HOW DISTORTED IS CUBA'S TRADE?
Evidence and Predictions from a Gravity Model

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Abstract

Cuban trade has been historically distorted for two reasons: its membership in the socialist trade pact (CMEA) and the US embargo. Using a gravity model, this article explores the degree of distortion of the current Cuban trade structure and predicts its evolution, in the event the economy is liberalized. The econometric approach uses information on trade flows between 101 developing and developed countries in the 1980-1991 period. The main results predict that 80% of Cuban exports and imports will switch away from current partners (in particular, Canada and Japan) towards the US, to reduce transportation and transaction costs. The results appear robust to specification, time period and trade determinants. The degree of distortion of Cuban trade has declined in the 1990-1991 period but, unless the US embargo is lifted, it will not converge to what world trade patterns predict.

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I.   INTRODUCTION

The collapse of the CMEA in August, 1990 not only meant the end of several decades of socialist barter-trade and the beginning of unforeseen reforms in East Europe, but also induced a severe downturn to the Cuban economy, forcing the implementation of much postponed trade reforms which many consider to be the first step towards the dismantlement of the socialist system and the implementation of a full market economy (Mesa-Lago, 1993a; Preeg, 1993).[1]

The response of the Cuban authorities to the crisis has been mixed. On one hand, most of the rhetoric of the economic emergency plan, the *Special Period in Time of Peace,* has called for a reduction in the role of domestic and external markets and a return to tight planning, as well as the enforcing of "socialist incentives" (Mesa-Lago, 1994). On the other hand, the acute shortage of foreign currency and the loss of Soviet subsidies, has forced the government to tolerate an unprecedented number of market activities traditionally regarded as "counter-revolutionary", initially in the form of joint ventures with foreign capital to develop tourism and other foreign generating activities --a direct way to finance fuel and food imports-- and, more recently, with the tacit acceptance of the increasing role of the parallel economy, in which most transactions are conducted in US dollars.

This forced opening of the Cuban economy poses an interesting question regarding the role of trade in a future strategy of development. Although foreign commerce as of 1992 (the latest

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[1] The formal dismantlement of the CMEA came at the beginning of 1991, but trade deals were undertaken on a country-by-country basis and in hard-currency prices since late 1990.

information available) remained concentrated in former CMEA countries, it should be expected that a comprehensive liberalization of the economy would relocate Cuban imports and exports to other developed and developing countries, to benefit from its comparative advantages and reduce transaction and transportation costs. In particular, if the American embargo is lifted, an important part of imports and exports would be redirected to the US, in view of the short distance between the two countries and the size of the American market.[2] In addition, the integration of Cuba to international markets will probably have an important effect on the trade structure of other Caribbean countries, which might suffer from increased export competition, but could also benefit from the relocation of Cuban imports toward less distant partners.

This paper explores these issues. First, we analyze the degree of distortion of Cuban trade with regards to world trade patterns. To this end, we formulate a simple econometric model that simulates, for a country in a similar situation to Cuba, the pattern of trade in terms of volume and partner composition. We then measure how far Cuba is from that benchmark. Second, recognizing that countries in the Caribbean Basin might share a particular trade structure as determined by location, endowment, and access to foreign markets, the model is modified to discuss to what extent the simulated structure of foreign trade of Cuba would differ from that of its neighbors. Third, using predictions of the model for the 1980-85 and 1986-91 periods, we analyze the evolution of Cuban trade to verify whether actual changes in trade structures reflect an increasing integration with world markets.

The econometric approach, known as a gravity model, is relatively straightforward. We pose a reduced-form specification which links the total volume of bilateral trade to the degree of economic

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[2] For example, in 1988 85% of wheat and 50% of Cuban corn imports came from the USSR, incurring in high transportation cost that could have been otherwise avoided if goods were imported from the US excess production.

development of the countries and transportation costs, as well as specific variables that might influence trade, such as vicinity (neighbor countries), trade arrangements, landlocked territory, etc.[3] Although rigorous theoretical foundations for this type of models can only be obtained under somewhat restrictive assumptions[4], they have outperformed more sophisticated models when predicting bilateral trade and providing reliable results (Foroutan, Montenegro and Pritchett, 1994; Frankel, Stein and Wei, 1994).

The paper is structured as follows: section two discusses the initial conditions which forced the Cubans to integrate with market economies and portrays the level and composition of foreign trade. Section three presents the econometric approach and discusses issues regarding the availability of data and its limitations. Section four presents the econometric estimation. Section five presents comparisons of actual Cuban trade with that simulated by the model, using two country samples (65 LDCs and 13 Caribbean countries) and two time periods (1981-85 and 1986-91) that help calibrate the results. Section six sums up the conclusions.

II.   ECONOMIC CRISIS IN CUBA AND TRADE RELOCATION

Despite recurrent mismanagement and planning problems, the Cuban economy grew at rather high rates during most of the 1975-1985 period, when the economic authorities gradually introduced a modest market reform. When measured by the gross social product (GSP), the economy grew at an average rate of 8% per year and per-capita income doubled. It is estimated that by 1985, per-capita

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[3] Gravity models have been successfully applied to EC countries (Fitzpatrick, 1984; and Oguledo and MacPhee, 1994), regional and sectoral analysis (Docclo, 1993; Eaton and Tamura, 1994), East European transition economies (Havrylyshyn and Pritchett, 1991), industrialized countries (Bröckner and Rohweder, 1991), and even for specific products (see Slama, 1983, for an analysis of flows of patent applications).

[4] Anderson (1979) and Bergstrand (1985) provide general equilibrium foundations for gravity models under very restrictive conditions (product homogeneity and identical preferences and production functions in both countries).

GDP reached US$ 2,900, ranking Cuba among the richest countries in Latin America (see Table 1).[5] In contrast, most developing countries, and in particular Cuba's Caribbean neighbors, exhibited low growth and poor macroeconomic performance, especially in terms of their volume of trade.[6] GDP in Cuba expanded faster in the second half of the decade, at around 10% per year, largely fueled by the continuing demand of sugar and other primary goods from the USSR and other CMEA partners, and the willingness of the latter to pay subsidized prices. Total subsidies implicit in sugar, oil and nickel prices in that period are estimated at around $15 billion, equivalent to 10% of GSP per year (Mesa-Lago, 1993a).[7]

Trade, as in the case of most socialist economies, remained constrained by the CMEA structure in which transactions were quoted in convertible rubles, but in fact were negotiated as barter-trade agreements. Within these boundaries, Cuban exports concentrated heavily in sugar (75%), minerals (5%), and tobacco (2%), while the main imports were fuels (35%) and machinery and other capital goods (30%); trade with market economies was not more diversified in terms of exports. Table 1 presents the aggregate composition of Cuban exports and imports, valued in domestic currency, where the mono-export characteristic of the economy and the inability to diversify exports is apparent. Despite substantial efforts devoted to diversification, "other" exports increased their share from 5.5% in 1975 to only 9.5% in 1985.

