VENEZUELAN-CUBAN MUTUAL AID: GRANTS, SUBSIDIES AND FANTASIES

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The close relationship between Cuba and Venezuela has multiple dimensions. Foremost it is a political and security alliance where economic relationships play second fiddle. The political and security elements are more important to Venezuela than to Cuba, while oil imports from Venezuela play a top role in sustaining economic activity in Cuba

Economic relations between the two countries can be viewed as a mutual aid agreement to foster political and economic goals and strengthen each other's regimes.[2] The relationship emerged at the beginning of the century as a way to bolster the Cuban economy with concessionally-priced Venezuelan petroleum.[3] It was related to the Petrocaribe scheme developed in 2005 to supply oil to countries in the Caribbean basin but kept distinct terms reflecting the special relationship between the two countries. The relationship evolved into a barter arrangement between oil and professional services with a hidden compensation mechanism. The secrecy involved in the trade arrangements makes it difficult to pinpoint the net transfer of resources between the two nations.

In this paper I take a close look at the importance of the bilateral relationship to each country, the trade in goods and services between them and implied subsidies involved. The objective is to shed some light into resource transfers between the two economies. Recent studies by Hernández-Catá (2019) and Mesa-Lago and Vidal (2019) also explore the Cuba-Venezuela economic relationship. In contrast with those studies, I do not estimate the impact on Cuban output and income of the decline in Venezuelan trade. Instead the focus is on gauging the effective transfer of resources given financial conditions in both nations.

THE ECONOMIC RELATIONSHIP: A VENEZUELAN VIEW

We know well that petroleum lies at the heart of the Venezuelan economy as its main export and foreign exchange earner. How important are oil exports to Cuba in the context of Venezuela's economy and petroleum sector?

At first sight oil exports to Cuba appear small in relation to the large oil sector in Venezuela. In 2012 Venezuela exported 61 million barrels of petroleum to Cuba, including amounts to be processed and re-exported to Venezuela, as against an overall production of 1059 million barrels. Exports oscillated around this level in 2012–2015, stepping down to an average of 43 million barrels per year in 2016–2018, tracking the decline of the oil industry in the country (Figure 1). By 2019, with oil output in dire straits,

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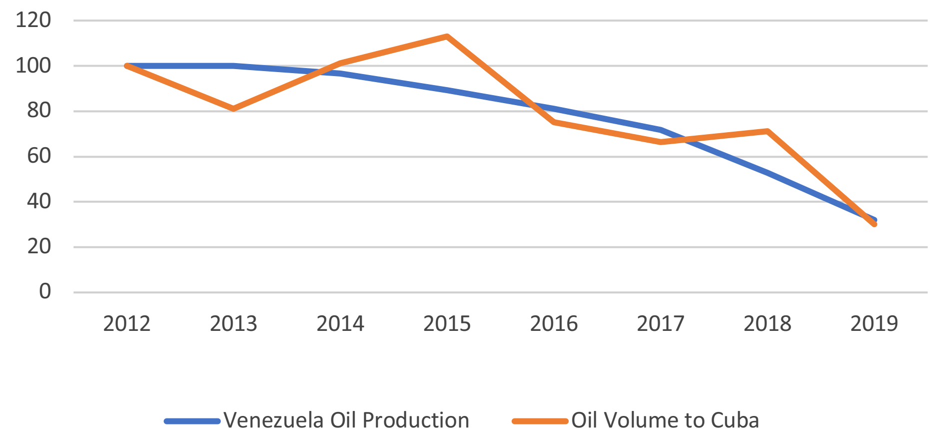
1. Paper delivered at the conference of the Association for the Study of the Cuban Economy, August 13, 2020.
2. Castañeda (2009) presents a summary of the economic relationship.
3. Acuerdo (2004), "Acuerdo entre el Presidente de Venezuela y el Presidente de Cuba, para la aplicación del Alba."

Figure 1. Venezuela Oil Output and Oil Volume to Cuba, 2012=100



Source: PDVSA, U.S. Energy Information Administration and ONEI.

