THE GROWTH OF THE CUBAN ECONOMY IN THE FIRST DECADE OF THE XXI CENTURY: IS IT SUSTAINABLE?

Ernesto Hernández-Catá[1]

Official statistics indicate that the Cuban economy expanded at an exceptionally rapid pace during the first decade of the XXI century. The expansion was strong by international standards and very strong in comparison with Cuba's own performance in the previous decade. This paper seeks to understand the factors that accounted for Cuba's recent economic expansion and asks questions about its credibility and its sustainability.[2]

CHARACTERISTICS OF THE RECENT EXPANSION

Real GDP in Cuba rose at an average annual rate of 5.3 percent during the period 2000–2010 (Table 1, line 1). This was well above the growth of GDP in the world as a whole (3.7 percent), in the advanced countries (1.8 percent), and in Latin America and the Caribbean (3.5 percent), although it fell short of growth in the developing and emerging market economies (6.2 percent).[3] Real GDP growth in Cuba was quite variable during this period, partly because of sizeable year-to-year movements in the terms of trade. It was less strongly correlated with world out-put growth than was the case for major country groups—not surprisingly since Cuba is a relatively closed economy. Population growth during the decade was very small, and therefore real GDP per capita increased at approximately the same rate as absolute GDP.

Growth in Cuba was also exceptionally high by historical standards. As illustrated in Figure 1, the level of real GDP during the first decade of the XXI century[4] was always higher than in the corresponding year of the previous decade except for the first two years of each decade. Real GDP in the early 1990s had been severely affected by the end of Soviet assistance to Cuba, and it was only in 2005 that output exceeded its peak level of 1989.

The evolution of growth from 2000 to 2010 features three distinct sub-periods: a moderate slowdown in 2000–02, a sharp acceleration in 2003–06, and a pronounced slowdown in 2007–10 (see Figure 2). As explained more fully below, these sub-periods were associated with large changes in government spending, investment, and exports of services to Venezuela.

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2. This paper uses mostly data published by Cuba's National Statistical Office (Oficina Nacional de Estadísticas, or ONE). In its annual publication, the *Anuario Estadístio de Cuba,* ONE publishes a large number of statistical series on all aspects of the Cuban economy. However, certain sectors are insufficiently covered, such as the balance sheets of the Central Bank and the banking system, and some information has not been published for several years, notably on the balance of payments. Most importantly, the methodology used in deriving some of the statistics reported by ONE does not conform to international standards. This is particularly the case for the data on GDP originating in the social services sectors of the economy.

3. Numbers for international groupings are from the International Monetary Fund's *World Economic Outlook.*

4. References to the "first decade" of the XXI century relate to the 11–year period 2000–2010.

Table 1.   Cuba: Key Economic Indicators

|		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
		Indicators of Economic Activity (percentage changes, unless otherwise noted)										
1	Real GDP	5.9	3.2	1.4	3.8	5.8	11.2	12.1	7.3	4.1	1.4	2.4
2	Real domestic purchases	4.0	3.9	0.4	4.7	4.7	6.8	16.5	4.1	2.9	-2.3	4.9
3	Total employment	0.5	2.9	1.2	1.1	0.8	1.7	0.7	2.4	2.4	2.5	-1.7
4	Participation rate	-0.4	1.1	0.3	0.0	0.1	1.5	0.0	2.2	1.4	0.9	-0.7
5	Unemployment rate (a)	5.4	4.1	3.3	2.3	1.9	1.9	1.9	1.8	1.6	1.7	2.5
6	Labor productivity	5.4	0.3	0.2	2.7	5.0	9.5	11.4	4.9	4.1	-1.1	4.1
	Fixed capital formation											
7	(% of GDP)	12.6	11.9	10.6	9.6	9.7	10.5	13.5	12.9	13.4	11.9	11.3
8	Capital stock, net	8.8	8.4	8.6	7.3	5.5	4.3	4.5	5.7	9.7	8.8	8.7
9	Utilization rate	1.4	10.0	4.2	3.6	2.4	5.6	0.2	9.0	5.9	3.0	-5.9
		Indicators of macroeconomic stability (percentage changes unless othewise noted)										
10	Consumer prices	-3.0	-1.4	7.3	-3.8	-2.9	1.7	0.7	2.4	1.7	2.5	1.6
11	GDP deflator	1.8	0.5	4.5	3.0	0.6	0.3	10.4	3.6	-0.3	0.6	1.2
12	Consumtion deflator	3.4	-0.5	0.1	0.7	-1.4	7.0	9.8	1.4	0.2	-0.8	0.5
13	Money (M2)	5.9	17.6	10.4	-0.6	7.3	34.7	2.7	7.5	16.9	1.7	1.7
14	Budget deficit (% of GDP)	-2.2	-2.3	-3.0	-3.0	-3.7	-4.6	-3.2	-3.2	-6.9	-4.9	-3.6
		Indicators of efficiency (percent of total)										
	Non-state sector share of:											
15	Monetaryearnings	12.1	12.8	12.7	14.1	12.7	15.6	13.2	12.1	15.6	17.1	20.5
16	Consumer purchases	28.6	28.3	28.0	28.1	25.1	22.9	18.9	19.2	19.3	19.6	20.6
17	Employment	21.8	28.8	18.0	18.3	20.4	19.6	18.2	17.1	16.9	16.2	16.1
18	Housing completions	51.9	52.0	28.5	53.1	46.0	63.5	73.3	57.1	58.2	44.6	36.0
		Percent of GDP										
19	Government subsidies	10.4	8.5	9.2	9.7	9.6	10.1	9.6	10.5	15.0	12.0	10.1
	For enterprise losses	1.9	1.2	2.4	3.3	3.1	3.2	2.0	1.3	1.7	1.2	3.2
20	For price differentials	7.3	6.0	5.7	5.5	4.8	3.5	2.6	2.8	4.5	5.7	3.5
	Other	1.2	1.2	1.1	0.9	1.6	3.4	5.0	6.4	8.8	5.1	3.4

Source: Sources and methods: see Annex.

