of the GDP. In contrast, agriculture, forestry and fishing sectors have diminished their participation to less than 4%. Similarly, the manufacturing industry has decreased its contribution to the GDP (Cuba reduced GDP in tradable sectors and depended on non-tradable ones). The last data available in 2014 showed that industrial manufacturing represented 14.4% of the GDP (ONEI, 2008, 2014).

The relative reduction of these sectors in GDP is the result of limited growth rates in the early 1990s, which have not been recovered despite some growth rates in some occasions. The sugar industry, a leading industry in the Cuban economy until 1993 for its contribution to the GDP and the exports of the country, has been reduced to 0.7% (ONEI, 2014). This last figure was the result of the lack of capability to recover from the situation prior to the crisis and to government actions to close the sugar mills (46% of the total sugar mills). Nova (2007) considers that the crisis in the sugar production was due to a drastic reduction in the availability of resources to satisfy the basic needs of the industry, a result of the lack of incentives for producers, particularly in the agricultural sector, and the inattention of this sector as one of the main priorities during the 1990s.

The political change began in 1959 and represented a radical change in the forms of property and organization in the economy. In addition, the ways of distribution and appropriation production results did not produce a similar change in the economic structure of the country. The structural transformations performed just after the victory of the Cuban Revolution, promoting the opening of new areas such as the electrification of the entire country, the mechanization of agriculture, and the development of a vast social sector, which brought up the need to substantially increase the import capacity of the country. In this way, the demand to import energy resources, raw materials, and capital goods increased significantly. Nevertheless, Cuba continued its dependence on the production and exportation of raw materials for the next three decades, in particular sugar cane and other agricultural products.

By 1960, Cuba found itself practically isolated both commercially and financially from the western hemisphere, except from Mexico and Canada. This resulted in a progressive integration of Cuba into the economies of the member countries of the Council for Mutual Economic Assistance (CMEA). In 1972 Cuba became a full member of the organization. This integration resulted in a model of international participation where the country assumed the same economic functions it once had before the old-world market integration, especially with the United States during 1959-1960; supplying raw materials, mainly sugar cane and other agricultural products.

The dissolution of CMEA and the socialist experiments in Eastern Europe and the Soviet Union led Cuba to lose its main markets: energy supplies, raw materials, financing and technology, as well as the destination of exported products, forcing the country to recompose its productive structure, and modify its international participation, as did not happen during the 1960s.

In 1994, Cuba experienced a transformation of the productive structure in a spontaneous process of capital loss derived by the economic crisis and the lack of funding to import finished and intermediate goods. Another cause was the deliberate intention of the government to promote a services sector totally disconnected from the international market.

In accordance to the fist premise, the absolute reduction on the financial resources, especially in foreign currency, and the decreasing of revenue in exportation, forced the government to direct its limited resources towards meeting primary needs in the country to survive: importing food and other supplies. The Gross Fixed Capital Formation (GFCF) was one of the most affected indicators and one of the vulnerabilities in the short and long

terms. Between 1990 and 1995 the GFCF was reduced by 75% (CEPAL, 2002), decreasing the rate of the GFCF to 5.2% of that year's GDP (in 1989 this indicator was 26.3%). Starting in 1995, with the recovery of the economy, the GFCF started to slowly increase, but even in 2000, the GFCF represented 11.7% of the GDP, according to the Cuban Statistics Almanac of that year, which was an encouraging achievement. However, it still came short compared to the needs of the country and other successful international experiences (ONEI, 2000). In 2002 and 2003, the level of GFCF shrunk again – 10.6% and 9.2%, respectively (ONEI, 2008), thus representing 39% of the gross capital in the year 1990 (ONEI, 2006). From 2004, as the economy began to recover, there was a moderate increase in the investment rate reaching its highest level by 2006; which went down again in 2007 (ONEI, 2008). However, the effects of the world crisis in the second term of 2008, and the price depreciation of nickel, terminated most projects in tourism, energy, modernization of nickel plants, and social programs. In 2014, the GFCF was 12.9%, a little less than its last three years, but above average during the 1990s (1993-2000), when the rate declined to 8% (ONEI, 2001, 2014).

The other aspects mentioned earlier (a deliberated intention for international participation), were the result of some specific policy actions implemented at the end of the 1980s, before the Special Period. These actions were reinforced at the beginning of 1990s and later. These long-term measures, intended to boost the generation of foreign currency from the development of highly scientific and technological sectors (bio pharmaceutics and pharmaceutics), and tourism (Pérez-Villanueva, 2007).

Since 1959, the Cuban economy showed an in-deficit trade balance, except in some years when the surplus was reached. Before 1990, trade deficit was solved with funding (subsidies and deferred debt) that the country was receiving from its ties with the former Soviet Union. Between 1995 and 2000, exports decreased on an annual average rate of 2.1% and a reduction on the GDP was from 26% to 7% (Marquetti, 2004). This led to a neglect of the external sector in the economic performance of the country and to increase the role of internal demand in the GDP.