Table 1. Venezuela: Indicators of Trade with Cuba, 2012–2019

	2012	2013	2014	2015	2016	2017	2018	2019
Exports to Cuba—volume								
Oil Exports (million barrels)	60.7	49.2	61.4	68.6	45.6	40.3	43.1	18.3
Exports to Cuba—value								
% of GDP	1.6	1.2	1.4	0.8	0.5	0.8	1.3	0.7
% of oil exports	8.1	7.0	8.9	9.6	6.9	7.0	9.8	5.0
% of oil production	5.7	4.7	6.0	7.3	5.3	5.3	7.7	5.4
% of imports	9.2	8.4	11.0	8.4	9.7	12.5	23.3	14.7
% international reserves	20.3	22.4	23.5	17.1	14.4	19.0	29.9	11.9
Memorandum								
GDP per capita ($ 2012)	12987	13197	12810	12157	10255	8947	7491	4964
Real GDP Growth (%)	5.6	1.3	-3.9	-6.2	-17	-15.7	-19.6	-35
Oil production (million barrels)	1059	1059	1022	945	860	758	557	339
Consumer prices (%)	21.1	43.5	57.3	111.8	274.3	862.6	130060	9586

Source: UN Economic Commission for Latin America, US Energy Information Administration, World Bank, International Monetary Fund, Oficina Nacional de Estadística e Información, Banco Central de Venezuela.

shipments to Cuba fell by 57% to about 50 thousand barrels per day.[4] During 2012–2019, oil shipments to Cuba represented between 0.5% and 1.6% of the country's GDP and reached 0.7% in 2019, equivalent to about 5% of both oil exports and oil production (Table 1).

More interestingly, oil exports to Cuba comprise a proportion of Venezuela's overall goods imports that more than doubled since 2012 to an average of 19% in 2018–2019. This is a measure of the opportunity cost to Venezuela of the Cuban oil business. That is, exports to Cuba amounted to one-fifth of critically needed imports in a country that suffered a 63% collapse in real GDP per capita in 2014–2019. In this regard it is also important to consider how Venezuela is being paid by Cuba for its oil shipments and at what price in cash or barter. It also raises the parallel question of the economic value of Cuban services provided to Venezuela.

Given the sad state of the Venezuelan economy hit by mismanagement of its oil industry, the decline in oil shipments to Cuba is unsurprising. At the same

4. "Venezuela, Cuba vow to reinforce oil ties." Argusmedia.com, January 21, 2020.

Table 2. Cuba: Indicators of Trade with Venezuela, 2013-2019

	2013	2014	2015	2016	2017	2018	2019
Exports to Venezuela							
Services (million $)	7745	7526	6789	6653	6668	7018	6038
Merchandise (million $)	2266	2069	1438	642	375	462	NA
Non-Oil	380	291	272	215	259	279	223
Oil	1886	1778	1166	427	116	183	NA
Service Exports to Venezuela							
% of GDP	8.9	8.2	7.0	7.3	6.9	7.0	5.9
% of total services exports	59.5	59.4	63.5	59.7	58.6	59.7	NA
% of imports	52.7	57.7	58.0	64.8	65.6	61.1	71.0
% of Cuba's BIS assets	341	289	326	326	186	185	204
Memorandum							
Real GDP Growth (%)	2.7	1.0	4.4	0.5	1.8	2.2	1.2

Source: ONEI, IMF Direction of Trade, BIS and estimates by the author.

time Cuba's benefit from these shipments depend on the cost it is incurring. This naturally goes beyond economics to elements such as U.S. sanctions arising out of Cuba's support for the Maduro government. We begin by looking at Cuban exports to Venezuela, the counterparty to petroleum imports from that country. This involves dwelling into exports of professional services in some detail to identify its recorded value as well as what may be its fair value.