Growth in 2000–10 was concentrated in the services sectors. Output fell in agriculture and in the sugar sector, while industry and construction jointly accounted for only 15 percent of the total increase in GDP. Among the tertiary sectors, transportation and communications, commerce, hotels and restaurants, and financial intermediation together accounted for almost 30 percent of the rise in real GDP. Other services combined for a remarkable 55 percent of the total rise in output: culture & sports (8 percent), administration and defense (6 percent); education (9 percent); and public health (a whopping 38 percent).

Real GDP in the public health sector increased at an unbelievable average annual rate of 21 percent from 2004 to 2010—unbelievable, that is, until you learn that it reflected the activities of Cuban doctors and medical personnel in Venezuela and a few other Latin American countries (more on this in the following sections). But there is more to the story. In 2005, the government announced that it would value

Figure 1. Cuba: Real GDP in Current and Previous Decades
(in billions of pesos)
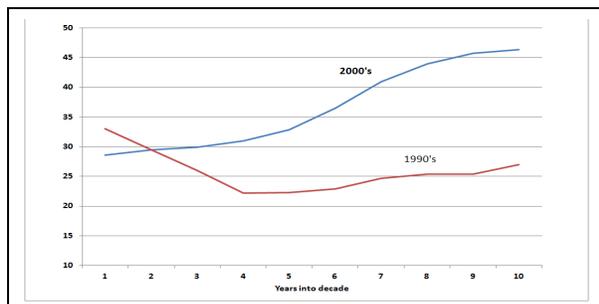
Figure 2. Cuba: Growth of Real GDP and Gross Domestic Purchases
(percentage changes)
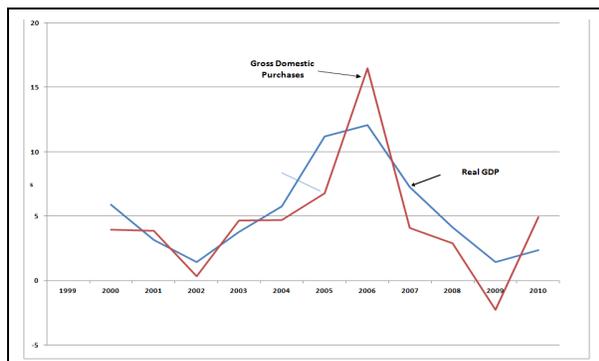
social services at a much higher price than is customary in the United Nation's system of national accounts. The most dramatic manifestation of this change was an 80 percent increase in real GDP in the health and social assistance sector in 2005! Nothing, not even the rise in the output produced by Cuban medical and teaching personnel in Venezuela, could possibly justify such a massive increase (see Figure 2).

The **average annual growth of employment** in the period 2000–10 was 1.7 percent (line 3 of Table 1)—a relatively high number considering Cuba's aging and stagnating population.[5] It resulted from an increase in the participation rate, which in turn reflected a transfer of redundant employees (particular-ly in the sugar sector) to study programs, where they were counted as employed.

In addition, the rate of unemployment declined from to 5.4 percent in 2000 to 2.5 percent in 2010. This is a remarkably low rate by international standards, but it is really not much to write home about since President Raúl Castro himself has suggested that there is a huge rate of hidden unemployment in the public sector. Nevertheless, the decline in unemployment is an indication of the rapid absorption of economic slack during the period

Real gross fixed capital formation averaged 11.6 percent of GDP in 2000–20l0 (line 7). This was low by the standards of other developing and transition economies but well above Cuba's average in the 1990s. (Investment plunged in 1989–1994 following the end of Soviet assistance, although it recovered during the rest of the decade.) The fixed investment ratio declined in the first four years of the XXI century, but surged in 2004–08, resulting in rapid growth in the net capital stock (line 8). Moreover, the rate of utilization of capital is estimated to have increased substantially during the decade (line 9).

The **annual rate of increase in the official Consumer Price Index (CPI)** averaged ½ of one percent in 2000–2010. Except for a spike in 2002, consumer price increases were low or negative throughout the period, significantly lower on average than in the emerging and developing countries and the Latin American and Caribbean groups in the IMF's *World Economic Outlook*. Cuba's inflation rate was surprisingly low, considering the rapid absorption in labor market slack during the period. As Oscar Espinosa Chepe (2000) has observed, the basket used in the official CPI includes only items sold in national currency markets, where many products remain subject to price controls. However, Vidal (2010) has pointed out that the CPI basket does include prices sold in informal and self-employment markets, with a combined weight of 30 percent. What is missing from the CPI basket, therefore, are items sold in convertible

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5. Population increased by 1/2 of one percent (annual rate) in 2000–2010, remained virtually unchanged during the second half of the decade, and actually fell in 2010. The population of working age rose by even less (1/3 of 1 percent); it also fell in 2010, as did employment and the labor force.

pesos (CUC) markets. Those prices are government controlled but they are occasionally raised by considerable amounts—Espinosa-Chepe mentions increases in diesel fuel and gasoline prices of 33 percent and 20 percent, respectively, in 2008. It should be noted that the deflators for GDP and household consumption increased somewhat faster than the CPI during the period, although movements in the three price variables were correlated (lines 10 through 12). The behavior of prices in the context of Cuba's monetary policy is examined below.