In the composition of the external sector, we can observe a decrease in exports of goods and an increase in exporting services. From 1994, a permanent increase rate in service exports has occurred. Between 1994 and 2012, there was an annual average growth rate of 20.79%, in current prices; quite superior compared to the average growth rate of the total of exports (9.42%). Between 2009 and 2014, the total exports grew in an annual accumulative average variation of 3.5%. In the last period, exports of services represented

59% and 78% of the total exports. At the beginning of 1990s exports represented a little more than 10% (ONEI, 2001, 2005, 2011, 2012). However, it is important to state that these figures are not exact due to the problems with Cuban statistical methodology. Previous methodology used by the Cuban government accounted for many services in an "other products" category. However, by 2009, the Statistical Yearbook shows the distinction between products and services (Mesa-Lago, 2009b; Pérez-López and Mesa-Lago, 2009).

In the conformation of exports of goods, sugar exports had decreased, whereas nickel weight increased, as the international prices of nickel also did during 2000 and 2007. The external sales of new products, from the biotechnological industry and the pharmaceutical industry in particular, increased as well.

In the case of sugar cane, Cuba has significantly diminished its exports in international markets, as well the sugar weight on the total exports. This caused an unprecedented reduction on national production, from 8 million tons in 1989, to close to 1.5 million in 2013 (83% difference). In 2014, sugar exports represented 8.5% of the total exports (ONEI, 2014), whereas in 1989 it was 82% (García-Fernández and Domínguez-Jardines, 1995).

Exports of nickel increased substantially in early 1990s until 2007. In 1990, the nickel represented 6.5%. By 2000, it was 34% and in 2007 it reached 58% as a result of the rise in international prices (ONEI, 2001, 2006). However, in 2008 due to the price depreciation, nickel exports have been reduced in terms of total exports of goods to 16.3% (ONEI, 2014).

The biotechnology and pharmaceutical industries in the category of chemical products have increased in a relative and absolute way in relation to total exports. In 2005, they represented 4.2% compared to 2% in 2004 (ONEI, 2006). From 2002 to 2005 (as the exports fell in 2003 and 2004), exports increased by 40% (ONEI, 2006). From 2006, exports of services became the second of the total of exports (12% total), leaving behind the nickel and displacing sugar cane to the third place (CEPAL, 2007).

In services exports, CEPAL (2007) provided official data of exportation of goods and services in the 2005 and 2006 reports. This information was provided by the Cuban government by a new methodology to quantify services that are free of charge in the country. Most exports in services belong to the medical, sports and education areas which are offered to Venezuela in exchange of 97,000 barrels of oil and derivatives, on a daily basis (65% of its total demand). However, it is important to state that there is no official information about how much these services exported to Venezuela represent within the overall volume of Cuban exports. By 2006, CEPAL (2007) estimated the amount of exports of services, which has allowed to compensate for the dynamism of the imports of goods and the deficit in the

trade balance.

A significant change from the 1990s crisis (the Special Period), was the geographical reorientation of Cuba's foreign trade. In 1989, Eastern Europe and in particular the Soviet Union dominated 85% of the Cuban foreign trade. By 1993, Russia had lost this position as business partner, and it even disappeared from the main destinations for Cuban exports and imports (ONEI, 2005, 2006).

A highly relevant factor in Cuban economy during the last 55 years has been the economic embargo (also called trade embargo) by the United States. This event naturally affected trade between the two countries. By 2001, trade was almost non-existent, only with few exceptions and licenses from the Department of Commerce and the Department of Agriculture to export food to Cuba. With the Trade Sanctions Reform and Export Enhancement Act of 2000 (TSRA) Program, signed by President Clinton, Title IX of Public Law 106 387 (October 28, 2000), the export of food to Cuba was authorized under strict conditions. Before the signing of this document, in 1998, farmers from the state of Iowa in the United States shipped a container of cereal to Cuba, as a sign of good will, initiating the process that led President Clinton to sign the Act in 2000 (D. Mason, personal communication, November 23, 2015).

In the following parts of this study, there is an analysis of the composition of the foreign trade of Cuba with its main trade partners since 2000, in order to determine the type of trade that the country maintains: inter-industrial or intra-industrial trade.

THE FOREIGN TRADE OF CUBA: 2000-2014

From an empirical point of view, we will show to what extent an improvement in business flow took place, in terms of both intra-industrial and inter-industrial trade, among some key countries and Cuba during 2000-2014.