THE ECONOMIC RELATIONSHIP: A CUBAN VIEW

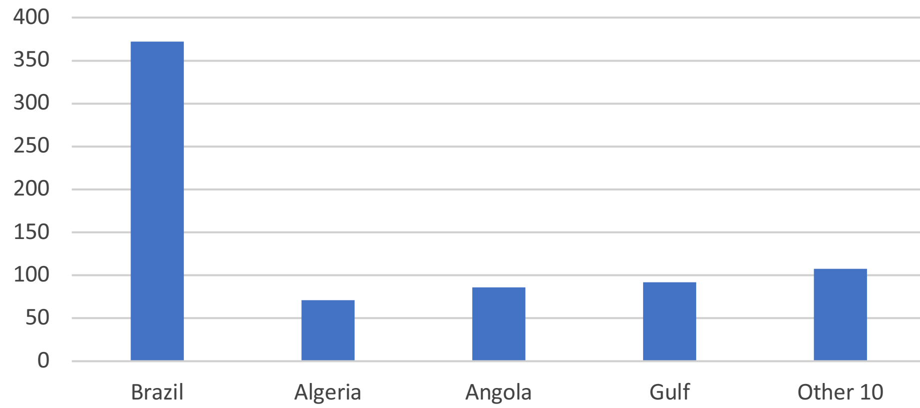
Cuban exports of professional services to Venezuela are at the center of the relationship. It goes without saying that this goes well beyond medical services insofar as Cuban professionals play a key role in the security, administration of government and social policies of the government. Policy and security aspects notwithstanding, this paper focuses on the economic aspects of the bilateral relation.

There are no official figures of professional services exports to Venezuela. As a substitute I calculate these as a residual from overall services exports numbers provided by ONEI in 2012–2018 given available data from governments in Brazil, Algeria, Angola and other nations using Cuban medical services. On this reckoning Cuban services exports to Venezuela reached $7.7 billion in 2012, declining gradually to $7.0 billion in 2018 and roughly $6.2 billion in 2019. In the absence of data from ONEI, the figure for 2019 is calculated as a function of Venezuelan oil prices plus an adjustment for the transfer of 2,500 workers from Brazil. In the analysis of the grant component of barter and trade arrangements, I ignore Cuban non-oil goods exports, which represent only about 4% of professional services exports. Re-exports of oil to Venezuela processed in Cuba are also not included. Oil re-exports involve Cuban value-added ranging between 2% and 12% of the total price depending on the degree of processing with blending operations at the low end and refining at the high end.[5] Import and re-export of oil products are now quite small after the winding down of PDVSA operations in Cienfuegos.

Professional services provided to Venezuela is the top Cuban export product. During 2013–2019 it reached between 6% and 9% of GDP (Table 2). Looked another way, professional services exports to Venezuela are 60% of the island's exports of services, including tourism. Moreover, services exports to Venezuela dwarf the combined exports to other countries where Cuba provides medical services listed by Ministerio de Salud Pública (2019). Venezuela accounted for close to 90% of exports of professional

5. These margins are based on U.S. crack spreads. A description can be found in: www.eia.gov/finance/markets/products/reports_presentations/product.pdf

Figure 2. Cuba: Services Exports 2013-2018 - Annual Average ($ million)



Source: Estimates by the author on the basis of official data from Brazil, Angola and Algeria and press reports for the Gulf (Kuwait, Qatar and Saudi Arabia).

services in 2013–2018.[6] As a comparison, exports of professional services to Brazil, the second largest market, averaged $375 million as against $7.1 billion accruing to Venezuela (Figure 2).[7] Exports to the third and fourth markets, Angola and Algeria, reached $90 million and $70 million per year, respectively. Services provided to three countries in the Arabian Gulf together are estimated at $95 million per year.

Viewed as a proportion of Cuban total imports, exports of professional services to Venezuela reached 71% in 2019 up 19 percentage points since 2013. This underlines the importance of the Venezuelan relationship as an income source. Next, I look at implied subsidies to Cuba in the commercial relation with Venezuela. Be aware that a casual view of the numbers disguises the fundamental transfer of resources between the two countries.