CAN CUBA'S RECENT GROWTH BE ACCOUNTED FOR?

The collapse in investment and the steep deterioration of the terms of trade associated with the cessation of Soviet aid explains part of the massive contraction of Cuba's real GDP in the period 1989–1993. However, these factors account only for a small fraction of the subsequent recovery and expansion in 1994–99. Therefore, explanations for that period focused on the macroeconomic stabilization and structural reform measures adopted around 1993–94, which were thought to have boosted total factor productivity, and therefore output growth.[6] In particular, an extraordinarily strong fiscal adjustment brought down sharply the budget deficit and the level of state subsidies from the record levels recorded during the 1990–92 recession. Furthermore, various structural measures resulted in a significant rise in the participation of the private and cooperative sectors in the economy, and the de-criminalization of the use of the U.S. dollar helped to boost remittances from Cubans residing abroad.

A Neo-Classical Approach

The situation in the first decade of the XXI century was quite different. First, as indicated in the previous section, the growth of employment and capital was fairly strong and is estimated to have made substantial contributions to the growth of GDP (Table 2). It should be noted that the estimated contribution of employment is probably overstated for two reasons: (i) students are now considered employees in the Cu-

ban statistics rather than members of the inactive population; and (ii) an unknown but significant share of state employment has virtually zero productivity and is therefore inactive for all practical purposes. In addition to the brisk expansion of the capital stock, the rise in capacity utilization (a variable intended to capture the extent to which the capital stock is actually utilized), also made a substantial contribution to growth. Large terms of trade effects occurred from year to year, but they were relatively small for periods of 3–4 years. (The Annex explains how this variable was calculated.) For, example, there was a huge negative effect in 2008 due mostly to the collapse of world nickel prices and a rise in the price of oil, but this was partly offset by a sizeable terms of trade improvement in 2010 when both nickel and sugar prices rose. Residual growth (i.e., the growth of output that remains unexplained after taking into account the growth of inputs) remains large, which is not surprising in view of the mysteries of Cuban data and the limitations of the growth accounting framework. Much of the large positive residual shown for the period 2003–06 in Table 2 probably reflects the overstatement of output growth in the health sector that was referred to above.

Table 2.   Cuba: Accounting for the Growth of Real GDP *(percentage changes at annual rates)*

	2000–02	2003–06	2007–10	2000–10
Real GDP growth	3.5	8.2	3.8	5.3
Contributions to GDP growth of changes in:				
employment	2.6	0.7	1.0	0.8
capital	2.6	1.6	2.5	2.2
capacity utilization	1.6	0.9	0.9	1.1
terms of trade	-0.6	0.2	-0.4	-0.3
residual	-2.6	4.8	-0.1	1.6

Source: Sources and methods: see Annex.

A Keynesian Approach

The exercise presented in the previous sub-section sought to account for the growth of output from the supply side. This section raises a different question: can the growth of production also be explained in

6. See Hernández-Catá (2000).

terms of the expansion of the "exogenous" components of aggregate demand? Table 3 seeks to answer this question using a highly simplified Keynesian framework. In this framework, investment, exports of goods and services, and government current expenditure are considered exogenous (i.e., independent of national income), while private consumption and imports are endogenously related to income through fixed marginal propensities. For simplicity, the Keynesian multiplier is assumed to be one.[7]

It is clear from the table that the sharp rise in current government spending during the middle years of the decade (which affected all major categories of expenditure) was the main source of growth in aggregate demand. It was followed by the growth of exports and investment. As explained more fully below, the rising contribution of exports reflected mostly increasing exports of services to Venezuela.

Table 3. **Cuba: Growth of Real GDP and the Exogenous Components of Aggregate Demand** *(Percentage contributions to GDP growth, annual rates)*

	2000–02	2003–06	2007–10	2000–10
Growth of real GDP	3.5	8.225	3.8	5.33
Resulting from changes in:				
1. Exogenous components of demand	2.28	7.86	3.64	4.68
Investment	0.47	1.76	0.05	0.66
Current government expenditure	0.91	4.30	1.07	2.20
Exports of goods and services	0.91	1.80	2.50	1.81
2. Terms of trade	-0.60	0.19	-0.35	-0.30
3. Residual	1.82	0.18	0.51	0.94

THE ROLE OF POLICIES

Macroeconomic policies

In attempting to explain residual growth (i.e., that part of GDP growth not explained by input growth or terms of trade effects) we ask whether economic policies may have been at work. Beginning with macro-stabilization policies, the **fiscal deficit** of the central and local governments widened in relation to GDP from 2.2 in 2000 to 6.9 percent in 2008 before narrowing to 3.6 percent in 2010 (Line 14 of Table 1). The deficit averaged 3¾ percent of GDP for the decade as a whole, and never came close to the alarming levels recorded early in the previous decade. This is partly because much of the surge in state expenditure was accompanied by an increase in Venezuelan oil subsidies and payments for services provided by Cuban professionals. In sum, from the standpoint of macro-stabilization, fiscal policy was expansionary through 2008, and restrictive in 2009–10, i.e., since President Raúl Castro took control of economic policy.

Government subsidies to enterprises (an indicator of both macro-stability and efficiency) rose in relation to GDP by 2 percentage points from 2000 to 2010. The government did a creditable job in keeping subsidies for enterprise losses under control, and subsidies associated with price differentials declined. However, a mysterious category of "other subsidies" surged, perhaps reflecting Venezuelan subsidies on Cuban oil imports. Figure 3 shows how the major types of subsidies evolved over the past two decades.