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[5] These figures should be taken with caution because estimating Cuba's real GDP in foreign currency is difficult since national accounts follow the standard socialist material product methodology and also because the official exchange rate is evidently overvalued.

[6] During the 1975-85 period, the Caribbean countries grew at an annual average rate of -1.1% (per capita), while their trade volumes decreased by 0.4% annually (World Bank, 1990).

[7] These estimates, which exclude other transfers in the form of development and/or military aid, are based on a comparison of the international prices of the main export goods (sugar, nickel) and those actually paid by the USSR. A similar calculation is performed for Cuban oil imports.

This pattern of trade --exports concentrated in primary goods and significant capital goods imports-- does not deviate significantly from that of most developing countries with comparable per-capita income levels. However, the composition of trade in terms of partners reflects an important pattern and a worrisome evolution (see Table 2). Trade within the CMEA concentrated almost exclusively in one partner, the USSR, with few transactions taking place with other socialist countries. Moreover, during the 1980-85 period Cuban exports reoriented from the OECD and LDCs toward socialist economies, in particular to the USSR, so that by 1985 almost 90% of all exports were directed to CMEA countries, in contrast with only 68% in 1975. Given that trade with socialist countries in non-transferable rubles required deficits in the balance of payments to remain under control, imports from socialist economies increased also markedly in the period, though not as much as exports.

The share of imports from the OECD countries, which diminished to only 11.3% of total imports by 1985, reflects the increasing inability of Cuba to finance its substantial trade deficits in hard currency. Since 1981 there was a tendency toward a continuous deterioration in the balance of payments in hard currency, which depended heavily on Cuban re-exports of Soviet oil and sugar proceeds. Not only did the USSR reduce the quota of oil to be sent to Cuba but also, as prices in international markets declined, revenues from reexporting oil fell. As a result foreign debt accumulated; the outstanding debt in hard currency was estimated around 12% of GDP in 1985 (see Table 1).[8] This level was low by Latin American standards, but due to Cuba's reduced capacity to obtain hard-currency revenues from exports, it actually caused substantial financial distress to the economy.

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[8] Cuba's foreign debt with CMEA countries is not available before 1989, when it was estimated at R 15.4 billion with the USSR and R 3 billion with the other countries. The official exchange rate in 1989 was R 1.58 per US dollar, while the commercial rate was R 0.50 to the dollar; hence, the total debt ranged between US$ 10 to 16 billion.

In spite of the satisfactory macroeconomic performance in the 1975-1985 period, in 1986 the Cuban authorities launched a revised program of economic control, the *Proceso de Rectificación*, which called for a reduced role of market forces at both the external and domestic level. The reasons for the reversal in market liberalization seems to be mainly ideological, although the increasing foreign debt stemming from the trade deficit as well as a worsening income distribution, might have played some role (Mesa-Lago, 1993a, pp. 133). The further deterioration in sugar prices and oil re-export revenues led the Cuban authorities to reschedule debt obligations in 1985-86 and initiate a program of economic austerity, which did not avoid the declaration of the debt moratorium in 1987.

Output growth targets for the 1986-90 period, in the range of 4 to 5% per year, could not be achieved as the increasing difficulties in the trade with Eastern Europe rendered the target unattainable. Nonetheless, the economy maintained some inertia and GDP grew at 2-3% per year. The collapse of East European markets in 1990 and the reduction in subsidies from Russia (implicit subsidies to Cuban exports fell from 10% of GSP in 1985 to zero in 1992) could not be compensated by expanding exports to market economies, tourism revenues, and joint venture investment. As of 1993, the economy has completed a deep recessionary period, in which per capita GDP is estimated to have declined by 45% (see Table 1). Exports to East Germany, Poland and Yugoslavia disappeared altogether while oil imports barely reached one fifth of its 1988 level, insufficient to meet the domestic demand for fuels. A key element in this dramatic economic downturn has been Cuba's trade structure; its total dependence on Soviet sugar demands and cheap oil supplies made the economy extremely vulnerable to trade disruptions.[9] The debacle could have been worse were it not for favorable trade pacts negotiated with Russia in 1990 and 1991, which softened the phasing out of

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[9] Mesa-Lago (1993a) estimates that the loss of CMEA subsidies in trade and commercial credit during the 1989-92 period directly caused a drop in GDP of around 25%. Indirect effects on domestic production remain to be quantified.

transfers and allowed Cuba to seek new markets for its exports (such as Egypt, Syria or Argentina) as well as new partners with which to continue barter trading of sugar for oil (the newly formed republics of Central Asia and Iraq).

The distorted trade structure of Cuba not only reflects an excessive participation of the USSR and other CMEA countries, but also an abnormal composition of that part of foreign trade which is undertaken in international markets. This is a direct outcome of the US embargo which not only bans direct trade between the two countries but also prohibits, under the Torricelli Bill, third country subsidiaries of US companies from trading with Cuba and withholds assistance to countries which grant preferential trade agreements to Cuba.

A comparison of trade patterns between Cuba and comparable market economies suggests the magnitude of the distortion and helps assess the potential trade structure that would prevail were Cuba to integrate with the world economy. Table 3 presents the trade structure of Cuba and a group of 13 developing countries in the Caribbean region, for which trade data was available.[10] This "Caribbean Basin" sample portrays the average structure of trade of those countries which by size, location, and endowment are comparable in economic terms to Cuba. Apart from group totals, we have included the simple average of three countries potentially similar to Cuba in terms of location and endowment (Jamaica, Dominican Republic and Trinidad and Tobago) to control for the presence of economies larger than Cuba (e.g., Mexico, Venezuela) that would potentially bias the analysis. The results, nevertheless, do not differ in any important respect.

The first element to be drawn from the table is the key role played by US trade in each of these countries, and consequently, the importance for Cuba of the American embargo. On average,

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[10] The countries are Colombia, Costa Rica, Dominican Republic, Guatemala, Honduras, Haiti, Jamaica, Mexico, Nicaragua, Panama, El Salvador, Trinidad and Tobago, and Venezuela.

half of total exports and imports in the region are exchanged with the US, while the composite of the three countries trades slightly more. A second and related issue is the importance of Canada and Japan in Cuba's trade, which in part substitute the American market; in comparative terms, none of the Caribbean countries exchange more than 6% of total trade with Canada, while Cuba triples that amount. Similarly, trade with Japan is much more important for Cuba than for the other countries, even when considering that the group average is affected by the important volume of imports of Panama (48% of total trade) and exports of Venezuela (25%); the difference is particularly important when comparing the three-country composite, which export less than 1% of the total to Japan as opposed to 19% for Cuba. A third element is the relative importance of the EC, which accounts for more than 50% of Cuban imports, but is far less important for the rest of the Caribbean countries. In particular, Spain provides almost 15% of total Cuban imports, but less than 2% in the other countries. Finally, Cuba's trade with developing countries tends to be concentrated in countries other than Latin American economies, which are half as important in Cuba as in the Caribbean countries, particularly in exports, which concentrate in Egypt, Syria and other Middle East countries.

