

CAPITAL FLIGHT FROM CENTRAL AMERICAN COUNTRIES*

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1. Introduction

In recent years the international community has paid considerable attention to capital flight, due to its important repercussions on the balance of payments, the effectiveness of stabilization programs and the debt crisis. Not a new concern, it has stirred wide interest as the heights it reached in the less developed countries over the past decade approximated nearly US\$200 billion. This phenomenon has motivated efforts to quantify capital flight in particular countries and study its incidence on economic management¹. This paper presents a review of the literature emphasizing the results obtained by two recent studies on Central America. Simple econometric equations follow identifying specific causes. Finally, an econometric model is estimated for selected Central American countries to detect its impact on economic growth.

2. Measurement of Capital Flight

There are several definitions of capital flight. Many see it as financial resources that have left the country by illegal means². Others consider it foreign assets whose investment income is not reported on the capital account. It is estimated based on balance of payments data, more specifically the analysis of origin and destination of the capital account components. Cuddington³ defines it as short term capital movements, the sum of the "errors and omissions" and the private sector's capital movements entries. This measure determines the value of the speculative flows of "hot money".

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1 An excellent collection of essays on capital flight can be found in Donald R. Lessard and John Williamson, *Capital Flight and Third World Debt*, Washington D.C., Institute for International Economics, 1987. See also Michael P. Dooley, "Capital Flight: A Response to Differences in Financial Risks, *IMF Staff Papers*, vol. 35, September 1988, pp. 422-436; Rudiger Dornbusch, "Capital Flight: Theory, Measurement, And Policy Issues", *Inter-American Development Bank Occasional Papers*, No. 2, 1990; Jonathan Eaton, "Public Debt Guarantees and Private Capital Flight", *The World Bank Review*, vol. 1, May 1987, pp. 83-101; Mohsin S. Khan and Nadeem Ul Haque, "Foreign Borrowing and Capital Flight: A Formal Analysis", *IMF Staff Papers*, vol. 23, December 1985, pp. 606-628.

2 A review of the several definitions of capital flight is presented by Robert Cumby and Richard Levich, "On the Definition and Magnitude of Recent Capital Flight", in Donald R. Lessard and John Williamson, op. cit., pp. 27-84.

3 John T. Cuddington, *Capital Flight: Estimates, Issues and Explanations*, *Princeton Studies in International Finance*, No. 58, 1986.

Other measures, similar among themselves, incorporate distinct balance of payments entries. In general terms, they define capital flight as the remainder that results from subtracting capital outflows from inflows. Erbe⁴ calculates it as the sum of the annual increase in external debt, foreign investment inflows, and the current account surplus, minus the increase in external reserves. This definition is similar to the one suggested by World Bank⁵. The Morgan Guaranty Trust Company⁶ subtracts the increase in the private banks' external assets from Erbe's measurement. Likewise, Dooley adds the current account surplus to the increment in external debt and subtracts the change in net external assets⁷.

Capital flight estimations obtained from the methods indicated above often result in considerable differences. Generally, Cuddington's method yields the lowest estimate, while Morgan Guaranty's approaches Erbe's. The principal source of discrepancy resides in the differences in data sources. In particular, estimations prove to be very sensitive to divergences in external debt data. It has been determined that, as a rule, countries which experience significant capital flight are those whose external debt increases by amounts larger than the current account deficit.

3. Estimates for Central American Countries

C. Glower presented the first study on capital flight from the Central American countries⁸. Using the Cuddington, Dooley and Morgan Guaranty methods, he calculated it for each of the Central American countries during the 1977-1984 period. His accumulated results for the five countries varied from one estimation method to the other, ranging from \$1,70.2 million by Cuddington's method to \$3,724.6 millions as by Dooley's. The latter represents 31% of the region's external debt increase over the period. Glower thus concluded that "80% of capital flight was originated in

4 Susanne Erbe, "The Flight of Capital from Developing Countries", *Intereconomics*, November/December 1985, pp. 268-275.