Has **monetary policy** played a role in stabilization? There is no perceptible correlation between inflation and money growth in the short run (see table 1, lines 10 through 13). In the long-run, however, there is a correlation between currency and prices, and between M2 and prices.[8] It is likely that monetary policy has restrained the growth of non-controlled prices so far in the XXI century. But inasmuch as 70 percent of the prices in the local currency sector are still controlled (and to the extent that they are not adjusted), changes in the money supply translate into changes in the monetary overhang rather than inflation, thus limiting, but not suppressing, the efficacy of monetary policy (see Hernández-Catá, 2011).

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7. These are, of course, highly simplified assumptions. In particular, imports are determined not only by national income, but also by administrative controls; and both exports and imports depend upon relative prices.

8. M2 is currency plus time and saving deposits denominated in non-convertible pesos.

In sum, **inflation** remained subdued in 2000–10 partly because of price controls and partly because a restrained monetary policy kept the expansion of aggregate demand from outpacing the rise in potential output in spite of the surge in government expenditure. An additional restraining factor was the rigidity of nominal wages, which are not indexed to inflation and in fact have risen slowly during the decade. Finally, the interpretation of monetary policy is complicated by the fact that the published monetary aggregates include only assets denominated in non-convertible pesos (CUPs), thus excluding those denominated in CUCs. Accordingly, the point made by Espinosa Chepe with respect to consumer prices is also relevant here.[9]

The current account of the **balance of payments** remained under control through 2007, but it came under substantial pressure in 2008. The value of Cuba's merchandise exports weakened owing to the slowdown in world economic activity, and actually fell in 2009 as national income dropped in Cuba's major trading partners, including Venezuela and Western Europe. Receipts from tourism also fell in 2009, while interest payments on the country's external debt surged. Against this background, and with import demand increasing rapidly, Cuba defended the exchange rate of the peso through intervention in the foreign exchange market, administrative restrictions on imports, foreign exchange rationing and, most dramatically, a freeze on CUC-denominated bank accounts held by foreign concerns.

As Vidal (2010) convincingly argued, the central bank must have intervened heavily in both 2008 and 2009 to sterilize the effects of unusually large fiscal deficits on the money supply and maintain price stability. Whatever the short-run effects of that policy on domestic prices, it evidently helped to keep the **exchange rate** fixed. However, Vidal is right in that intervention is a costly way to maintain internal and external stability and that it would have been better to let the peso depreciate, thus changing relative prices and providing the incentives needed to improve the external balance. It is also important for the central bank to remember the heavy price paid by many countries that insisted on defending an overvalued exchange rate since the Mexican crisis of 1994, including Russia, Turkey Indonesia, Korea, and Argentina. Finally, while there is no doubt that a depreciation of the peso will help to improve the current account balance, the improvement will materialize only if domestic expenditure is reduced relative to domestic output. In that fundamental sense, the tightening of fiscal policy under the Raúl Castro administration was entirely appropriate, if not indispensable.

Structural Policies

We now turn to micro-policies and ask whether the **private sector** was allowed to play a more important role in the economy. Data on the private share of GDP are not available in Cuba, but there are a number of indirect proxies for the importance of the private sector, and they show a mixed picture (lines 15 to 18 in Table 1). For example:

- The monetary earnings of the non-state sector (particularly its non-agricultural component) increased rapidly during 2000–2010, and the non-state share of total monetary earnings surged from 12 percent of GDP in 1990 to over 20 percent in 2010. These earnings reflect only payments received from state organizations and exclude payments among entities in the non-state sector.
- Real household purchases from the non-state sector increased rapidly during the past decade, but less so than purchases from the state sector. The share of household consumption supplied markets in the non-state sector fell from 29 percent in 2000 to 21 percent in 2010.
- Most disappointingly, the share of the non-state sector in total employment fell during the decade from 22 percent to 16 percent.
- The proportion of agricultural land operated by the non-state sector increased from 64 percent in 2007 to 83 percent in 2011, in spite of a drop on

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9. This is an area where secrecy complicates analysis. A price index constructed as a weighted average of prices in national currency and in CUCs would help the analysis of monetary policy, as would information on the share of prices subject to state control.

the share of UBPCs—the Basic Units of Cooperative Production that were created in 2004 and have been struggling since then. Most of the increase came from private farms and the Cooperatives of Credit and Services (CCS). However, as pointed out by Nova González (2012), the conditions of land tenure remain fraught with uncertainties that discourage producers, and the prevalence of non-market prices squeezes farm profits and constitutes a major disincentive to producers.

• Finally, the private share of housing completions fell from 52 percent to 36 percent. This indicator is unreliable, however, because the series is extremely volatile.

It is difficult to infer from these indicators that the relative importance of the private sector has increased or that this sector has contributed appreciably to output or productivity growth in the first decade of the XXI century.

Has the economy become more open to **foreign trade**? The ratio of total trade (exports *plus* imports) to GDP did rise from about 23 percent in 1990 to 32 percent in 2010. However, almost 60 percent of that increase reflected transactions with Venezuela, much of it in oil—hardly a sign of improved competitiveness. Nevertheless, Cuban imports in general remain highly sensitive to changes in national income; Vidal (2008) has estimated the income elasticity of imports at 3.