MUTUAL AID: GRANTS AND RESOURCE TRANSFERS

Cuba-Venezuela trade in goods and services is heavily tilted in Cuba's favor, as it is evident from estimates derived from Cuban and international statistics. The bilateral Cuban surplus in 2013–2018 ranged between $4.4 billion and $5.7 billion and was $4.9 billion in 2018, the last year which can be calculated from ONEI statistics (Table 3). My rough estimate places the 2019 surplus at somewhat over $5.0 billion. Cuba's 2018 surplus was equivalent to 43% of Venezuela's total import bill, signaling its sizable impact on the country's balance of payments. It is not possible yet to estimate the trade balance for 2019. While there are estimates for the oil trade between the two countries, services exports depend on closely kept arrangements on compensation and the number of professionals in the medical *misiones* and other Cuban personnel providing services in Venezuela.

What is the meaning of the hefty Cuban bilateral surplus, which averaged 5½% of Cuban GDP in the last few years? This hinges on the confidential payment arrangements between the two countries, the ability of Venezuela to transfer resources to settle its deficit and the willingness of Cuba to provide credit to cover the trade shortfall. Viewing Cuba as a creditor is mindboggling insofar as it is the purported recipient of Venezuela's largesse in shipping oil to the island.

6. Mesa-Lago and Vidal (2019) use a rough estimate of 25% as the proportion of professional services exports to countries other than Venezuela.

7. There were 8332 Cuban health professionals in Brazil in 2018, earning R11,865 per month at an average exchange rate of 3.6 reals per dollar.

Table 3. Cuba-Venezuela Bilateral Trade Surplus and Grants at Market Prices of Doctors (million $)

	2014	2015	2016	2017	2018	2019
Bilateral trade surplus	4436	5463	5732	5225	4870	n.a.
Bartered Oil Grant	1453	173	-241	58	901	-573
Full Grant Component	5568	5334	5256	5004	5460	n.a.
			(% of Cuban GDP)			
Bilateral trade surplus	4.9	5.6	6.3	5.4	4.9	n.a.
Bartered Oil Grant	1.6	0.2	-0.3	0.1	0.9	-0.6
Full Grant Component	6.1	5.5	5.8	5.2	5.5	n.a.

Source: Estimated by author from data from ONEI, IMF, Mais Médicos and International Energy Administration. n.a. means "not available."
Bartered Oil Grant = Imports of Venezuelan Oil - Exports of Services at Market Price of Doctors
Full Grant Component = Exports of Services Derived from ONEI - Exports of Services at Market Price of Doctors.

We can shed some light on the bilateral arrangements and calculate the grant or subsidy component of Venezuelan oil shipments to Cuba. One approach is a bartered oil grant. This assumes that bilateral trade between the two countries is a pure barter arrangement of Venezuelan oil for Cuban services.[8] Venezuelan oil is gauged at market prices while Cuban services can be measured at prevailing salary rates for doctors. I use the salary paid to Cuban doctors in Brazil's Mais Médicos program. This salary reflects prevailing salaries for MDs in Brazil. It is a fair representation of the going rate for Cuban doctors serving in Latin America. A resulting Venezuelan excess value of oil versus the payment in professional services is a measure of the grant or subsidy component of bartered trade. In years of weak oil prices and/or lower volumes shipped to Cuba, such as 2016 and 2019, this results in a negative grant component. That is, Cuba is transferring net resources to Venezuela rather than the other way around. This barter calculation assumes there is no payment or financing involved in settling trade imbalances between the two countries.

The second approach involves calculating the difference between Cuban services exports and its value at the market salary paid in Brazil to Cuban doctors. The grant element is shown on Table 3 as Full Grant Component. This is the excess Venezuela pays for Cuba's export services compared to its cost at prevailing doctor salaries. The full Grant Component was 6.1% of GDP in 2014 and remained above 5% of GDP in the following years.

It is evident from Table 3 that the bilateral trade surplus approaches the value of the full grant component. This simply means that the Cuban trade surplus comprises services that are valued above their market cost. There is therefore a subsidy by Venezuela involved in acquiring Cuban services. Furthermore, the trade surplus includes Cuban merchandise exports other than oil products. Merchandise exports are assumed to earn no subsidy and delivered at market prices. This may not be the case. As these merchandise exports are some $250 million per year, any subsidized price or grant is small compared to the oil versus services transactions.