5 World Bank, *World Development Report, 1985*, Washington, D.C., 1985, pp. 64.

6 Morgan Guaranty Trust Company, "LDC Capital Flight", *World Financial Markets*, March 1986.

7 Michael P. Dooley et al., "An Analysis of External Debt Positions of Eight Developing Countries through 1990", *Journal of Development Economics*, vol. 21, May 1986, pp. 283-318.

8 Carlos J. Glower, "La Fuga de Capital en Centroamérica", Banco Centroamericano de Integración Económica, *Cuadernos de Economía y Finanzas*, No. 1, December 1986.

El Salvador and Nicaragua... (and that) Costa Rica has not been affected by this problem"⁹. He pointed out that Central Americans deposited from \$1,104 million in July 1979 to \$2,525 million in June 1984 in the US banking system, the resulting \$1,421 million increase lower than the estimates presented above. It can thus be inferred then that a portion of these funds was channelled to other banking systems and to physical assets abroad.

In a recent work, James K. Boyce presented capital flight estimations for the period 1971-1987 for these countries, using both the World Bank and Cuddington approaches¹⁰. The calculated accumulated amounts differ according to the methods employed, Guatemala excepted. According to the Cuddington method the largest accumulated amount corresponds to El Salvador (\$1,144 million), followed by Nicaragua (\$916 million) and Guatemala (\$244 million), with negative values corresponding to the other two countries (Honduras, -\$125 million; and Costa Rica, -\$189 million). According to the World Bank's method, Nicaragua has the largest amount (\$1921 million), followed by Guatemala and El Salvador (\$1163 and \$285 million, respectively). When using Cuddington's method Boyce detected a large amount of capital flight in 1977, when coffee prices were very high. In effect, that year external debt financed capital flight, as the current account deficits dropped or were even negative, and capital inflows rose. High levels are detected in Nicaragua in 1972, the year that an earthquake destroyed the capital city of Managua. Boyce goes on to show that the largest values occurred in all countries in 1979 and 1980, with the exception of Honduras, which shows its highest levels in 1985. Generally, however, this is a phenomenon more acute during the eighties.

Boyce introduced the estimation of capital flight due to underinvoicing of exports and imports¹¹. In the former case, it occurs when the exporter reports a lower invoice than the value of actual exports to national authorities. As such, the current account is overestimated and consequently capital flight is subestimated. Import underinvoicing occurs when the importer declares an import value lower than the real value, in order

9 Ibid, pag. 11.

10 James K. Boyce, "Capital Flight from Central America 1971-1985: Some Quantitative Estimates", paper presented at the *Seminr La Política Económica en los Años Noventa: Retos y Perspectivas*, San José, Costa Rica, August 29-31, 1990.

11 A complete review of this phenomenon is presented by Rudiger Dornbusch, "Latin America Trade Misinvoicing as an Instrument of Capital Flight and Duty Evasion", Inter-American Development Bank, Occasional Papers No. 3, 1990.

to avoid paying the full amount of tariff duties. In this event the current account is underestimated and capital flight would be overestimated. Boyce computed the values of both types of underinvoicing, and found their net value, which was added to the annual estimations discussed above. To this effect, he used bilateral trade data based on IMF statistics between Central American countries and their main commercial partners. However, several factors influence the discrepancies between the values reported by the exporting country and the importer. A recent study showed that Mexico's underinvoicing of exports was influenced by differences in foreign exchanges rates, three-way trade and maquila exports¹². Smuggling may also lead to the detection of underinvoicing of exports and imports¹³.

The net effect of external trade underinvoicing for Guatemala, Costa Rica and Honduras are larger than the estimates of capital flight discussed previously. The largest value correspond to Costa Rica (\$2,932.9 millions) and the smallest to El Salvador (-\$645.2 millions). With regard to export underinvoicing the largest values correspond to Costa Rica, Guatemala and El Salvador, while import underinvoicing is largest in El Salvador, Costa Rica and Guatemala and is negative in Nicaragua. This result indicates that contraband is widespread in the first three countries. Moreover, in the whole region, save Honduras, underinvoicing of exports and imports reached very high values in 1976 and 1977, years when coffee sold for top prices.¹⁴

Export underinvoicing decreased in El Salvador and Nicaragua after 1981, indicating a certain effectiveness on the part of the State given that in both countries it nationalized a large part of external trade. Underinvoicing of imports was negative in Nicaragua and Guatemala during the eighties, contrary to what occurred in the preceding decade, while it increased markedly in El Salvador and Costa Rica in the last decade. In fact, in 1986 import underinvoicing represented 44% and 14% of these countries' total imports, respectively.