It is important to analyze the performance of the Cuban economy under an external shock, given the dependency of the country from the Soviet market, as it has been previously stated. Most of the studies that have been conducted about Cuba did not consider what happened to the inter-industrial and intra-industrial trade and which adjustments were undertaken during the Special Period. However, the peculiarity of this analysis is that it involves the trade of a country that keeps considering itself as socialist, but that has been forced to conduct changes recomposing its trade partners, in favor of foreign investment and the development of the tourism industry.

The particularity of the Cuban trade is that it corresponds to a small economy in which foreign trade is highly important; this is because of its food deficit and low production of manufactured goods. In 1988, before the fall of the Soviet Union, Cuba depended heavily of the Eastern economies and had a scarce commercial relation with countries outside this bloc. However, by 2000, Spain and Canada displaced Russia to third place in trade relations with China, and in 2014 Russia no longer appeared on the top ten trade partners of the island, as shown in Table 1.

Table 1. Main trade partners of Cuba (millions of USD, exports plus imports)

Country	2000	Country	2014
Spain	700.4	China	1392.6
Canada	495.9	Spain	1070.6
Russia	385.1	Canada	913.9
China	313.9	Brazil	568.8
France	287.2	Mexico	373.9
Italy	274.3	Italy	333.8
Mexico	239.0	Germany	314.9
Brazil	115.3	Netherlands	301.3
Germany	112.3	United States	299.1
Netherlands	96.3	Argentina	290.2

Note: Own elaboration based on UNCOMTRADE.

In 2014, China became the main trade partner of Cuba. In that year, the United States was among the island's main trade partners, despite the existence of an economic embargo. This is practically a one-way trade flow. In 2013, Venezuela was ranked the ninth trade partner according to data from UNCOMTRADE. In 2014, there were no transactions registered, however most of Cuba's are services, which are not accounted by UNCOMTRADE. In terms of imports, Cuba acquired oil mostly from Venezuela, under signed agreements between the two governments and secured stability in the supply and pricing. The importance of Venezuela is evidently higher than the recorded data from UNCOMTRADE, because they do not record services.

Cuban foreign trade is characterized as being a center-periphery trade, between a country from the south with the one in the center; and the one from the south with other southern countries. In recent years China has become the center for manufacture exports with Cuba as a periphery entity supplying some raw materials. It is important to analyze Cuba's participation with other countries of the center of the global economy, specifically with the United States. Considering that the economic embargo has constrained the progress on trade, it has opened cracks, because Cuba can import limited products from the

United States but cannot export and the United States has become the main supplier for food to the island.

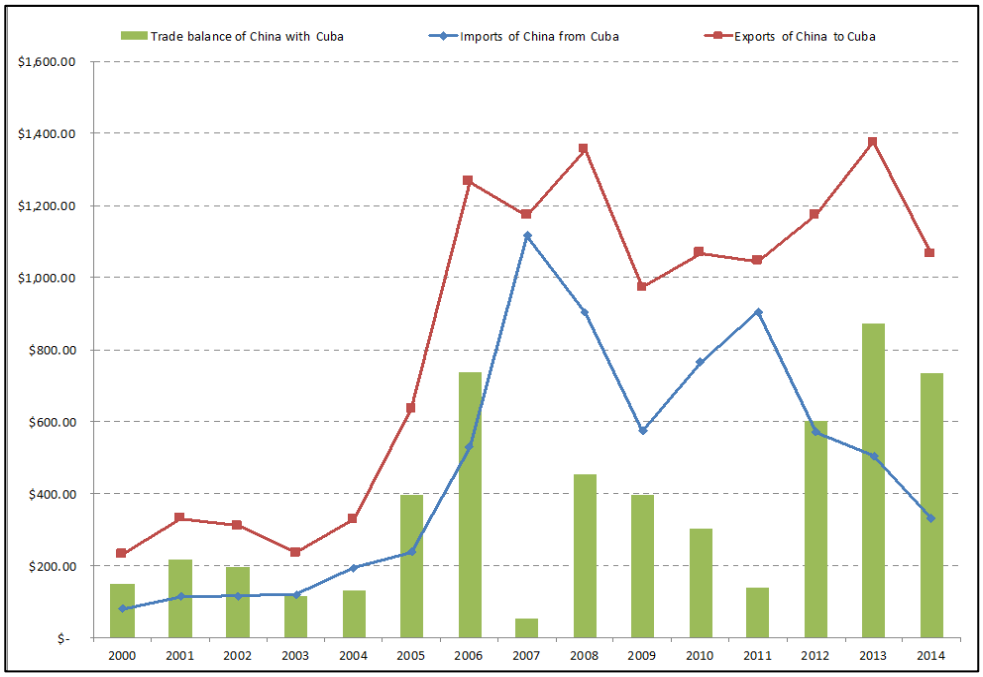
The intra-industrial trade of Cuba with selected trade partners

In this section, we are interested in providing an understanding of the Cuban trade with China, Russia and the United States, two of its main geopolitical allies and the latter as its main rival.