As explained above Table 3 shows two estimates of the grant component, the bartered oil grant and the full grant component. These two estimates trace low and high points for the grant or subsidy received by Cuba depending on whether pure barter is taking place or whether Venezuela settles its trade deficit with Cuba by cash payment in convertible currency. In the latter case Cuba gets the full subsidy or grant that value its service exports well above its international market value. However, if Venezuela settles partially or fully its trade deficit by means of debt issuance, the grant component will depend on the structure of the Cuban finance.

Table 4 shows payments by Venezuela for Cuban exports of professional services in 2014–2019. In 2014

8. Bartered oil is net of petroleum re-exports from Cuba to Venezuela.

Table 4. Cuba: Exports of Professional Services to Venezuela (million$)

	2014	2015	2016	2017	2018	2019
Exports of Professional Services	7526	6789	6653	6668	7018	6038
Paid in Petroleum	3411	1628	1156	1722	2459	886
Paid in Cash or Financed	4115	5161	5497	4946	4560	5152

Source: Sources: Estimates by the author from ONEI, IMF and Energy Information Administration data.

about 45% of Cuban services were paid by oil shipments, 35% in 2018 and 15% in 2019, as both the volume of petroleum going to Cuba and its price took a big hit. This means Venezuela is using dollars, non-convertible bolivars, borrowing from Cuba, payment arrears or likely all of these to settle accounts.

There is scant public information about compensation agreements between the two countries or the terms of any debt obligations arising from bilateral trade. The agreement between Hugo Chávez and Fidel Castro establishing the cooperation agreement between the two countries states in Article 8 that Cuban services can be paid in "products, in Venezuelan national currency or in other mutually accepted currencies."[9] PDVSA's annual report mentions that there is quarterly compensation between oil exports and medical services provided to *Barrio Adentro*.[10] It does not address the issue of settlement of balances beyond this barter agreement.

We can assess the likelihood of Venezuela making full cash payment. This will depend on the ability and willingness of the government of Venezuela to pay Cuba the required funds in convertible currencies. It is known the Cuba-Venezuela relationship involves other means of resource transfer beyond cash payment. For example, it was reported that Cuba took over the 49% of the Cienfuegos refinery in payment of debts incurred to Cuba. Likewise, there are reports that additional proceeds from joint operations with PDVSA at Cienfuegos involving refining and blending of oil products accrued to CUPET, the Cuban state oil firm. There is also the sizable unexplained build-up of Cuban international liquidity in 2009–2011 that may have partially resulted from net Venezuelan transfers.[11]

Venezuela's capacity to service debt is being sharply curtailed in the last five years by the collapse of oil production and exports and dislocation of domestic industry. This is reflected in data on Venezuelan international reserves and liquid assets in international banks. International liquidity defined by the IMF as "total reserves minus gold" declined by nearly 75% between 2014 and 2018 to $1.9 billion. Another measure of international liquidity are gross assets at international banks reported by the BIS. These have shrunk by $7.6 billion in the seven years to 2019 and approached the level of Cuba, a much smaller economy (Figure 3).

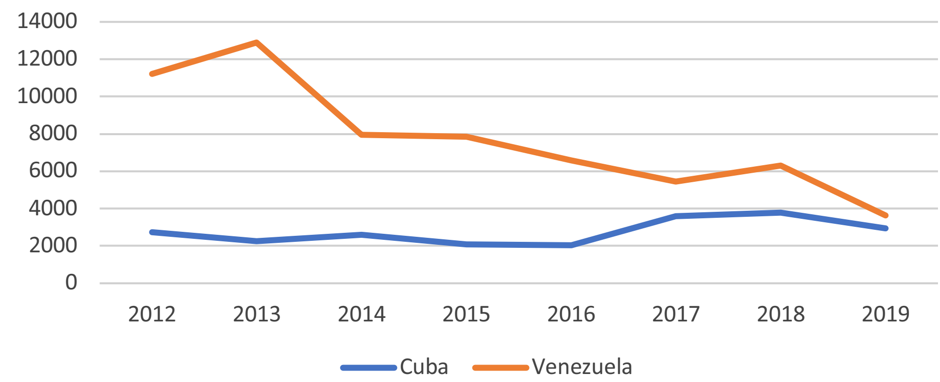
Venezuela's international liquidity in 2018 represented only two months of merchandise imports, and as may be expected a severe 47% contraction of imports took place the following year. The consequences are acute shortfalls of the most basic daily necessities.