Upon calculating the effects of underinvoicing of exports and imports, Boyce added the results to the estimates of capital flight discussed above finding the total amounts. Costa Rica leads with \$3,051.8 million followed by Guatemala (\$2,941.7 million) and

12 Javier Guzman Calafell and Jesus Alvarez Gutierrez, "La Fuga de Capital en México: Un Análisis Crítico de los Planteamientos Recientes", *Monetaria*, vol. xi, October-December 1988, pp. 399-420.

13 Jagdish Bhagwati, "On the Underinvoicing of Imports", *Bulletin of the Oxford Institute of Statistics*, vol. 28, November 1964.

14 Trade data were obtained from Secretaría Permanente del Tratado General de Integración Económica Centroamericana, *SIECA, Estadísticas Seleccionadas de Centroamérica*, April 1989.

Nicaragua (\$2,918.8 million). El Salvador reported the lowest levels (\$438 million). The calculated 1987 present worth of these adjusted amounts, using an interest rate equal to the U.S. Treasury short term notes. These are shown in Table 1.

Table 1

PRESENT WORTH OF CAPITAL FLIGHT AND ITS RELATION WITH THE INCREASE OF EXTERNAL DEBT AND GROSS NATIONAL PRODUCT (Millions of Dollars)

Country	Present Worth of Capital Flight 1971-1987	Increase in Debt	GNP (1987)
Guatemala	4,447	2,696	7,980
El Salvador	1,547	1,537	4,214
Honduras	2,156	3,213	3,807
Nicaragua	5,120	7,167	2,905
Costa Rica	5,644	4,444	4,186

The present worth of the capital flight from Guatemala, Costa Rica and El Salvador is larger than the increments of their respective external debts, indicating that, in fact, these countries might be creditors to the rest of the world.

4. Over and Under Invoicing of Intra-Central American Exports

Boyce's analysis did not cover the case of the Central American intraregional trade. To appreciate the degrees of over and underinvoicing of the intraregional exports, the ratio of a country's Central America exports to imports reported by the corresponding country were calculated, and the results are shown in Table 2.

There exists no general underinvoicing trend, except that all countries underinvoice their exports to Costa Rica. Honduras underinvoiced its exports more markedly; El Salvador overinvoiced its exports to Guatemala while Costa Rica inflated its transactions to Nicaragua and Guatemala. Misinvoicing of exports also increased during the 1982-1985 period, which may be explained by a more widespread use of countertrade and contraband.

5. Causes of Capital Flight

Capital flight generally grounds itself in a lack of confidence; yet there are few empirical studies regarding its determinants. The most known work, Cuddington's study of Mexico, Venezuela and Argentina proved that disbursements of external loans, the U.S.

Table 2

RATIO OF EXPORTS TO IMPORTS

Importing Country	Exporting Country			
	1982	1983	1984	1985
El Salvador				
Guatemala	1.12	1.17	1.23	1.24
Honduras	1.00	0.87	0.78	0.79
Nicaragua	0.96	0.85	0.48	0.36
Costa Rica	0.95	0.78	0.88	0.81
Honduras				
Guatemala	1.00	1.00	0.82	0.67
El Salvador	1.22	0.91	0.82	0.52
Nicaragua	0.40	0.51	1.26	0.53
Costa Rica	0.39	0.32	0.25	0.20
Nicaragua				
Guatemala	1.00	0.97	1.05	1.45
El Salvador	0.81	0.87	1.11	1.13
Honduras	0.84	0.76	0.86	0.68
Costa Rica	1.15	0.79	0.89	1.00
Costa Rica				
Guatemala	0.98	1.01	1.21	1.50
El Salvador	0.92	0.97	0.99	0.86
Honduras	1.27	0.79	1.00	0.92
Nicaragua	1.01	1.15	1.44	1.79
Guatemala				
El Salvador	0.86	0.93	0.93	0.81
Honduras	0.98	0.87	0.77	0.82
Nicaragua	0.98	0.83	0.93	0.53
Costa Rica	0.89	0.76	0.88	0.93

interest rate, the domestic inflation rate and, specially the real exchange rate influence capital flight overvaluing of the exchange rate¹⁵. In order to identify the macroeconomic variables that determine this phenomena in Central America, econometric equations were estimated expressing annual capital flight (using values