The preceding description suggests two main shortcomings of the present Cuban trade patterns: on one hand, the US embargo requires Cuba to pay an extra cost for imported goods arising from long-distance transportation, which would otherwise be drastically reduced by purchasing goods of equal quality from the US. On the other hand, Cuba's exports are concentrated in a product (sugar) also produced by other Caribbean countries and sold by bilateral agreements with the US, which forces the Cuban authorities to search for distant markets to place exports. This acts as an implicit "tax" on export revenues.

During the late 1980s and early 1990s, Cuban exports declined considerably both in volume and value; the lack of access to credit obliged the government to reduce imports drastically. Total

trade declined from $13.5 billion in 1989 to $7.3 billion in 1991 and to around $4 billion in 1993 (see Table 1). As East European countries sank into foreign trade crises, Cuba turned to China, Egypt, Syria, Argentina and other developing countries as destination for its exports; LDCs became important partners and increased their share in total trade from 8% in 1985 to around 20% in 1989 and 25% in 1991. Although most of the trade difficulties with ex-CMEA countries are a response to the adverse conditions in the latter, part of the reduction in exports to the USSR and other CMEA countries arise from the fact that since 1991, an increasing part of shipping costs were to be paid by Cuba (Blasier, 1993), thus reducing export revenues.

III.   THE GRAVITY MODEL

Gravity models have been utilized to analyze the pattern of trade between two countries with particular success for more than 30 years. Two seminal papers by Tinbergen (1962) and Pöyhönen (1963) provided initial specifications and estimates of the determinants of trade flows but, like most of the literature, lacked an adequate theoretical background. The basic intuition, which gives its name to this type of econometric models, is that trade between two countries resembles the gravitational interaction between planets; the attraction force (equivalently, total trade) is determined by their relative masses (i.e., economic size) and the distance which separate them (i.e., the transportation cost). In addition to this basic framework, other variables are introduced to acknowledge the effects of bilateral trade arrangements, colonial and cultural ties, dissimilar factor endowments, and political factors. Despite weak theoretical foundations, gravity models remained popular as they have outperformed more sophisticated models when forecasting the composition of trade flows. According to Deardorff (1984) this success is due to its ability to explain some real phenomena the conventional

factor endowment theory cannot easily accommodate by itself, such as intra-industry trade and, in particular, the lack of dramatic resource reallocations when trade liberalization processes have taken place. Recently, however, Treffler (1993) provided evidence that trade flows can be consistent with the endowment theory once factor-augmenting differentials in productivity among countries are allowed in the specification.

The empirical success of gravity models motivated a search for a theoretical justification of the originally ad-hoc specification. Linneman (1966) provides one of the earliest theoretical model in which the gravity equation corresponds to a reduced-form equation derived from a four-equation partial equilibrium model of export supply and import demand. This simple specification, in which prices merely adjust to equate demand and supply, remains one of the most commonly used models (e.g. Oguledo and MacPhee, 1994; Docclo, 1993 and Havrylyshyn and Pritchett, 1991). More rigorous general equilibrium models are presented by Anderson (1979) and Bergstrand (1985) which, however, use restrictive assumptions to derive the gravity equation; in particular, they require identical preferences and production functions, perfect substitutability of goods in production and consumption, perfect arbitrage, and constant transportation costs. Finally, Asilis and Rivera-Batiz (1994) derive a gravity equation from a general equilibrium model which relaxes technological assumptions and allows for externalities (pollution and congestion).

The standard gravity specification postulates that trade between two countries can be modelled as in equation 1, where the subindex i represents the reporter country and the subindex j corresponds to the partner country:

$$M_i^j, X_i^j = \phi(TP^i, TP^j, TC_i^j, SF^{i,j}) \tag{1}$$

where M_i^j represents non-fuel imports of the reporter from partner "j" and X_i^j corresponds to non-fuel exports of the reporter to partner "j". Trade potentials (TP^i, TP^j) are usually represented in terms of the size of the economy (measured for example by the GDP), its degree of development (e.g., per-capita income) and population or physical area. In addition to transportation costs (TC_i^j), specific factors ($SF^{i,j}$) can have an important effect in determining trade volumes between two countries; among them, membership in special trade areas (bilateral or multilateral arrangements), cultural affinity, vicinity (countries sharing a common border), and particularities such as a reporter or a partner being an island or landlocked. In this study we use the following specification:

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\begin{aligned}
M_i^j \, , \, X_i^j \; = \; & \beta_0 + \beta_1 GDP_i + \beta_2 \frac{GDP_i}{N_i} + \beta_3 Area_i + \beta_4 Island_i + \beta_5 \cdot \\
& + \beta_6 GDP^j + \beta_7 \frac{GDP^j}{N^j} + \beta_8 Area^j + \beta_9 Island^j + \\
& + \beta_{11} D_i^j + \beta_{12} Border_i^{j,k} + \beta_{13} Linder_i^{j,k} + \sum_{z=1}^{5} \delta_z L
\end{aligned}
\tag{2}
$$

where Area is total area (in square miles), Island, Border and Landlocked are dummy variables taking value 1 if either the reporter or the partner is an island, share common boundaries or are landlocked, respectively. D_i^j is the distance between countries in miles, which is used as a proxy of transportation costs. Linder corresponds to the absolute difference in per-capita GDP (expressed in US$) and is used to test the alternative hypotheses that countries trade more if their economies differ (when trade is determined by comparative advantages a positive sign is expected) or are similar (when they trade based on differentiated products a negative sign is expected).[11] $Lang_i^{j,k}$ represents cultural affinities as proxied by equal language among reporter and partner (languages, indexed by k, include English,

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[11] Linder (1961) advanced the notion that countries with similar per-capita income, produce and consume similar goods, thus trade with each other more than when their economies differ in size and structure.

Spanish, French, Arabic and Portuguese). Finally, T.A.$_i^{j,k}$ is a dummy for trade agreements, which is

indexed $i,\{j,k\}$ to reflect that a country may belong to more than one trade arrangement.

Regarding the sign of the parameters, it is expected that trade will increase with GDP as well

as with cultural ties and trade arrangements. On the contrary, as distance increases trade should

decline, recognizing the adverse effect of transportation costs. Likewise, trade should decline with

the economic size (proxied by area) of trading countries (partner or reporter). Regarding the reporter

and partner's per capita GDP, Bergstrand (1989) suggests that signs are ambigous: exporter per

capita GDP should have a positive (negative) effect if the composition of trade flows is capita (labor)

intensive in production. Importer per-capita GDP should have a positive (negative) effect if the

composition of trade flows is on luxury (necessity) goods in consumption. We expect the former to

be negative, reflecting the relative abundance of labor in Cuba, when compared to most market

economies. This assumption, nevertheless, cannot be empirically determined since the measurement

of endowments as undertaken for market economies (Leamer, 1984), would yield particularly biased

results in this case, due to lack of data and price distortions which characterized the Cuban economy.