Trade between China and Cuba

It is important to describe China's foreign trade trends with Cuba, which from a rhetorical standpoint, has become a strong geopolitical ally in just few years. The balance of trade is not favorable to Cuba, and imports from China are crucial in many of the economic sectors (see Figure 1).

Figure 1. Trade of China with Cuba, 2000-2014 (millions of USD)



Note: Own elaboration based on UNCOMTRADE.

Cuba had a structural deficit in trade with China, from 2000 to 2014 (see Table 2). It is possible to observe the strength of the Cuban exports to China with sugar and nickel; both combined representing 95% of the total exports in 2014. Cuba basically exports sugar and minerals to China.

The Cuban imports from China are less concentrated and diversified, as the main five products imported in 2000 were equivalent to 32%, whereas in 2014 these represented 48%. However, the five main imports are manufactured products. This is, the Cuban trade with China recreates the historic international division of labor known as center-periphery –the center exporting manufactured goods and the periphery exporting primary products.

Table 2. Main exports and imports of Cuba and China (% in terms of value)

Products	Exports to China		Imports from China	
	2000	2014	2000	2014
Sugar and comfitures	77	64	-	-
Nickel and its manufacture	21	31	-	-
Copper and its manufacture	0	2	-	-
Metallic minerals, scrap and ashes	0	1	-	-
Other metals and their manufacture	1	1	-	-
Machinery and mechanical devices	-	-	11	15
Electric materials and devices	-	-	11	13
Tractors and vehicles	-	-	2	8
Rubber and its manufacture	-	-	3	7
Iron and steel	-	-	5	5

Note: Own elaboration based on UNCOMTRADE.

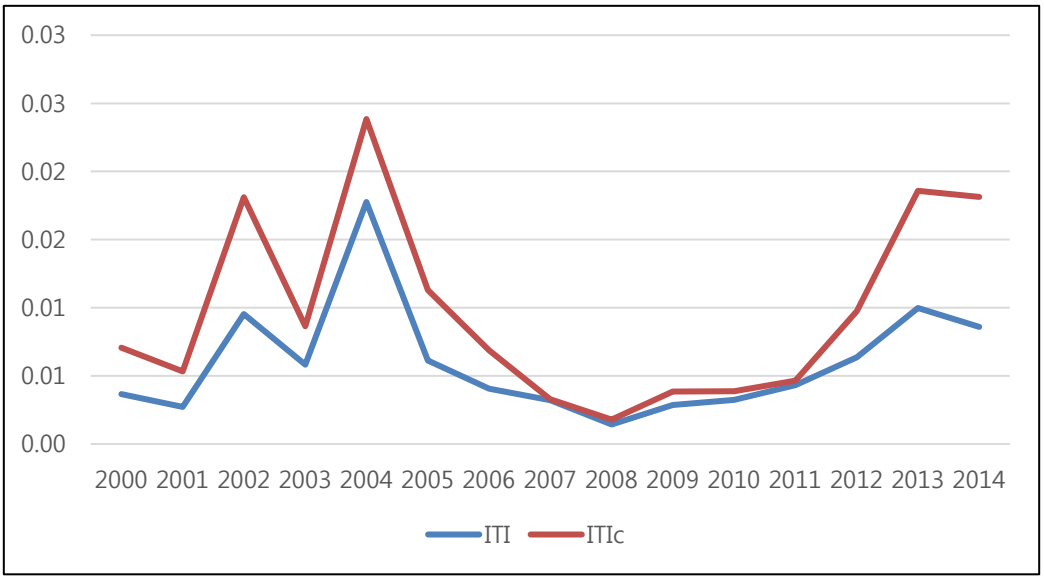
Intra-industrial trade of China with Cuba

From a theoretical perspective, the problem of intra-industrial trade started during the 1960s with the studies of Balassa (1963) and Verdoorn (1960) among others. Both authors referenced that in those years the main and most ambitious process of economic integration was the Economic European Community created by the Treaty of Rome in 1957. These authors claimed, using empiric evidence that a growing part of the trade flows between the countries in the integration processes responded to a specialization pattern, different from the traditional inter-industrial type. A growing part of the international commercial trade took place within the same industries and sectors. This new form of international trade gave birth to the concept of intra-industrial trade (López-Arévalo and Rodil, 2008, 2015).

The Chinese trade with Cuba, is merely a pure inter-industrial trade type that responds to the logic of the old international division of labor. This is the main reason why the intra-industrial Trade Index (ITI) and the corrected Intra-Industrial Trade Index (ITIc) are different in hundreds.