15 John T. Cuddington, "Macroeconomic Determinants of Capital Flight: An Econometric Investigation", in Donald R. Lessard and John Williamson, op. cit. pp. 85-102. Another econometric investigation of the causes of capital flight is Anne Meyer and Maria Silvia Bastos Marques, "A Fuga de Capital No Brasil: 1975/1988", *Pesquisa e Planejamento Economico*, vol. 20, April 1990, pp. 49-85.

calculated by World Bank (RES) and Cuddington (H) methods, without adjusting for misinvoicing of external trade) as a function of the real effective exchange rate (RR), international cost of capital, represented by the Libor rate, (Lib), and the annual increment in external debt (DD)¹⁶. The results of the estimated equations, using data for the 1971-1984 period, follow:

Table 3

CAPITAL FLIGHT EQUATIONS USING ESTIMATES BY WORLD BANK'S METHOD*

COUNTRY	R ²
Guatemala $\text{RESG} = 1371.8 - 12.25 \text{ RRG} - 0.74 \text{ DDG} - 5.24 \text{ LIB}$ <div style="display: flex; justify-content: space-around; width: 100%;"> (1.28) (1.24) (0.96) (0.32) </div>	0.13
El Salvador $\text{RESE} = 447.54 - 3.52 \text{ RRES} - 0.33 \text{ DDES} - 11.36 \text{ LIB}$ <div style="display: flex; justify-content: space-around; width: 100%;"> (1.37) (1.18) (1.53) (0.72) </div>	0.22
Honduras $\text{RESH} = -493.51 + 498 \text{ RRH} + 0.26 \text{ DDH} - 5.78 \text{ LIB}$ <div style="display: flex; justify-content: space-around; width: 100%;"> (0.86) (0.84) (2.02) (0.42) </div>	0.35
Nicaragua $\text{RESN} = 275.70 - 1.95 \text{ RRN} + 0.48 \text{ DDN} - 37.83 \text{ LIB}$ <div style="display: flex; justify-content: space-around; width: 100%;"> (0.52) (0.37) (1.26) (1.04) </div>	0.19
Costa Rica $\text{RESCR} = -227.46 + 2.32 \text{ RRCR} + 0.19 \text{ DDCR} - 27.48 \text{ LIB}$ <div style="display: flex; justify-content: space-around; width: 100%;"> (1.14) (0.99) (1.10) (0.92) </div>	0.27

* "t" statistics are shown underneath the respective coefficients.

For both sets of data the estimated equations show very low determination coefficients. However, in the equations for El Salvador the real effective exchange rate showed the expected negative sign and proves statistically significant for the Cuddington method data. This variable in the other countries was also insignificant. The annual increase

16 Data on real exchange and Libor rates were taken from William Loehr, "Balance en la Cuenta Corriente en Centroamérica 1969-1984: Influencias Domésticas y Externas", *Revista de la Integración y el Desarrollo de Centroamérica*, no. 36, June 1987, pp. 21-61; data on external debt were taken from ECLAC, "Centroamérica: El Financiamiento Externo en la Evolución Económica 1950-1983", *Revista de la Integración y el Desarrollo de Centroamérica*, no. 35, December 1986, pp. 3-108.

in external debt was significant and positive for Costa Rica when using Cuddington's method, and in Honduras using the World Bank method. The results indicate that in these countries, increasing external indebtedness by one dollar gives rise respectively to 15 and 26 cents of capital flight.