Was there evidence of **fiscal decentralization**? None that is very persuasive. The share of total government expenditure executed by local jurisdictions oscillated between 30 percent and 34 percent in recent years, without exhibiting any discernible trend. The share of investment carried out by the central government rose from 46 percent in 2000 to almost 82 percent in 2007, but then dropped to an annual average of 62

percent in 2008–10. Local governments are still barred from undertaking capital projects.[10]

To sum up, it is hard to find evidence that structural measures helped to improve economic performance in the first decade of the XXI century. This was to be expected given the policy changes introduced in the middle of the decade that amounted to a wholesale backtracking from the market liberalization measures adopted in1993–94. These changes included the harassment and over-taxation of the small private services sector, the prohibition of several self-employment activities, and various measures that reduced sharply the autonomy of state enterprises, culminating in the obligation to deposit all hard currency earnings in a single account (*cuenta única*) at the Central Bank.

Another harmful measure adopted in 2003–04 was the re-prohibition of the U.S. dollar, effectively ending the period of dollarization that had started in 1994. The old system was replaced by an abstruse multiple exchange rate system that introduced numerous distortions and discriminates against export-oriented enterprises while subsidizing import-intensive lines of production.[11] The evolution of the exchange system is summarized in Table 4.

But things have changed since then. Indeed, some of the recently-adopted or announced measures could have a significant effect on productivity.

• First, the list of private employment categories authorized to operate legally was expanded, although it remains short, and prohibition in the absence of explicit authorization remains the rule. Moreover, categories such as engineers, accountants, economists, doctors and nurses, professional athletes and educators, remain confined to the state sector. Yet they could make a substantial contribution to economic activity and welfare if allowed to operate privately.[12]

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10. The numbers for non-government investment (corresponding mostly to state enterprises) were obtained by subtracting government investment (budget basis) from total investment (national accounts basis). They must be interpreted with caution because of methodological differences between the two series.

11. For a very clear analysis of the problems involved see Vidal (2009 and 2012).

12. In the case of health practitioners and educators, permission to operate privately could help to avoid unemployment if and when those now working abroad were to return home.

Table 4. Cuba: Evolution of the Multiple Exchange Rate System

	1994	2000	2001	2003	2004	2005	2011
U.S. dollar	legalized <---------dollarization period---------->			replaced by CUC	ceases to be legal tender		
Cuban peso[a]	<----------------------------------Fixed against US $ throughout the period---------------------->						
CUC[b]	introduced<	<--------------	functions as currency board>>		--------------->	revalued vs peso	devalued vs. US $
Exchange rates							
Peso/U.S. $							
Official	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Informal [c]	95	21	24.2	24.2	24.2	22.3	22.3
Pesos/CUC [d]	21	21	26–27	26–27	26–27	24–25	24–25
CUC's/U.S.$ [e]	1.0	1.0	0.93	0.93	0.93	0.93	1.00

Source: Sources and methods: see Annex.

a. Currently used in inter-enterprise transactions and for official accounting.
b. Peso Cubano Convertible
c. Implicit exchange rate based on the peso/CUC and CUC/dollar rates.
d. In exchange houses (CADECA); applies to household transactions.
e. A 10 % tax on conversion of dollars into CUCs applies since 2005.

- Second, sales and purchases of homes and cars by residents have been authorized.

- Third, implementation of a plan to fire as many as half a million employees from the public sector (roughly one tenth of the workforce) has started. ONE has recently reported that the number of self-employed rose from 147 thousand at the end of 2010 to 391 thousand at the end of 2011, while employment in agricultural cooperatives increased from 217 thousand to 652 thousand. As a result, the share of non-state employment rose during 2011 from 16 percent to almost 21 percent. A further substantial transfer of employees from the public to the private sector—provided the latter is ready to absorb them—would help to reduce disguised unemployment and greatly increase the average productivity of the national labor force.

- Fourth, a legal framework that would authorize access to bank credit by the self-employed, microenterprises, and private farmers was published in 2011 (Vidal, 2012, provides a full description). The framework also considers the possibility of (i) allowing households to access bank credit to purchase houses and cars; and (ii) authorizing the private sector to use bank deposits to effect payments. This could have implications for the conduct of monetary policy since the private sector so far has been restricted to the use of currency for payments, complicating its relations with state enterprises that operate almost exclusively with bank accounts.

- Fifth, sales of various consumer goods (including computers and DVDs) have been authorized.

- Finally, the permission given to Cuban citizens to visit hotels heretofore reserved for foreign tourists eliminates an unjust and unnecessary form of discrimination.

As promising as they are, however, these measures are very recent, and they could not have influenced economic performance in the period under review in this paper. Moreover, these measures still have to be implemented in full. Even if they are, serious distortions would remain in many sectors of the economy, including controls on imports and foreign exchange, limitations on the legality and size of private firms and on the autonomy of state enterprises, interest rate controls, and an absurd multiple exchange rate system. Last but not least the system of price controls continues to distort resource allocation and interfere with the effectiveness of macroeconomic policies. A particularly sad example of the damage caused by this system is the exploitation of Cuban farmers through the imposition of high input prices and low sales prices by the bureaucratic empire of *Acopio*.

DEPENDENCY AND SUSTAINABILITY

In several periods of its independent history, Cuba has relied on various forms of assistance granted by foreign nations. For a long time in pre-revolutionary days, Cuba benefited from a preferential sugar quota granted by the United States. In the 1980s, Cuba received massive amounts of aid from the Soviet Union, mostly in the form of subsidies on oil imports and on nickel and sugar exports. Now Cuba receives subsidies on imports of Venezuelan oil and large payments for the services rendered in Venezuela (and other "friendly" Western Hemisphere countries like Bolivia and Nicaragua) by Cuban doctors, teachers, and military and security personnel. These payments have exceeded by a substantial margin the value of salaries that would have been paid under usual international practice (Castañeda, 2011).