An interesting case is the interpretation of Island, for which a positive parameter is expected;

reflecting the empirical regularity that islands tend to trade more than other countries. The reason is

that islands tend to be very specialized in their inputs to production, and thus must rely on

comparative advantage to enhance wealth. Furthermore, there is strong empirical evidence that per

mile shipping by land is twice as expensive as shipping by ocean.

The estimation procedure is undertaken using a Tobit model, to control for left-censoring

problems which arise in this case because trade volumes are bounded from below by zero. OLS

techniques are inappropriate in this context because parameters are inconsistent if the dependent

variable is censored. Alternative procedures utilized by some researchers, such as eliminating zeros

in the dependent variable (e.g., Brada and Méndez, 1985) or replacing them by arbitrary small values, tend to bias the results. Another advantage of the Tobit specification is that the use of a maximum likelihood technique yield parameters which are extremely reliable, even when the sample is rather small (Sen and Matuszewski, 1991). In our case, large samples (between 1,300 and 6,500 observations) ensure the quality of the estimation. In addition, we use a logarithmic specification, which also gives a direct measure of the elasticities; Sanso, Cuairan and Sanz (1993) present evidence regarding the appropriate specification of gravity models by using Box-Cox time transformation and conclude that "a log-linear specification is a fair and ready approximation to the optimal form." Rewriting equation (2) in compact form:

$$og\, y_i \;=\; -\tau_y + \theta' Z_{y_i} + \mu_i \qquad\qquad with \quad \mu_i \sim N(0, \sigma_\mu^2) \tag{3}$$

$$_i = 0) = Prob\,(u_i < \tau_Y - \theta' Z_{V_i}) = (1 - F_i)$$

$$_i > 0) \cdot f(y_i | y_i > 0) = F_i \frac{f(y_i - \theta' Z_i, \sigma_\mu^2)}{F_i} = \frac{1}{\sqrt{2\Pi\sigma_\mu^2}}\, e^{-1/2\,\sigma_\mu^2\,(y_i} \tag{4}$$

where y_t represents alternatively imports and exports, $-\tau_y$ is an ancillary parameter, θ is a vector of parameters, Z_y is the vector of exogenous variables and μ_i is an i.i.d. random shock. Given the censored nature of the data, we have:where $f(y_i|y_i > 0)$ is a density function, and F_i is the normal cumulative density function. The log-likelihood function is then:

$$Log\, L \;=\; \sum_{y=0} \log(1 - F_i) \;+\; \sum_{y>0} \log\!\left(\frac{1}{\sqrt{2\Pi\sigma_\mu^2}}\right) \;-\; \sum_{y>0} \frac{1}{2\sigma} \tag{5}$$

The maximum likelihood estimates of τ_y and θ maximize Log L(y,Z,τ_y,θ).

Despite all the advantages of the gravity equation, we acknowledge that in the absence of a solid theoretical background the interpretation of the results may be less precise than one would like, and that since the model is rather simple, it may neglect other potentially important factors (such as the endowment of natural resources). At the data level, physical distance is not necessarily a good proxy of transportation costs as noted by Geraci and Prewo (1977) and Balassa and Noland (1988), although it is readily available; likewise, using the territorial area or population as proxies of economic size can be misleading in some cases.

IV.   EMPIRICAL RESULTS

The gravity model is estimated for exports and imports separately, instead of the total trade turnover with every partner, as it is presumed that the effects of the fundamentals might differ in each case. In addition, we performed the estimation for the average value of trade of 65 developing countries in two different periods, 1980-85 and 1986-91, with a total of 100 partners for each country (thus each regression uses 6,500 observations).[12] The former captures the last period of "pure" socialist trade, before the first attempts of reform were introduced in the USSR, Eastern Europe and especially in Cuba. The latter period attempts to depict the situation after the collapse of the socialist economic order, which affected not only Cuba directly but also the rest of the LDCs which have seen increased competition in commodity markets. Also, by using the average trade for that period we avoid transient phenomena biases (e.g., the business cycle) that might arise when using a single year sample. Finally, in order to acknowledge the notion that Caribbean countries might enjoy specific characteristics (e.g., location) that would force them to deviate from the average economy as

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[12] See the Appendix for a description of the sample and the selection criteria.

predicted by the general model estimated, we re-estimate the gravity model for the group of 13

countries that comprise the bulk of total trade in the area (the sample comprises 1300 observations

in each period).

The results of the Tobit estimation are for the 1980-85 period are presented in Table 4. In

general, all parameters are significant at conventional levels of confidence and present the expected

sign. The parameters are also in the range of other studies which use similar methodologies (see

Frankel et al. ,1994; Foroutan et al., 1994)[13]. As expected, in both export and import regressions

transport costs and vicinity have a significant parameter, a result that is robust to country and period

selection. Similarly, the size of the economy measured by the GDP, for both the reporter and the

partner, has a positive effect on the volume of trade. Parameters which capture specific characteristics

of the countries (size, landlocked and island) confirm the regularities obtained in previous papers: the

negative parameter of the reporter's area, in both exports and imports regressions, suggests that the

larger the country, the less it trades. On the contrary, islands tend to trade more than the rest of the

countries, as well as landlocked economies. Regarding per-capita GDP, the results are surprising,

because a negative parameter implies that as countries industrialize, they tend to trade less[14]. Dummy

variables which reflect common language between the reporter and its partners are all significant and

positive; likewise, dummies for bilateral trade arrangements indicate these are important determinants

of trade. Note, however, that two of the most important Latin American integration pacts (Andean

and CACM) are not significant in either specification. This might reflect the fact that these pacts

never materialized nor had a strong effect on the economies; for example, the "football war" between

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[13] The appropriateness of the Tobit procedure can be illustrated by noting that the OLS estimates on the GDP and distance parameters would have been overestimated by 25 to 30%, in both the general and the Caribbean models.

[14]Foroutan et al (1994) also found a negative sign, which might suggest that the variable is a poor proxy of the degree of industrialization.

Honduras and El Salvador, the guerrilla movement in Central American countries and other political problems undermined the CACM integration effort (Moncars and Medal, 1991).

The results for the Caribbean sample shows some interesting deviations from the general case. The parameter of distance is statistically larger (in absolute terms) than that of the large sample, which agrees with our presumption that location is an important determinant of trade composition for Caribbean countries. On the other hand, vicinity has little effect in the small sample case, reflecting the fact that intra-regional trade is small and also that few countries share borders in the Caribbean Basin. The relative similarity in terms of size (area) among Caribbean countries, especially when compared with countries like Brazil or the USA, explains the insignificant parameter found. [15]

Another deviation from the general case is the positive and significant sign of the parameter for the Linder Hypothesis, which implies that Caribbean Basin countries trade with their partners on the basis of comparative advantages and a different composition of goods, rather than by the Krugman hypothesis of differentiated goods trade. Finally, some dummy variables proved to be of little significance (e.g., French language, Lomé convention), which is to be expected when we consider the situation of the selected Caribbean Basin countries.