Table 4

CAPITAL FLIGHT EQUATIONS USING ESTIMATES BY CUDDINGTON'S METHOD*

COUNTRY		R ²
Guatemala		
HMG =	787.93 — 7.31 RRG — 0.29 DDG + 7.69 LIB (0.71) (0.71) (0.36) (0.45)	0.11
El Salvador		
HMES =	805.33 — 6.67 RRES — 0.25 DDES — 26.67 LIB (2.25) (2.04) (1.04) (1.55)	0.30
Honduras		
HMH =	-21.47 — 0.41 RRH — 0.006 DDN + 2.02 LIB (0.11) (0.21) (0.14) (0.45)	0.13
Nicaragua		
HMN =	295.28 + 3.47 RRN + 0.19 DND + 1.62 LIB (1.17) (1.39) (1.10) (0.09)	0.27
Costa Rica		
HMRC =	193.80 + 1.74 RRCR + 0.15 DDCR — 14.19 LIB (2.03) (1.49) (1.93) (1.00)	0.44

* "t" statistics are shown underneath the respective coefficients.

An additional equation was estimated, based on the Houthakker-Taylor dynamic model:

$$RES = a + bH + cRR + dDD$$

$$\dot{H} = RES$$

Where capital flight in a given year, RES, depends on its accumulated levels, H, the real exchange rate, RR, and the increase in external debt, DD. The finite form of this model is:

$$RES = B_1 RES_{-1} + B_2 \Delta RR + B_3 \Delta DD$$

This equation was estimated for all countries but satisfactory results were obtained only in the cases of Costa Rica and Nicaragua, using the estimates given by Erbe's and Cuddington's methods respectively:

$$\begin{aligned}
 \text{RESCR} &= 0.4340 \text{ RESCR}_{-1} + 3.461 \Delta \text{RRCR} \\
 &\quad (2.77) \qquad (3.94) \\
 &+ 0.2181 \Delta \text{DDCR} \qquad R^2 = 0.75 \\
 &\quad (2.47) \\
 \text{HMN} &= 0.3034 \text{ HM}_{-1} + 5.7990 \Delta \text{RRN} - 0.1449 \Delta \text{DDN} \\
 &\quad (1.61) \qquad (1.62) \qquad (0.57) \\
 &\qquad R^2 = 0.43
 \end{aligned}$$

Based on these estimates it is possible to calculate the structural coefficient b , which is given by:

$$b = \frac{2(B_1 - 1)}{(B_1 + 1)}$$

For Costa Rica this coefficient is:

$$b = \frac{2(0.4340 - 1)}{1.4340} = -0.7894$$

And for Nicaragua it is equal to -0.6605 . Since these coefficients are negative it can be deduced that in these countries capital flight is subject to an inventory effect, according to the Houthakker-Taylor model¹⁷.

To investigate whether a synchronism exists in Central American countries' capital flight, correlation coefficients were calculated for the time series of Cuddington method estimated, and the following results were obtained:

17 H.S. Houthakker and Lester Taylor, *Consumer Demand in the United States: Analysis and Projections*, Cambridge, Harvard University Press, 1970.

Table 5

CORRELATION COEFFICIENTS (USING ESTIMATES OBTAINED BY CUDDINGTON METHOD)

	RESG	RESE	RESH	RESN	RESCR
RESG	1.0	0.40	0.19	0.68	0.02
RESE		1.0	0.62	0.59	0.50
RESH			1.00	0.48	0.78
RESN				1.0	0.16
RESCR					1.00

The highest correlations are shown by Nicaragua and El Salvador with the other countries and Costa Rica's correlations with Guatemala and Nicaragua are very low. When the Erbe method estimates were used the series of El Salvador and Nicaragua show low correlations with those of other countries and, in general terms, the coefficients are lower than those shown in the previous case. The only pattern that can be identified is the high correlation among Guatemala, El Salvador and Costa Rica, the main coffee exporting countries.