From a methodological view, several indicators were designed to measure the degree of intra-industry trade in different economies, in which the Grubel and Lloyd (IGL) index is the most known. This index is built on the basis of bilateral trade flows between countries. These flows can be divided into two groups: one referring to the inter-industry trade (net trade flow), and other intra-industry flow concerning the rest of trade flows (bilateral flow). The IGL index ranges from 0 to 1, depending on the absence (IGL=0) or total occurrence (IGL=1) of intra-industry trade. Frequently, an alternative adjusted expression of IGL index is used at the aggregate level to avoid the unbalancing effect of the trade balance (López-Arévalo et al., 2014). Figure 2 reveals that the intra-industrial trade is almost non-existent, showing that it is an inter-industrial trade type.

Figure 2. Intra-industrial trade index (normal and corrected) of China with Cuba.



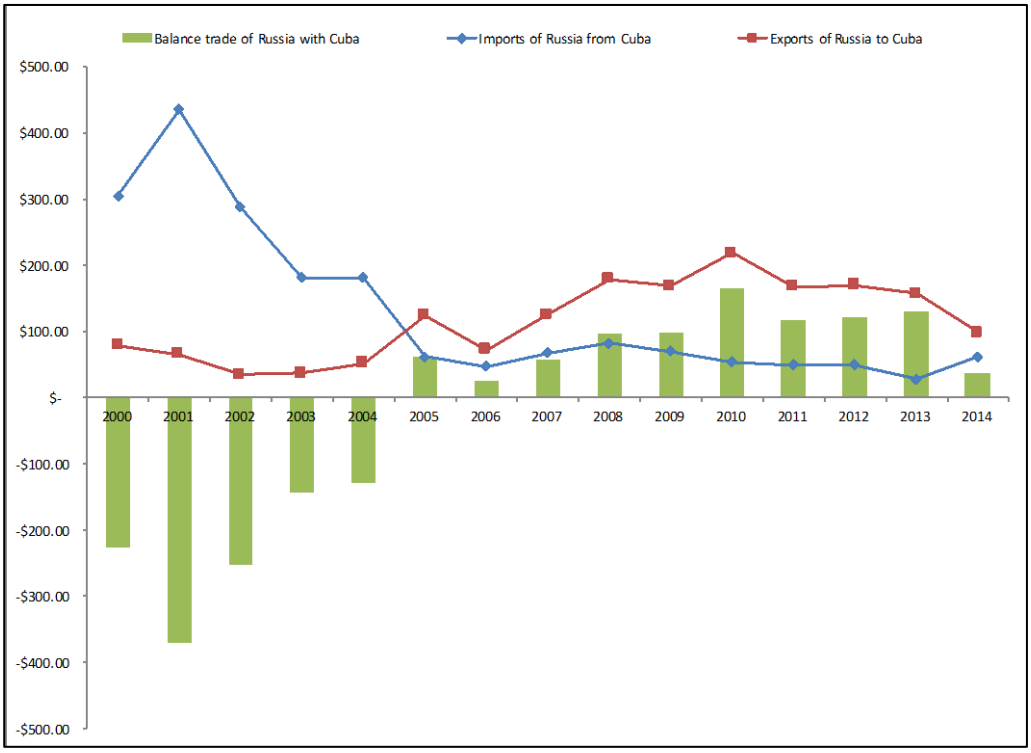
Source: Own elaboration based on UNCOMTRADE.
Note: The formula of the aggregate Index of Grubel and Lloyd (IGL) is: $IGL = 1 - [\sum|xi-mi|/\sum(x_i+m_i)]$, where x_i and m_i are the value of exports and imports of sector i respectively. The corrected version of the aggregate Index of Grubel and Lloyd is expressed: $IGL_{corrected} = [\sum(x_i+m_i) - \sum|x_i-m_i|] / [\sum(x_i+m_i) - |\sum x_i-\sum m_i|]$, where x_i and m_i are the value of exports and imports of sector i, respectively (López-Arévalo et al., 2014).

Trade between Russia with Cuba

Russia was an ally and supporter of the Cuban Revolution from 1960 until 1989. It is necessary to describe the trends of foreign trade of Russia with Cuba since from a rhetorical point of view it keeps identifying itself as a geopolitical ally of Russia.

The imports of Russia coming from Cuba decreased from 2001 to 2005, and they stabilized below US$ 85 million during 2005 to 2014. This indicated that Cuba was no longer an important supplier for Russia. However, the exports of Russia have been growing in an erratic trend, but by 2005 Russia started showing a trade surplus with the island (see Figure 3).

Figure 3. Trade of Russia with Cuba, 2000-2014 (millions of USD)



Source: Own elaboration based on UNCOMTRADE.