The estimation of the general model for the 1986-91 period does not produce significant differences with that for the period 1980-85, in terms of the sign and size of the parameters as well as statistical significance; the results are presented in Table 5. In the case of Caribbean Basin countries, however, some differences arise mostly in the cases of dummy variables, but particularly in the case of the degree of industrialization which is now non-significant. It is important to note the stability of the results, particularly in the Caribbean countries case where the economic conditions

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[15] Thoumi (1989) suggests that in the Caribbean case, some borders should not be included as "some adjacent areas are uninhabited, unexploited and are obstacles rather than promoters of trade".

between the 1980-85 and 1986-91 periods changed dramatically. In the former period, most Caribbean countries were experiencing a profound crisis as due to the Debt crisis and the structural adjustment process. On the contrary, the 1986-1991 period has been one of recovery and consolidation of the reforms. In spite of this very different macroeconomic framework, the estimation of the model and its simulation for the case of Cuba does not change in a significant way, reflecting the robustness of gravity models alluded by Deardorff (1984) and other authors.

V.   SIMULATION RESULTS

The estimated models for both samples of countries were used to simulate the volume of trade of Cuba with its potential partners in a free-trade situation. In order to forecast trade patterns, however, an estimate of Cuba's GDP and population is required; while the latter can be easily determined, GDP figures in US$ are difficult to obtain (see footnote 5). Nevertheless, the results proved robust to different estimates. Table 6 presents the results of the predictions of import and export volumes for each individual country, grouped into standard regional blocks; these predictions are based on the parameters of the regressions for both the Caribbean Basin countries and the large sample of countries presented in Table 4 and GDP figures reported in Table 1.

The most important result of the simulation, as expected, is the increase in the share of the US in both Cuban exports and imports, in response to low transportation costs and the large differential in size and level of industrialization with Cuba. This result, which is robust across country samples and simulation periods, can be considered the most likely long-run trade pattern of Cuba after the embargo is lifted and the economy is opened. The level, however, is to some extent surprising; the simulated volumes of exports and imports for Cuba resemble more closely the trade pattern of

the Dominican Republic (see Appendix Table 1), than that of the rest of the Caribbean Basin economies, especially in terms of exports. This is a result of the vicinity with the US, since by size and per-capita income Cuba does not differ substantially from other Caribbean countries. Note also that Cuba's predicted trade composition also resembles that of Mexico, which enjoys vicinity with the US.

The increase in the share of the U.S., which becomes a dominant partner in both exports and imports, is counterbalanced by the decline in the shares of other developed countries, including most European countries and, especially, Canada and Japan, which reduce their participation to around 1% and 2% of total trade, respectively. These two countries are good examples of the role of transportation costs in trade patterns; since by economic size and degree of industrialization they do not differ markedly from the USA when compared to Cuba, much of the reduction in their share is due to higher costs arising from the long distance which separates them from Cuba.[16] It should be noted, however, that this result is conditional on the assumption that goods are homogeneous (close substitutes); under heterogenous goods it is possible that quality differentials might offset reductions in transportation costs, in the case of countries which export goods that dominate world markets (e.g., Japanese automobiles).

Although this is the most impressive result, the reordering of trade is also important in the case of the developing countries. Cuban exports to Latin America should increase as a result of the reshuffling of exports from other LDCs to the U.S.; on the contrary, Cuban imports from Latin America, which by 1986-91 reached 25%, should decrease markedly to around 3.5%.

Finally, the reshuffling of Cuban trade poses some threats to the trade structure of other Caribbean countries. In the event that Cuba were allowed to trade freely in international markets

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[16] Linneman's (1966) reported distance from Cuba to Canada is 1600 miles, to Europe (Spain) is 4,400 miles and to Japan is 14,400 miles.

(including the US), Caribbean countries that actually export sugar, tobacco and/or ferro-nickel minerals would face increased competition from a country possessing similar comparative advantages and which for the US market, has negligible transportation costs. On the other hand, the simulated pattern of Cuban imports suggests that other Caribbean countries would not benefit from the opening of the economy. In fact, Cuba would probably reduce its imports from Latin America and the Caribbean.

When using any econometric model, one would like to determine the quality of the estimation by comparing predictions with actual data; this unfortunately cannot be undertaken in the case of Cuba. In order to give an idea of the accuracy of the gravity model we have simulated the trade pattern of a country similar to Cuba in size, endowment and location, the Dominican Republic. Table 7 presents the correlation coefficients of actual trade by partner and the corresponding simulated values; the good quality of the Tobit estimation of the gravity model and the reliability of the results are apparent, in particular in the case of the Caribbean Basin sample. These satisfactory results allow us to be confident that simulations for Cuba would not be systematically biased.

VI.   CONCLUSIONS

This paper presents an econometric evaluation of Cuba's trade structure and its recent trend towards integration with market economies. The collapse of the CMEA in the early 1990s greatly affected the socialist barter-trade structure in which Cuba enjoyed an especially favorable treatment in the form of subsidized exports and oil prices and secured export volumes. The severe downturn of the Cuban economy, resulting from the acute shortage of foreign currency and the loss of Soviet subsidies, has forced the government to open the economy to an unprecedented number of activities traditionally banned, both in the form of joint ventures with foreign capital to develop tourism and the acceptance of an increasingly important dollarized parallel economy. The traditional productive sector, however, remained under firm state control.

We use a gravity model to explore the trade structure that would prevail were the liberalization of the Cuban economy to continue. A comprehensive trade reform would relocate Cuban imports and exports towards other developed and developing countries and away from East European economies, to benefit from its comparative advantages and, in particular, from lower transaction and transportation costs. Assuming that the American embargo is lifted, the model predicts that a substantial part of imports and exports could be redirected to the US, in view of the short distance between the two countries and the size of the American market. Furthermore, the integration of Cuba into international markets will have an important indirect effect on other Caribbean countries, which will suffer from increased export competition; benefits from the relocation of Cuban import demand toward its Caribbean neighbors appear to be less important.

We found little evidence that Caribbean Basin economies share different determinants of trade pattern when compared to a sample of 65 LDCs, although some differences arise to reflect their

particular location and endowment. Nevertheless, predictions from this model confirm the general results and, not surprisingly, assign an even more crucial role to trade with the US. In addition, we perform estimations of the model in two periods (1980-85 and 1986-1991) in order to control for transient phenomena, finding little evidence of a distinct trade pattern.

Finally, we use the predictions of the model to analyze whether the evolution of Cuban trade actually reflects an increasing integration with world markets along the lines suggested by the gravity model. Comparing the 1980-85 period with the most recent data available (1990-91) we found that Cuba has modified to some extent its trade structure away from former CMEA countries and in favor of industrialized and developing countries, but unless the US embargo is lifted, it will continue to show distorted trade structures and to suffer from excessive transportation and transaction costs.

A word of caution is in place when analyzing these results. As mentioned, the power of gravity models lies in its ability to predict trade patterns which in general do not conform to theoretical predictions. To some extent these deviations can be the consequence of extra-economic elements which have an important effect on trade patterns; for example, the long-run economic ties of Cuba and countries such as Canada, Spain or Japan may be hard to sever for political reasons, so that the share of these countries in Cuban trade can remain at levels higher than predicted for a long period. Likewise, the predicted increase in trade with the US, particularly exports, might not be fully realized if Cuba cannot obtain access to the American sugar market, which is protected by import quotas.