6. Implications of Capital Flight

Decapitalization of the economy results directly from capital flight and takes place by diverting resources that could have been channeled toward investment. It also affects the public's liquidity preference as funds remitted abroad are bought with local currency, using, as is common in the "underground economy", paper currency. In 1980, when that largest amount fled El Salvador (\$402.4 million according to Cuddington method) currency in the hands of the public represented 44% of M1, the highest percentage during the eighties. This impacts on the effectiveness of monetary programming. Thus, because of capital flight, foreign currency increases its presence possibly leading to two currencies circulating in the country. Consequently, the direct relationship between domestic money and national income may be lost, causing difficulties for monetary

programming¹⁸. Additionally, national monetary authorities may increase interest rates to combat capital flight. But higher interest rates may destimulate investment and increase firms' expenses, leading to higher inflation pressures and currency overvaluation, accentuating funds leaving the country.

A similar vicious cycle may occur when monetary authorities devalue national currency in order to arrest capital flight, this leading to higher inflation, currency overvaluation and capital flight. Another phenomenon may occur when funds returning to the country stimulate aggregate demand, thus provoking an increase in non-tradeable goods prices and in the inflation rate, currency overvaluation, and the cease of the return of capital.

7. Macroeconomic Impact

In order to appreciate in quantitative terms the macroeconomic impact of capital flight, this paper presents an econometric model which introduces net foreign exchange reserves as an explanatory variable of both investment and imports. This permits estimations of its macroeconomic effect through its incidence on the level of foreign reserves. The model follows:

$$\begin{aligned}C &= a + bY \\ G &= m + nY \\ M &= r + dY + zA \\ I &= q + vY + sA \\ Y &= C + G + I + E - M\end{aligned}$$

18 In the case of El Salvador, an erratic association between inflation rate and money supply growth can be detected:

(rates of growth)

Year	Money Supply (M1)*	Consumer Price Index*
1982	3.8	11.7
1983	-2.6	13.1
1984	14.3	11.8
1985	27.5	22.3
1986	21.0	31.9
1987	0.0	24.9
1988	7.8	19.8

* Calculated from El Salvador's Banco Central de Reserva data.

where:

C = private consumption

G = public consumption

M = imports

I = investment

A = net foreign reserves

E = exports

Y = gross national product

The above explains private and public consumption by gross national product which, with foreign reserves, determines imports investment. Substituting the consumption, import and investment functions into the gross national product identity the following expression is obtained:

$$Y = a + m + q - r + (b + n + v - d) Y + (s - z) A + E$$

$$= Y(1 - b - n - v + d) = x + (s - z) A + E$$

$$\text{where } x = a + m + q - r$$

and solving for Y:

$$Y = \frac{x + (s-z) A + E}{1-b-n-v+d}$$

As shown by the last expression, foreign reserves can have a negative impact on income, which occurs when the z coefficient is larger than s, i.e. when the marginal propensity to import out of foreign reserves is larger than the marginal propensity to invest out of reserves. The model then allows an increase in foreign reserves resulting in a larger increase in imports than investment, implying that an improvement of the external position may have a negative impact on income.

The model was estimated for Guatemala, El Salvador and Honduras, using annual data for the 1975-1985 period at constant 1980 prices¹⁹. The estimation method was or-

¹⁹ Data were taken from, SIECA, *Estadísticas Macroeconómicas de Centroamérica*, several issues. Lack of reliable data confined econometric estimation to three countries.

dinary least squares except for the cases of El Salvador's and Guatemala's consumption and import functions, in which cases the Guy-Orcutt mechanism to correct for autocorrelation of errors was used. The results follow in the next table, where the "t" statistics are shown beneath the corresponding coefficients and w represents a dummy variable with zero values during the 1975-1978 period and one for the rest of the period.