The Cuban imports from Russia are crucial in most of its sectors and economic areas; given that Cuba's weak industrial plant depended on the Soviet technology. Cuba used to supply tropical products to former Soviet Union. In general terms, although diminishing in

terms of flows, the trade pattern is still maintained by both countries (see Table 3). It is possible to observe that the weight of Russia's imports from Cuba was merely sugar, at least in 2000 and 2014, the five first categories (see Table 3) represented 98.9% of Russian imports from Cuba. These were raw materials, and especially sugar.

Table 3. Main exports and imports of Cuba and Russia (% in terms of value)

Products	Exports to Russia		Imports from Russia	
	2000	2014	2000	2014
Sugar and comfitures	99	82	-	-
Tobacco and derivatives	0	9	-	-
Vinegar and alcoholic beverages	0	6	-	-
Pharmaceutical products	0	1	-	-
Organic chemical products	0	1	-	-
Machinery and mechanical devices	-	-	21	22
Tractors and vehicles	-	-	13	12
Planes and its components	-	-	1	11
Fertilizers	-	-	1	10
Electric materials and devices	-	-	10	10

Source: Own elaboration based on UNCOMTRADE.

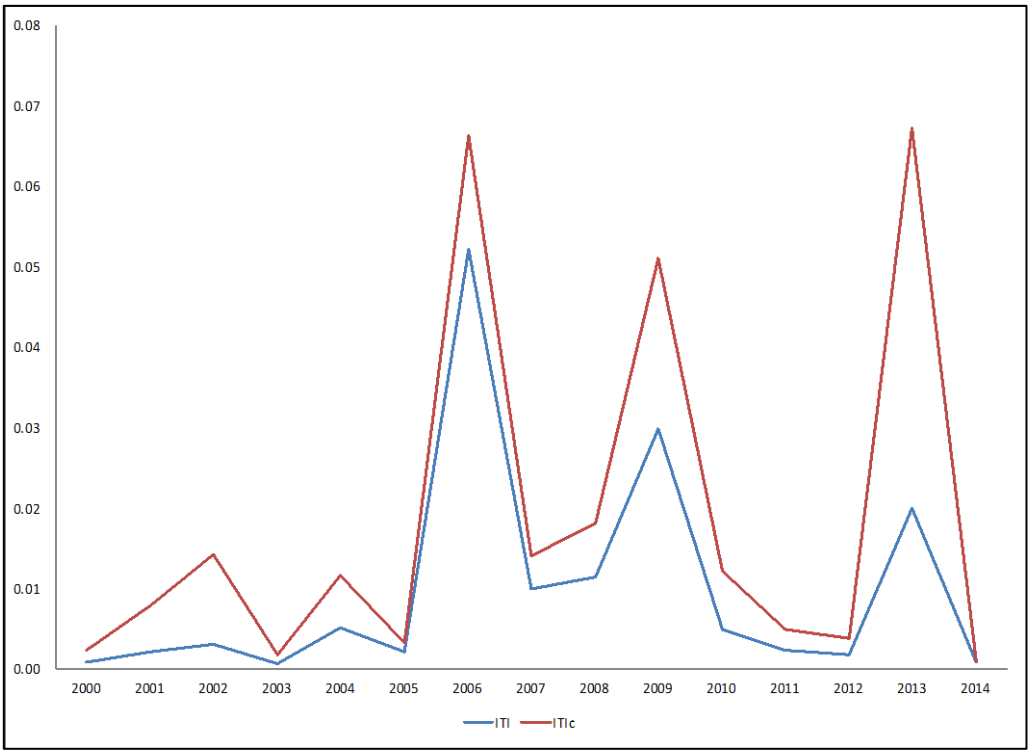
In relation to the Cuban imports from Russia it is possible to observe that manufactured products have a higher level of diversification and less concentration (see Table 3). However, they respond to the logic of technological dependence that Cuba had from the former Soviet Union and now from Russia. This is a center-periphery type trade, same as the one it maintains with China.

Intra-industrial trade of Russia with Cuba

Regarding the Russian trade with Cuba, a similar case to that of China can be seen. It is about a pure inter-industrial trade, which responds to the logic of historic international division of work. It is an inter-industrial trade of center-periphery type between countries from the South. This is the reason the difference between the Intra-Industrial Trade Index (ITI) and the corrected Intra-Industrial Trade Index (ITIc) is negligible.

Figure 4 shows how the intra-industrial trade with Russia is nearly non-existent, as it is about an inter-industrial trade type. That is to say, the same story repeats itself as that with China, but worse as Cuban exports are basically sugar and the imports are manufactured products.