Table 5 shows two rough proxies for Venezuelan payments to Cuba. By way of comparison, it also shows Soviet assistance flows in the 1980s, which were very large until they suddenly vanished in 1990 because the Soviet Union disappeared and Russia could not afford, and did not wish, to continue carrying the burden. Precise information on Venezuelan aid to Cuba is not available from the countries involved, but the two indicators published by ONE and presented in Table 5 can help to gauge its magnitude. They suggest that recent inflows of Venezuelan aid may have been as large as the peak values of Soviet aid in 1986–88, i.e., more than 20 percent of the island's GDP. Cuba's dependence on Venezuelan payments is reflected in both the balance of payments and the fiscal accounts.

Effects on the Budget and Economic Activity

Table 5 presents two kinds of rough indicators: Venezuela's total contribution to Cuba's budgetary revenue (the "budget proxy"); and the value of services provided by Cuban personnel abroad (the "BOP proxy"). The BOP estimates are close to those reported, typically for one year only, by other authors. For

Table 5. Cuba: Estimated Foreign Assistance Inflows in the 1980's and the 2000's

Flows from the Soviet Union in the 1980s	1985	1986	1987	1988	1989	1990
Billions of dollars	4.5	4.5	4.5	4.5	2.2	0
Percent of GDP	22.3	22.9	23.3	22.2	10.7	0
Flows from Venezuela in the 2000s	2005	2006	2007	2008	2009	2010
Budget proxy						
Billions of dollars	4.4	5.0	8.5	13.7	14.9	14.7
Percent of GDP	10.4	9.4	14.4	22.5	24.0	22.8
BOP proxy						
Billions of dollars	3.4	3.6	4.5	5.2	5.8	7.7
Percent of GDP	8.1	6.8	7.7	8.5	9.3	12.0

Source: Sources and methods: see Annex.

example, Castañeda (2011) cites estimates of $4.5 billion for 2006, $5.2 billion for 2007 and $6.4 billion for 2008, while Lopez (2012) reports an annual average of $5.1 billion for 2007–10. The "BOP" numbers are, of course, a part of the "budget" numbers. The difference between the "budget" and the "BOP" proxies—a difference that had been growing rapidly until 2009—reached $7 billion in 2010. Part of that difference probably reflects Venezuelan price subsidies on Cuban oil imports (possibly some $3 billion) and the proceeds from Venezuelan oil sold in the open market by Cuba. It may also reflect an overestimation of Venezuelan payments by the "budget proxy", which probably include items unrelated to those payments (up to perhaps $2 billion).[13] The remaining $2 billion difference could reflect transfers from BANDEC, the Venezuelan Banco de Desarrollo Económico y Social or, of course, from errors in the estimates. Otherwise, there would be an interesting question as to where that money came from and where it went.[14]

A large part of the revenue from Venezuelan aid is offset in the budget accounts by matching expenditures on Cuban personnel operating abroad and sub-

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13. Lopez (2012) estimates these subsidies at roughly $4 billion a year 2007–10.

14. Because they are derived from budget or balance of payments statements, the estimates in Table 5 do not include "below the line" items such as loans or investments by BANDEC. In principle, these numbers should be recorded in the capital account of the balance of payments.

sidies on Cuban oil imports from Venezuela. However, based on published data, it is impossible to ascertain whether the remainder has been used to finance expenditure or to reduce the deficit. In the end, the effects on the fiscal deficit of discontinuing Venezuelan payments to Cuba probably would not be very large. Unfortunately, this cannot be said about the effect on economic activity. The estimated impact of ending Venezuelan payments (including the doctors/teachers program and the subsidization of oil imports) would be, using 2010 as a baseline, at least 16 percent of GDP.

The Balance of Payments: How Will Food Imports and Interest Payments on Cuba's Debt Be Financed?

Since 2004, the Cuban balance of payments has shown a rising trend in two important items: (i) the merchandise trade deficit; and (ii) interest payments on Cuba's external debt.[15] The trade deficit reflects large and growing fuel and food imports (about one-half of total imports in recent years) as well as the depressed level of exports. The twenty-year period illustrated in Figure 4 can be broken down into three sub-periods.

1. From 1989 to 1993 the trade deficit narrowed as the disappearance of Soviet assistance forced a sharp contraction of imports.

2. From 1994 to 2003 the combined negative items rose and then stabilized at a high level, as the trade balance deteriorated. However, this was compensated by a strong rise in tourism. Later, the de-criminalization of the U.S. dollar in 1993–94 encouraged a rapid increase in remittances received by Cuban residents from their relatives abroad.

3. After 2004, interest payments and net imports surged while foreign remittances declined following the restrictions imposed in 2005, and

tourism ran out of steam around the turn of the century. However, these changes were offset by a large increase in receipts from the state-sponsored activities of Cuban personnel stationed mostly in Venezuela. Considering Cuba's inability to sustain a massive increase in borrowing from world markets, this "Venezuelan miracle" avoided the need to slash imports or interest payments, both of which would have been problematic in Cuba's circumstances.

The miraculous advent of the new "special transactions" prevented the Cuban balance of payments from crashing. Whether or not these transactions represent economic value is a matter of taste. What is clear is that if these transactions were to disappear, or to fall substantially, Cuba could face a severe balance of payments crisis.[16]

What Should Be the Policy Response?