Figure 4 shows monthly import levels for Venezuela and Cuba from January 2017 to February 2020. The figure illustrates the collapse of Venezuelan imports and shows that in 2019 Venezuela and Cuba had similar overall import levels. This is an indicator of consumption levels for the two countries which are heavily dependent on imported foodstuffs and medicines. Moreover, the figure implies that 2019 consumption levels per capita are much lower in Venezuela as against Cuba as the island's population is one-third that of its Caribbean neighbor.

The weak international economic and liquidity conditions in Venezuela pose a question mark at the meaning of Cuba's bilateral trade surplus. It strongly suggests that settlement in cash is unlikely as the sur-

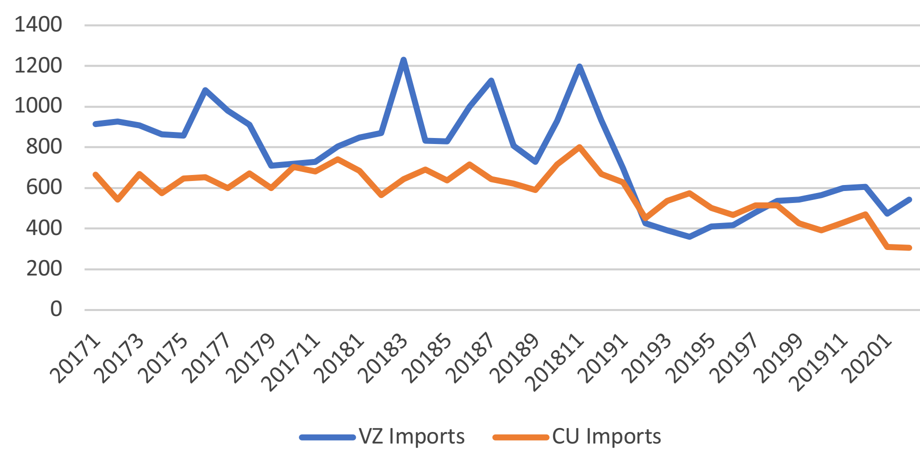
9. Acuerdo (2004).
10. PDVSA (2014).
11. Luis (2012).

Figure 3. International Financial Assets ($ million)



Source: Bank for International Settlements. Venezuela data exclude non-financial entities.

Figure 4. Venezuela and Cuba: Non-Oil Imports ($ million)



Source: IMF, Direction of Trade

pluses exceed Venezuela's liquid reserves and the penury of its import levels mean a dire necessity to use foreign exchange for essential imports. At the same time creditworthiness considerations imply that any debt owed by Venezuela to Cuba will need to be heavily discounted in line with the limited repayment capabilities of the country.

CONCLUSION

The bilateral trade arrangement with Venezuela shows a persistent Cuban surplus. While bilateral trade has declined, the fall in Venezuelan oil exports has been more pronounced than the moderate contraction in Cuba's exports of professional services. As a consequence, Cuba's bilateral trade surplus has remained at a high level. The question is whether sizable aid or subsidies are involved in Venezuelan purchase of Cuban services or whether it is fantasy. Measured as pure barter with Cuban medical services valued at international salary levels the subsidy has been modest or negative in most years since 2015. Cuban services exports derived from official data are well above their cost at international salary levels implying a substantial subsidy. However, the effective subsidy will depend on Venezuela's capacity to settle the Cuban bilateral surplus in convertible currencies or, if not, the value of the resulting Venezuelan debt obligation to Cuba. Uncertain repayment prospects by Venezuela imply a hefty discount on any such debt. It is also estimated that Venezuela accounts for close to 90% of Cuba's professional service exports in 2014–2018. This adds to the fragility of the Cuban balance of payments and its dependence on an unstable partner. The high price of professional service exports to Venezuela is neither realistic nor sustainable.

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