Figure 4. Intra-industrial trade index (normal and corrected) of Russia with Cuba



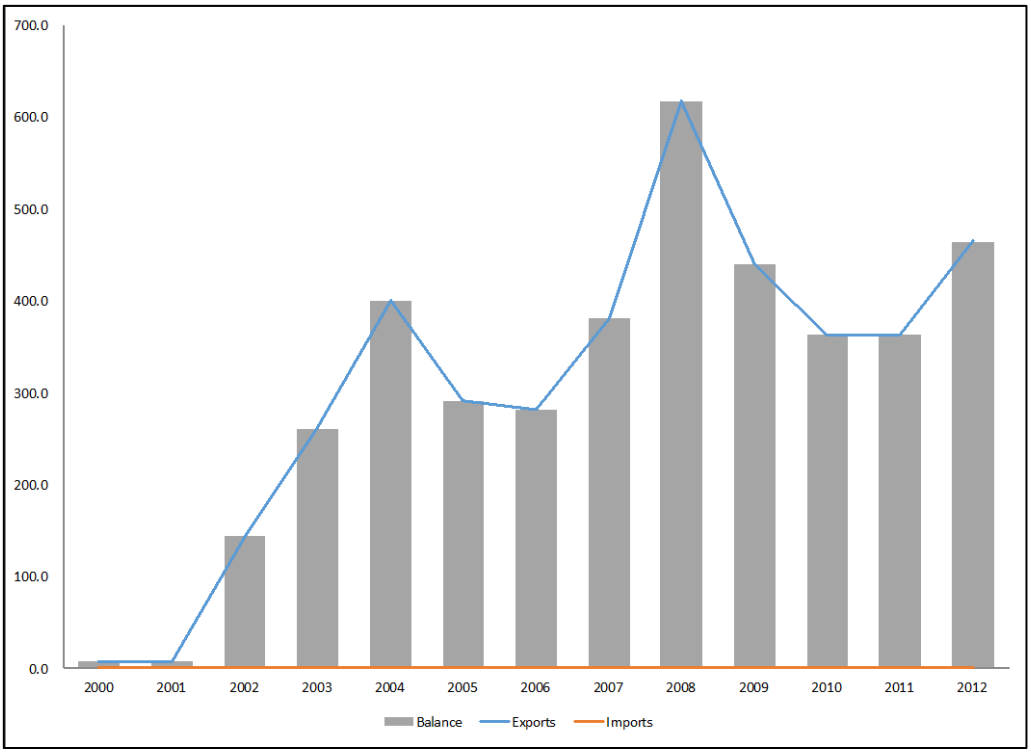
Source: Own elaboration based on UNCOMTRADE

Note: The formula of the aggregate Index of Grubel and Lloyd (IGL) is: $IGL = 1 - [\sum|x_i-m_i|/\sum(x_i+m_i)]$, where x_i and m_i are the value of exports and imports of sector i respectively. The corrected version of the aggregate Index of Grubel and Lloyd is expressed: $IGL_{corrected} = [\sum(x_i+m_i) - \sum|x_i-m_i|] / [\sum(x_i+m_i) - |\sum x_i-\sum m_i|]$, where xi and mi are the value of exports and imports of sector i, respectively (López-Arévalo et al., 2014).

Trade between the United States and Cuba

The United States trade with Cuba was broken due to the economic embargo established in 1960 and then Cuba heavily depended on the Soviet bloc. After the dissolution of the former Soviet Union, a good part of the trade relations with this old ally was suspended. But in 2002, Russian exports were reactivated (see Table 1). Furthermore, the United States was, at this point in time, a one-way export partner (see Figure 5). It can be observed that the trade with the United States was basically one-way trade until 2012. This has to do with the embargo. That is why the trade balance is almost identical to the one on exports.

Figure 5. Trade of the United States with Cuba, 2000-2012 (millions of USD)



Source: Own elaboration based on UNCOMTRADE.

In relation to Cuba exports to the United States, these are of low value and, in its higher point in 2010, they nearly reached US$ 350,000 and almost 100% were on art pieces and antiquities, which are the only type that can be traded under the embargo, surely this served the American collectors. In relation to the United States exports to Cuba, despite the economic embargo, the United States has become the main food supplier of Cuba. In 2014, meat and derivatives are the main products being exported and they represent 50% of the total exports to the island. The second place is of residuals and waste from food industries; prepared food to feed animals, representing one fourth of the total. Between these two categories they included nearly three quarters of the total US trade with Cuba. In importance, it follows seeds and oleaginous fruit, and cereal at nearly 10% each (see Table 4).

Table 4. Main exports and imports of Cuba and the United States (% in terms of value)

Products	Exports to U.S.A.		Imports from U.S.A.	
	2000	2014	2000	2014
Art pieces and antiquities	82	100	-	-
Non-classified products	12	0	-	-
Books	6	0	-	-
Meat and consumable waste	-	-	0	50
Scrap and waste from food industries; prepared food for animals	-	-	0	26
Seeds and oleaginous products	-	-	0	10
Cereals	-	-	1	9
Non-classified products	-	-	98	2

Source: Own elaboration based on UNCOMTRADE.