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APPENDIX
DATA SOURCES AND COVERAGE

Country Sample

The econometric section uses a sample of 101 market economies for which annual imports in 1980 were more than US$ 300 million; socialist economies were excluded; these 101 countries constitute the group of *partners countries*. Regarding the group of reporters, we excluded 35 countries from the sample, for which it was deemed that trade determinants differ markedly from that of the developing countries; among these countries are developed countries, most oil exporters as well as economies which for special circumstances have distorted trade patterns (Israel) or for which trade reports are inaccurate (South Africa). The complete list of countries is:

Countries which are reporter and partners:

Angola, Argentina, Benin, Bangladesh, Bolivia, Brazil, Burundi, Chile, Cote d'Ivoire, Cameroon, Congo, Colombia, Costa Rica, Dominican Republic, Egypt, El Salvador, Ethiopia, Ghana, Guatemala, Honduras, Haiti, India, Indonesia, Jamaica, Jordan, Kenya, Korea, Lebanon, Liberia, Madagascar, Malaysia, Malawi, Mexico, Mauritania, Mauritius, Morocco, Mozambique, Myanmar, Nicaragua, Niger, Pakistan, Panama, Peru, Philippines, Papua New Guinea, Paraguay, Senegal, Somalia, Sri Lanka, Sudan, Syria, Taiwan, Tanzania, Togo, Thailand, Trinidad and Tobago, Tunisia, Turkey, Uganda, Uruguay, Venezuela, Yemen, Zaire, Zambia, Zimbabwe.

Countries which are only partners:

Algeria, Australia, Austria, Belgium-Luxembourg, Canada, Denmark, Ecuador, Finland, France, Gabon, Germany, Greece, Hong Kong, Iran, Iraq, Ireland, Israel, Italy, Japan, Kuwait, Libya, Netherlands, Nigeria, Norway, New Zealand, Oman, Portugal, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, United Arab Emirates, United Kingdom, USA.

Definition of the Variables

M_i^j, X_i^j corresponds to the dollar value of non-fuel imports or exports between each reporter and partner country. The data was obtained from the UNSO COMTRADE database.

GDP (in current US$) and population was obtained from the World Bank BESD data set.

DISTANCE$_i^j$ is the distance between the reporter and the partner, in miles. It does not correspond to straight distances between capitals, but to the most probable trade center (point of entrance). The data were taken from Linemann (1966).

AREA corresponds to land area in thousands of square miles.

LANDLOCKED^{i,j} is a dummy variable which takes value 1 if the reporter or the partner is landlocked and zero otherwise.

BORDER$_i^j$ is a dummy variable which takes value 1 if the reporter and the partner share a border and 0 otherwise.

LINDER$_i^j$ is the absolute value of the difference in per-capita GDP between the reporter and the partner.

LANG$_i^{jk}$ is a dummy variable which takes value 1 if the reporter and partner share the same language. Dummy variables were included for English, Spanish, French, Arabic and Portuguese.

T.A.$_i^j$ is a dummy variable equal to 1 if the reporter and the partner belong to a preferential trading agreement (bilateral or multilateral). T.A. includes (depending on the country sample) dummies for ASEAN, ANDEAN, LAFTA, CEAO, CACM and the Lomé convention.

TABLE 1
CUBA: SELECTED ECONOMIC INDICATORS, 1975-1989

	1975	1980	1985	1986	1987	1988	1989	1990e	1991e	1992e	1993e
GDP (billion US$)	12.1	17.6	29.5	31.4	33.7	34.7	32.5	31.5	23.6	20.3	18.3
GDP Per capita (US$)	1310	1818	2923	3080	3272	3339	3377	3243	2206	1897	1710
TradeBalance (in $ million)	-161	-660	-2044	-2341	-2285	-2302	-2708	-1835	-105	-200	-200
Total Exports (in $ million) of which:	2957	3967	5991	5255	5299	5278	5392	4910	3585	2300	1800
Sugar	2651	3320	4463	4098	4019	4116	3914	3645	2575	1162	-
Minerals	139	195	305	310	323	432	496	400	280	210	-
Other (includes oil re-exports)	167	452	1223	847	957	730	982	865	730	928	-
Total Imports (in $ million) of which:	3113	4627	8035	7596	7584	7580	8100	6745	3690	2500	2200
Food	596	762	897	961	794	816	1011	840	720	600	-
Fuel	321	912	2656	2538	2638	2569	2598	1950	1240	850	-
Machinery	1050	1740	2420	2329	2337	2410	2531	2380	820	350	-
Tourist Arrivals (thou.)	-	130	173	195	208	225	326	340	424	500	500
Tourism Revenues (US$ million)	-	40	100	-	-	-	240	268	300	350	350
Hard Currency Foreign Debt (US$ million)	-	3170	3621	4985	6094	6450	6165	7300	8400	10000	10800

Source: Anuario Estadistico de Cuba (1989); The Economist Intelligence Unit (1994) and Mesa-Lago (1994).
Note: e = estimate, - = not available.

TABLE 2
CUBA: COMPOSITION OF TRADE BY REGIONAL BLOCKS
(percent)

	1958	1965	1970	1975	1980	1985	1989
Total Exports	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Socialist Economies	2.9	77.7	74.1	67.8	70.2	89.0	83.2
USSR	2.1	46.7	50.4	56.3	56.8	74.8	66.7
other CMEA countries	0.1	14.4	14.6	7.9	10.4	11.3	11.0
other socialist economies	0.7	15.6	9.1	3.7	3.1	2.9	5.5
Industrialized Economies	91.1	15.5	21.4	26.1	13.9	8.2	12.3
Developing Countries	6.0	6.8	4.6	6.1	15.8	2.8	4.5
Total Imports	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Socialist Economies	0.3	76.1	69.9	51.6	78.1	84.3	81.7
USSR	0.2	49.5	52.7	40.2	62.8	67.4	70.8
other CMEA countries	0.1	11.5	10.5	8.0	7.3	13.4	8.1
other socialist economies	0.0	15.1	6.8	3.3	2.6	3.4	2.8
Industrialized Economies	86.7	19.2	28.2	41.7	19.5	11.3	10.1
Developing Economies	13.0	4.7	1.8	6.7	2.4	4.4	8.2

Source: Anuario Estadistico de Cuba (1989).