Following the end of Soviet assistance in 1989–1990, the Cuban government reacted to the disappearance of foreign subsidies and loans by providing massive subsidies to state enterprises from its own budget. The resulting fiscal deficits were financed by monetary expansion and, with most prices rigidly controlled, this led to a huge monetary overhang and to forced saving on households. It was all a big mistake, and a steep contraction of investment and production could not be avoided. After this short and disastrous attempt to deal with the crisis by brute force, in 1993–94 the Cuban government launched a far-reaching stabilization plan involving a sharp across-the-board reduction in government expenditure (including in particular a massive cut in subsidies to loss-making state enterprises) and structural measures that fostered economic recovery from the supply side. The economic history of that period provides invaluable lessons that should not be forgotten.

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15. For a comprehensive analysis of external developments, see Pérez-López (2011), and Pérez (2009).

16. The Cuban authorities may be able to delay the adjustment by dipping on their foreign exchange reserve if there are any left after several years of large-scale intervention to defend the peso. Cuba has not published capital account data for several years now. However, Luis Luis (2010) has estimated, using Bank for International Settlements (BIS) data, that Cuba accumulated assets in BIS-area banks to the tune of US$4 billion during the period 2005–2009. The part of that increase corresponding to the Central Bank of Cuba is unknown.

Figure 3. Cuba: State Subsidies
           (In percent of nominal GDP)
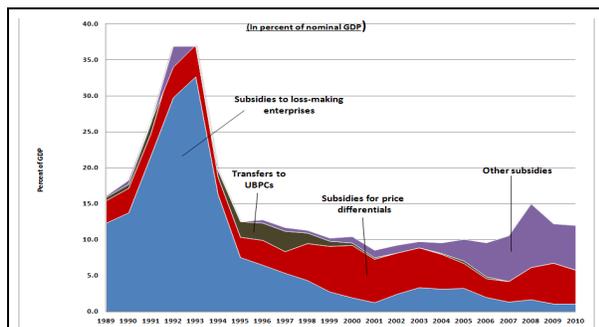
Figure 4. Cuba: Current Account of the Balance of Payments
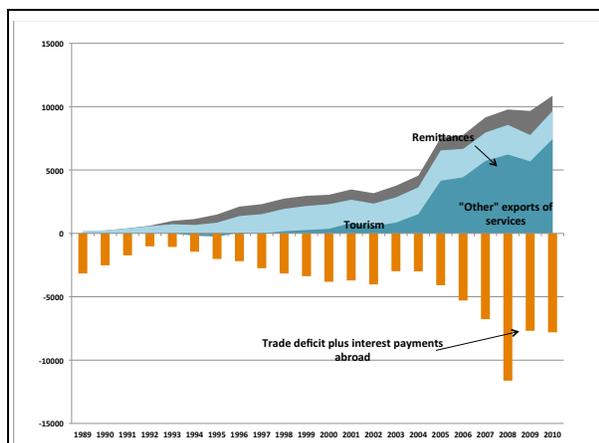
Now, the interruption of Venezuelan aid could result in a contraction of real GDP about three quarters as large as that resulting from the cessation of Soviet aid in 1989–90, with dramatic consequences for the standard of living of the population. Clearly, it would not be wise to hope that this will never happen, to wait until it happens, or to wait for another "miracle" to occur. Extending the doctors' and teachers' program to Angola and Algeria will not be a permanent solution. Waiting for oil to flow out of the Caribbean wells risky and could take too much time. The only way out is an audacious program of structural actions to remove those controls that stifle the country's capacity to produce, to invest, and to export. This program should include:

- end of price controls;

- unification of the exchange system and the end of the fixed exchange rate for the Cuban peso;

- an aggressive plan to increase the number of employment categories opened to the private sector;

- continuation of the policies to reduce public sector employment and increase the flexibility of wages;

- intensification of the ongoing efforts to reform the banking system and expand the availability of credit to the non-state sector, particularly in agriculture.

These actions should be coupled with restrained monetary and fiscal policies aimed at avoiding an explosion of the budget deficit and the hyperinflation that would otherwise result in the hopefully growing, non-regulated sector, particularly during the period following the devaluation of the peso. Finally, a gradual restructuring of the budget should be started. It would involve a shift in expenditure from budgetary subsidies and from the education and health sectors (which could happen automatically with the ending of Venezuelan programs), to infrastructure, social security (a sector in financial difficulty) and social assistance, including the creation of a system of unemployment insurance.

CONCLUSION

Income and production increased rapidly in Cuba during the first decade of the XXI century. Growth was fueled by a surge in government spending and a boom in services exports and investment—all of them made possible by rapidly increasing in payments received from Venezuela. The expansion of domestic and foreign demand during the decade did not visibly result in higher inflation or in a massive deterioration of the country's external position, partly because some of the recorded growth reflected statistical fabrication and partly because potential output also increased rapidly owing to the strong performance of investment. (In this connection, it is a good thing that part of the Venezuelan money was used to finance capital formation rather than consumption.) However, capacity utilization also increased markedly, and the gap between actual and potential GDP must have dwindled considerably, leaving little room for supply to respond to additional demand pressures.

While there was no explosion in the current account of the balance of payments for most of the decade, severe pressures did emerge in 2008 and the authorities had to restrict imports, ration foreign exchange, and take measures that damaged the nation's reputation in world financial markets. The Central Bank also intervened on a large scale to keep the exchange value of the Cuban peso fixed—a policy that cannot continue forever.

The large size of Cuba's dependence on Venezuelan aid makes the country hostage to fortune. A sudden interruption in such aid would trigger a deep recession and put the balance of payments in a critical position. Therefore, the structural measures that were taken or announced in 2009 and 2010 should now be extended and pursued much more aggressively. This will not be easy. But, as Russia's former Finance Minister Boris Fedorov once said, dependence on foreign largesse is a luxury that a free country cannot afford.[17]

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Annex:
SOURCES AND METHODS

NOTE: References to the *Anuario Estadístico de Cuba* of the Cuban Statistical Office (Oficina Nacional de Estadísticas or ONE) are to various, issues of the publication. References to table numbers are to the 2010 issue. The same applies to the reports on Cuba of the Economic Commission for Latin America and the Caribbean (CEPAL).