It is possible to observe that the difference between geopolitical partners of Cuba (China and Russia), with respect to their counterpart (i.e., the United States), is that it was positioned as one of the top ten trade partners for Cuba. In addition, the exports of the United States are different from the ones from China or Russia. Cuba depends on US imports of meat and its derivatives by 69.2% of the total imports in 2014, and cereal (28% of the total for the 2000-2014 period). This situation has created a high dependency on the food supply coming from the United States, as the main supplier for the country. The geographical location and the low production of Cuba regarding food products, sometimes scarce in some food types, have made the United States the most suitable trade partner. This has brought a new situation in the economic relation between the two countries.

Intra-industrial trade of the United States with Cuba

The Intra-Industrial Trade Index (ITI) requires a two-way trade. However, due to the characteristics of the economic embargo of the United States to Cuba, the trade with this country is practically one-way. Hence, it is impossible that an intra-industrial trade can exist. It is merely a pure inter-industrial trade. The ITI calculated for the trade relations between Cuba and the United States was nearly zero.

Therefore, for the case of the United States trade with Cuba, it is a pure inter-industrial trade and practically one-way trade. US exports select goods but imports nearly nothing, except in recent years, some art pieces and antiquities, and books and some electronic material in very low quantities. Cuba imports food products and non-manufactured goods from the United States, and this is due to the exchange of its industrial plant for a soviet-type during the last 50 years, but it is not possible to discard that in the future, once the

trade relations improve, the United States can be an important supplier of manufactured products, in addition to food. Then Cuba can export raw materials and pharmaceutical products, perhaps becoming Cuba main trade partner, given the geographical closeness, not only for goods but also for sending tourists to the island.

CONCLUSION

Since 2003, the composition of Cuban foreign trade with three of its main trade partners (China, Russia, and the United States) has evolved towards a "natural" specialization: exporting raw materials and importing machinery, equipment, technology and food. Despite the absolute increase of exports of pharmaceutical and biotechnological products, trading data do not reflect their importance in the official statistics of trade with those main trade partners. As shown in the analysis, Cuban trade with these countries is an inter-industrial trade type, which demonstrates that the economy keeps maintaining a strongly attached productive structure to the goods of low added value and low technology.

In the case of foreign trade with the United States, the economic embargo provisions limit the commercial relation between the two countries. This is reflected in the analysis of trade flows, as it takes place fundamentally in a one-way condition: exports of food to Cuba. The economic embargo limits the exports of other kind of goods to Cuba and those exports could facilitate the recovery of industry and agriculture on the island. Regarding Cuban exports to the United States in the future, it will depend on the competitive level the Cuban products can achieve in the market. Currently, only tobacco products, sugar, and some medical and pharmaceutical products would guarantee its access to the United States, providing these meet the strict regulation of the American market. Recently, several dispositions have been lessened such as the use of the U.S. dollar in trade relations, financing to buyers in the island, clearance for flight services between U.S. airlines and the national carrier Cubana de Aviación, etc.

However, we consider that the total openness in both markets with the elimination of the economic embargo could be positive for the historical tendency of commercial dependence on the United States by Cuba, thus, favoring trade in both directions and predominance in food and technology of American exports. In contrast, Cuban exports would be based in an absolute advantage, that in the past hold Cuba in the United States economy; sugar and sugar cane derivatives, rum, tobacco and others. The possibility of exporting products in the pharmaceutical industry should not be discarded; however, this is

uncertain as the competitive capability of the industry to compete openly in developed markets cannot be determined.

After the collapse of the Soviet Union, China has become the main trade partner of Cuba, and at the same time as a former ally; they maintain a permanent commercial deficit. Cuban exports of raw materials had a secure market in China, as is the case of nickel and sugar. The formation of a trade pattern of center-periphery type is also contemplated, as China exports to Cuba technology and in general added value products and highly technological goods.

Russia, its former trade partner, was not shown in official records of Cuban foreign trade until the beginning of 2000s, however it appeared once again with a similar profile to China, yet with diminished amounts of imports and exports. It observed that Russia, as part of its recovered hegemonic policy, pretends to regain Cuba as a trade partner, and it is observed that repeatedly exports of raw materials from Cuba are present, as well the import of manufactured products from Russia.

The absence of relevant intra-industrial trade between Cuba and its trade partners shows that the Cuban industry is not relevant in the foreign sector and probably the productive investment crisis during the 1990s has led the Cuban industry to the precarious conditions experienced during the eighties or even before that. Despite this indicator Cuba has been partially recovering, in the last years. The loss of production capacity in early 1990s was so significant and had a direct impact in the accumulation and modernization of its productive capabilities, compared to the accelerated technological change that the world is experiencing from the end of the last century.

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