TABLE 3
TRADE COMPOSITION OF CUBA AND 13 DEVELOPING COUNTRIES
WITH MARKET ECONOMIES, 1980-1985 (percent)

	Caribbean Basin Economies		Three-Country Composite *		Cuba**	
	Exports	Imports	Exports	Imports	Exports	Imports
EUROPEAN COMMUNITY	**25.1**	**20.8**	**24.5**	**20.7**	**32.9**	**57.2**
- France	2.2	2.8	1.5	1.7	1.5	8.4
- Germany	7.1	4.2	0.9	2.6	3.8	8.0
- Great Britain	3.6	3.3	9.0	8.2	2.4	6.0
- Italy	2.5	2.4	11.2	1.2	1.4	6.7
- Spain	1.7	2.3	1.8	1.6	2.2	15.3
OTHER DEVELOPED COUNTRIES	**57.6**	**63.7**	**63.9**	**68.2**	**27.2**	**34.6**
- Japan	6.3	10.5	0.9	8.1	10.3	19.1
- Canada	3.5	3.6	5.9	5.8	16.9	15.5
- USA	47.8	49.6	57.1	54.3	0.0	0.1
DEVELOPING COUNTRIES	**17.3**	**15.5**	**11.6**	**11.1**	**40.0**	**8.2**
- Latin America	12.5	12.6	8.2	8.7	3.5	6.6
- East Asia	2.4	2.1	0.1	2.1	6.7	0.7
- Africa and Middle East	2.3	0.8	3.3	0.4	29.8	0.9

Source: Anuario Estadistico de Cuba (1989) and UN Trade Commission database.
Note: (*) includes Dominican Republic, Jamaica and Trinidad and Tobago (**) comprises only trade in hard currency.

TABLE 4
TOBIT ESTIMATES OF THE GRAVITY MODEL
(1980-85)

Variables	General Model				Caribbean Countries Model			
	Imports		Exports		Imports		Exports	
	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Constant	-6.77	-8.10	-9.55	-11.39	-12.31	-5.35	-5.14	-2.41
Distance	-1.95	-23.65	-1.92	-22.90	-2.14	-10.83	-2.15	-11.61
Border	1.00	3.13	0.76	2.37	1.31	1.43	1.01	1.17
GDP reporter	1.57	28.95	2.37	42.68	0.58	2.20	0.71	2.98
GDP per capita reporter	-0.16	-2.36	-0.38	-5.51	0.94	3.39	0.41	1.61
Area of reporter	-0.32	-7.47	-0.52	-11.91	0.18	0.83	0.03	0.18
Landlocked reporter	0.38	2.19	0.87	5.67				
Island reporter	0.71	5.08	0.37	2.64	1.34	3.28	-0.80	-2.12
GDP partner	2.10	45.96	1.47	32.28	2.42	21.34	1.72	16.69
GDP per capita partner	-0.30	-4.20	0.09	1.35	-0.36	-2.38	0.12	0.88
Area of partner	-0.54	-15.83	-0.34	-10.11	-0.73	-8.97	-0.56	-7.42
Landlocked partner	0.47	3.66	-0.26	-2.01	1.40	4.65	-0.07	-0.25
Island partner	0.38	2.34	-0.53	-3.19	-0.56	-1.26	-0.48	-1.25
Linder Hypothesis	-0.01	-0.17	0.01	0.07	0.31	2.52	0.30	2.64
Andean Pact dummy	0.95	1.02	0.79	0.85	1.80	1.28	1.37	1.02
LAFTA dummy	2.09	4.35	1.89	3.88	2.41	2.40	1.21	1.27
CACM dummy	-0.68	-0.08	-0.13	-0.15	0.47	0.44	-0.44	-0.43
Lome dummy	1.71	7.56	2.78	12.27	0.34	0.41	0.51	0.64
English dummy	0.99	4.55	1.37	6.30	1.48	2.35	1.59	2.61
Spanish Dummy	0.85	3.09	0.92	3.37	2.12	4.87	0.93	2.30
French Dummy	1.80	5.61	2.14	6.65	-0.16	-0.11	0.53	0.39
R^2 *	0.57		0.57		0.61		0.55	
Number Observations	6,500		6,500		1,300		1,300	

Note: (*) corresponds to the fit of an OLS estimation of the model, since the Tobit model is non-linear.

TABLE 5
TOBIT ESTIMATES OF THE GRAVITY MODEL
(1986-91)

Variables	General Model				Caribbean Countries Model			
	Imports		Exports		Imports		Exports	
	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Constant	-10.54	-15.38	-12.73	-17.81	-9.61	-6.60	-8.68	-5.37
Distance	-1.76	-25.42	-1.84	-25.49	-1.99	-10.83	-2.47	-11.61
Border	0.20	0.75	0.32	1.15	-0.67	-1.13	-0.08	1.17
GDP reporter	1.66	28.95	2.25	48.49	0.91	2.20	1.41	2.98
GDP per capita reporter	-0.04	-2.36	-0.35	-9.29	0.57	3.39	0.50	1.61
Area of reporter	-0.37	-10.47	-0.52	-11.91				
Landlocked reporter	0.35	2.83	0.92	7.01				
Island reporter	0.29	2.51	0.42	3.49				
GDP partner	1.87	48.90	1.48	37.25	1.90	26.84	1.62	20.85
GDP per capita partner	-0.08	-1.33	-0.04	-0.59	-0.12	-1.26	0.12	1.06
Area of partner	-0.38	-13.60	-0.35	-11.83	-0.44	-8.59	-0.46	-8.24
Landlocked partner	0.26	2.46	-0.30	-2.69	1.10	5.85	0.36	1.70
Island partner	0.90	6.77	-0.22	-1.56	0.51	2.00	0.10	0.34
Linder Hypothesis	0.03	0.63	0.10	2.01	0.26	3.12	0.25	2.63
Andean Pact dummy	0.41	0.54	0.42	0.52	0.79	0.87	0.85	0.85
LAFTA dummy	1.60	4.00	1.52	3.67	1.41	2.18	1.38	1.96
CACM dummy	1.69	2.37	1.97	2.65	1.69	2.49	1.41	1.90
Lome dummy	1.48	7.80	2.45	12.43	-0.28	-0.53	-0.55	-0.94
English dummy	1.05	5.81	1.46	7.74	1.74	4.51	1.59	3.64
Spanish Dummy	1.86	8.26	1.57	6.69	2.55	9.59	1.47	4.97
French dummy	1.46	5.36	1.68	5.94	-1.63	-1.41	-0.90	-0.72
R^2 *	0.68		0.67		0.77		0.73	
Number Observations	6,500		6,500		1,300		1,300	

Note: (*) corresponds to the fit of an OLS estimation of the model, since the Tobit model is non-linear.