Table1

Line 1. **Real GDP** at constant 1977 prices. From, *Anuario Estadístico de Cuba*, Cuadro 5.1. Figures before 1996 were converted from base 1981 to base 1997 by applying to the first observation of the base-1997 series the corresponding percentage changes of the base-1981 series and then extrapolating backwards to extend the levels of the 1997–based series.

Line 2. **Real Gross domestic purchases.** Obtained by subtracting net exports of goods and services from GDP. From ONE, Cuadro 5.

Lines 3 to 5. Total **employment**, participation rate and unemployment rate. From ONE, Cuadro 7.1.

Line 7. **Gross fixed capital formation** (in constant 1997 prices) as percent of real GDP. From ONE, Cuadro 5.15.

Line 8. The net **capital stock** series was derived by using the perpetual inventory equation:

$$K_t = (1-\delta)\,(K_{t-1} + I_t) \qquad (1)$$

Where K is the capital stock net of depreciation. The starting level of the net capital stock K_0 was calculated by using the formula proposed by Madrid Aris (1998): $K_0 = I_0/(\delta+g_{Y0})$, where I is gross fixed capital formation in constant 1997 prices, δ is the rate of depreciation, g_Y is the growth rate of output. The subscript **0** indicates the benchmark year, which was chosen to be 1989 when output was probably not far from potential. Following Madrid-Aris, δ was set equal to 4.5 percent, which may be on the low side for Cuba.

Line 10, **Consumer prices**, percentage changes from CEPAL.

Lines 11 and 12. **GDP** and **private consumption deflators.** From ONE, Cuadros 5.4 and 5.16.

Line 13. **Money supply (M2).** Currency plus peso time and saving deposits. From ONE, Cuadro 6.3 and CEPAL.

Line 14. **Budget deficit**, central and local governments, from ONE, Cuadro 6.2.

Line15. **Non-state share of monetary earnings**. From ONE, Cuadro 6.1.These are payments received by the non-state sector from the state sector and exclude intra-sector payments. The non-state sector includes the private non-farm sector, the UBPC's and other agricultural cooperatives, and private agricultural producers.

Line 16. **Non-state share of consumer purchases.** Share of consumer purchases supplied by non-state markets. From ONE, Cuadro 5.13.

Line 17. **Non-state share of total employment**. From ONE, Cuadro 7.2.

Line 18. **Non-state share of housing completions**. From ONE, Cuadro 12.1.

Line 19. **Subsidies to enterprises.** From ONE, Cuadro 6.2.

Table 2

The estimated factor contributions were derived from the linear homogeneous Cobb-Douglas production function:

$$g_Y = (1-\alpha)\, g_L + \alpha\, g_K + \alpha\, \rho + g_A \qquad (2)$$

where α is assumed to be to 0.7, g is the percentage change operator, Y, L and K stand for output, employment and the capital stock respectively; g_A is residual growth (which includes total factor productivity growth and a terms-of trade effect); and ρ is the unobservable rate of utilization of the capital stock. There is no easy way to estimate π, but one possibility is to assume

$$\rho = E^\varphi$$

where E is the labor utilization rate (proxied by the ratio of employment to working age population) and ? is a constant.

The growth of potential GDP is:

$$g_{Y^*} = (1-\alpha)\, g_N + \alpha\, g_K + g_A \qquad (3)$$

where N is the population of working age. Subtracting equation (3) from equation (2) and taking the definition of ρ into account, the percentage change in the capital utilization rate can be expressed as a weighted average of capacity utilization rates for labor and output. Using values for the year 1989 and assuming the growth of potential GDP was negligible that year, the following relation will hold approximately

$$\varphi \approx g_Y / \alpha\, g_E + [(1-\alpha)\,/\,\alpha] \qquad (4)$$

Following the methodology used by the U.S. Department of Commerce, the **term of trade effect** was cal-

culated as the difference between actual GDP and command GDP (see U.S. Department of Commerce, Survey of Current Business, Table 1.8.6). This can be expressed as:

$$T = x\,(p_x/p - 1) - m\,(p_m/p - 1)$$

where T is the terms of trade effect, x and m are export and import volumes respectively; p_x and p_m are export and import prices; and p is the deflator for gross domestic purchases. The variable used in the table was defined as the change in T divided by GDP in the previous period.

Table 3

GDP, investment, government expenditure and exports of goods and services, all in constant 1977 prices, are from ONE, Cuadro 6.3. The contribution of each of these variables is calculated by taking first differences and dividing by GDP in the previous period. The terms of trade effect is calculated as in Table 2.

Table 5

Manuel Madrid-Aris provided the data on **Soviet aid** to the author (except for the 1989 observation which came from conversations with Russian officials).

The **"BOP proxy"** for **Venezuelan aid** is the difference between exports of services and earnings from tourism. From ONE, Cuadros 5.1, 5.2, and 5.11; and CEPAL, 2012.

The **"budget proxy"** is from the line labeled "*otros ingresos no tributarios*" ("other non tax revenue") in the budget for the general government (ONE, Cuadro 6.4). ONE notes that this item consists of "external payments" and "price differentials from foreign trade." It is therefore likely that it includes most payments from Venezuela, although it possibly includes other items, which could be the source of errors in the estimates.