TABLE 6
CUBA: ACTUAL AND PREDICTED STRUCTURE OF TRADE
WITH MARKET ECONOMIES (%)

TRADE PARTNER	ACTUAL LEVEL	PREDICTED GENERAL MODEL	PREDICTED CARIBBEAN MODEL	ACTUAL LEVEL	PREDICTED GENERAL MODEL	PREDICTED CARIBBEAN MODEL
EXPORTS (1980-1985)				**IMPORTS (1980-1985)**		
OECD	32.9	11.1	9.9	57.2	9.2	7.9
Canada	16.9	0.9	0.4	15.5	0.2	0.1
Japan	10.3	0.6	0.8	19.1	1.4	2.0
USA	0.0	76.6	84.4	0.1	86.6	87.3
L. America and Caribbean	3.5	10.3	3.8	6.6	2.4	2.6
Other LDCs	36.4	0.5	0.7	1.5	0.2	0.1
EXPORTS (1986-1991)				**IMPORTS (1986-1991)**		
OECD	49.5	15.7	1.6	50.5	12.5	14.3
Canada	7.0	0.9	0.5	7.6	0.4	0.3
Japan	18.9	1.3	1.0	13.2	2.6	4.2
USA	0.0	73.3	83.5	0.1	80.3	76.8
L. America and Caribbean	6.6	7.0	2.7	25.9	3.4	3.8
Other LDCs	18.0	1.8	1.7	1.9	0.8	0.8

TABLE 7
DOMINICAN REPUBLIC: COEFFICIENTS OF CORRELATION
BETWEEN ACTUAL AND SIMULATED TRADE*

Variables and Time Period	Correlation Coefficient in the General Model	Correlation Coefficient in the Caribbean Basin Sample
Imports, 1980-1985	0.986	0.985
Exports, 1980-1985	0.873	0.954
Imports, 1986-1991	0.974	0.969
Exports, 1986-1991	0.868	0.940

Note: (*) Simulated values were generated using the models estimated in table 4 and appendix table 2.

APPENDIX TABLE 1
TRADE STRUCTURE OF CARIBBEAN BASIN COUNTRIES

Panel A: Exports Composition, 1980-1985 (%)

	Colombia	Costa Rica	Dominican Republic	Guatemala	Honduras	Haiti	Jamaica	Mexico	Nicaragua	Panama	El Salvador	Trinidad Tobbago	Venezuela	Cuba*
European Community	45.6	29.9	7.4	22.0	24.5	12.9	32.4	8.4	34.9	29.9	29.1	33.6	15.7	32.9
- France	2.2	1.7	0.7	1.7	1.3	4.8	0.0	0.9	8.1	0.8	1.8	3.8	1.0	1.5
- Germany	20.9	10.6	0.7	6.2	8.1	2.4	0.7	2.5	10.6	7.0	20.8	1.3	1.1	3.8
- Great Brittain	1.9	2.3	0.9	1.3	1.5	0.6	20.3	2.5	0.9	0.6	0.4	12.5	0.5	2.4
- Italy	1.9	4.0	0.6	5.2	3.4	3.4	0.0	0.6	4.1	4.0	1.3	2.1	1.9	1.4
- Spain	3.1	0.7	2.4	0.4	2.8	0.2	1.3	1.0	4.9	0.8	1.9	1.6	1.3	2.2
Other Developed Countries	35.1	49.9	85.4	43.7	67.3	69.9	55.0	83.3	57.6	32.7	58.7	51.3	59.4	27.2
- Japan	4.9	0.7	1.4	5.6	6.5	0.4	1.0	4.3	20.6	6.3	5.4	0.3	24.4	10.3
- Canada	1.3	2.8	1.5	1.6	3.1	1.8	12.2	3.0	8.6	1.8	2.9	4.0	0.9	16.9
- USA	28.9	46.3	82.5	36.4	57.7	67.8	41.9	76.0	28.5	24.6	50.4	47.0	34.0	0.0
Developing Countries	19.3	20.3	7.2	34.3	8.2	17.2	12.5	8.2	7.5	37.4	12.2	15.1	24.9	40.0
- Latin America	17.1	19.0	5.8	28.7	7.5	4.5	7.9	5.2	5.8	24.4	11.7	10.9	14.4	3.5
- Brazil	0.2	0.0	0.2	0.1	0.0	1.6	0.5	1.3	0.0	2.3	0.0	1.5	0.8	0.0
- Mexico	0.4	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	0.2	1.4
- Venezuela	7.5	0.1	4.6	0.1	0.4	0.1	1.4	0.4	0.0	10.3	0.0	1.0	0.1	0.1
- East Asia	0.4	0.2	0.1	0.7	0.1	9.2	0.0	1.4	1.4	8.7	0.4	0.3	8.7	6.7
- Africa	1.8	1.0	1.3	4.9	0.5	3.4	4.6	1.7	0.3	4.3	0.1	3.9	1.8	29.8

Panel B: Imports Composition, 1980-1985 (%)

	Colombia	Costa Rica	Dominican Republic	Guatemala	Honduras	Haiti	Jamaica	Mexico	Nicaragua	Panama	El Salvador	Trinidad Tobbago	Venezuela	Cuba*
European Community	26.3	17.5	14.8	21.3	19.4	13.3	21.1	18.4	32.4	18.7	16.1	26.1	25.5	57.2
- France	3.8	2.1	1.6	2.5	3.0	3.9	1.2	2.7	6.6	1.5	1.7	2.2	3.7	8.4
- Germany	7.0	5.2	3.0	6.7	3.7	2.4	2.7	5.4	4.8	1.8	4.7	2.1	5.3	8.0
- Great Brittain	2.7	1.6	1.6	1.9	2.3	1.3	10.1	1.9	1.8	0.9	1.5	12.8	2.6	6.0
- Italy	2.6	2.8	1.4	1.6	2.5	1.7	0.7	2.4	3.8	3.6	1.4	1.5	4.9	6.7
- Spain	3.1	2.5	4.1	3.3	2.0	0.3	0.2	2.1	6.0	1.6	1.6	0.4	2.8	15.3
Other Developed Countries	56.3	62.8	71.4	55.3	66.4	82.1	70.6	77.1	41.0	61.3	60.7	62.6	60.3	34.6
- Japan	12.1	8.5	7.4	7.7	7.7	5.8	6.1	5.9	3.6	48.1	5.5	10.7	7.9	19.1
- Canada	4.2	2.3	3.1	1.9	2.8	4.2	7.6	2.3	4.1	0.6	2.0	6.6	4.7	15.5
- USA	40.0	52.0	60.8	45.7	55.8	72.1	56.9	68.9	33.4	12.6	53.2	45.3	47.7	0.1
Developing Countries	17.4	19.8	13.8	23.4	14.3	4.6	8.3	4.6	26.6	20.1	23.2	11.3	14.1	8.2
- Latin America	16.0	18.0	12.6	22.0	12.4	2.6	6.1	3.3	24.7	5.0	21.8	7.3	11.7	6.6
- Brazil	4.1	1.6	1.9	1.0	2.0	0.8	1.2	1.8	3.3	0.8	0.5	1.8	4.6	0.0
- Mexico	1.6	1.0	2.9	4.2	0.8	0.1	0.7	0.0	0.0	0.0	2.7	2.1	0.0	3.1
- Venezuela	2.2	0.3	6.1	0.3	0.0	0.0	0.5	0.1	0.2	1.0	0.1	0.5	0.1	0.2
- East Asia	0.6	1.5	0.9	1.1	1.4	1.8	1.9	0.6	1.1	10.2	1.0	3.4	1.5	0.7
- Africa	0.8	0.2	0.2	0.3	0.4	0.2	0.3	0.6	0.7	4.8	0.5	0.6	0.9	0.9

Source: UN Trade Commission data tapes.
Note: * considers only trade with market economies.