Table 6

ESTIMATE OF ECONOMETRIC EQUATIONS

	R ²	D.W.
Guatemala		
$C = 9.1606 + 0.8343Y$ (0.02) (9.81)	0.99	1.37
$G = -38.1739 + 0.0812Y$ (0.95) (12.42)	0.95	2.20
$M = 244.6650 + 0.1589Y + 0.6725A$ (0.84) (3.75) (3.01)	0.89	1.45
$I = -81.8859 + 0.1456Y + 0.5375A$ (0.37) (4.41) (4.51)	0.86	1.63
Honduras		
$C = 0.8374 + 0.7508Y$ (0.003) (6.76)	0.84	0.61
$G = -166.1440 + 0.2138Y$ (2.67) (7.89)	0.87	0.50
$M = -281.652 + 0.4952Y + 0.8523A$ (0.90) (3.65) (3.50)	0.68	1.52
$I = -187.605 + 0.2905Y + 0.4164A$ (1.22) (4.37) (3.49)	0.73	2.46
El Salvador		
$C = 979.4680 + 0.4236Y + 174.9930W$ (2.57) (4.14) (2.40)	0.62	1.86
$G = 308.5790 + 0.0357Y + 78.0414W$ (3.30) (1.42) (4.37)	0.61	2.44
$M = -745.7380 + 0.5613Y + 0.3144A$ (2.59) (6.47) (2.09)	0.95	1.86
$I = -377.7180 + 0.2686Y + 0.6434A$ (1.09) (2.59) (3.58)	0.90	1.51

The reduced form for the income variable is presented in the next table:

Table 7

REDUCED FORM EQUATIONS

Guatemala

$$Y = 133.7658 + 10.2249 E - 1.3804 A$$

Honduras

$$Y = 299.8701 + 4.1649 E - 1.8155 A$$

El Salvador

$$Y = 1985.8411 + 1.1990 E + 0.3948 A + 253.0344 W$$

The unexpected results are that for Guatemala and Honduras foreign exchange reserves exert a negative impact on gross national product, which is a consequence of these countries' consumption patterns that being sustained by foreign goods, generate a leakage of foreign exchange. The irony is that in Guatemala and Honduras capital flight exerts a positive impact on income. In the case of El Salvador, foreign reserves have a positive effect on income and its multiplier impact equals one third of that of exports. In the case of El Salvador it is possible to approximate its macroeconomic cost under the assumption that it represents a subtraction from international reserves. Thus, the impact of capital flight, A, on income, Y, is given by $\Delta Y = -0.3948 \Delta A$. It was calculated that capital flight caused an accumulated GNP loss of \$342.3 millions in 1980 prices. In percentage terms this loss represented on average a contraction of annual real growth of 1.08% during the 1975-1979 period, and of 0.77% in the 1980-1985 period. The largest negative impact occurred in 1980 and 1981 (-2.3% and -5.1% respectively) years when the economy experienced the deepest contractions amidst a climate of social unrest.

8. Final Comments

This paper has shown that capital flight reached significant magnitudes in Central America, particularly in Costa Rica and Guatemala, surpassing the increase in external debt in the former. Moreover, it became more marked in the eighties, especially in 1980 and 1981. The amounts that leave the countries through trade misinvoicing

are also significant, especially export underinvoicing in Costa Rica and Guatemala. This would indicate that trade data, and even the national accounts, may have some degree of inexactness. Special attention should be given to the underinvoicing of intra Central American exports.

The estimated equations showed very low explanatory power; however, in the case of El Salvador exchange rate overvaluation exerts a significative impact, as does the annual increase in Honduras' and Costa Rica's external debt, signifying that to a larger contracting of external debt there corresponds higher amounts of resources leaving the country.

After estimating econometric models for Guatemala, Honduras and El Salvador it was found that in the first two countries international reserves exert a negative multiplier impact on income due to the fact that their impact on imports is larger than on investment. Thus, a contradictory result emerges in the sense that — in the context of the estimated model — capital flight has a positive effect on the economic growth of these countries. In the case of El Salvador, foreign reserves exert a positive impact on income and hence the consequence of capital flight has been to reduce annual economic growth in about 0.8% between 1975 and 1985. There are several aspects related to this topic which were not touched upon in this study, e.g. smuggling, its determinants and implications²⁰. Others include the black market for foreign exchange²¹ as well as the remittances from Central Americans living abroad, which for some countries, particularly Guatemala and El Salvador, are very large²².

20 On the theory of smuggling, see Jagdish N. Bhagwati and B. Hansen, "A Theoretical Analysis of Smuggling", *Quarterly Journal of Economics*, vol. 87, May 1973, pp. 172-187; Jagdish N. Bhagwati, "Alternative Theories of Illegal Trade: Economic Consequences and Statistical Detection", *Weltwirtschaftliches Archiv*, vol. 117, 1981, pp. 409-427.

21 On the black market for foreign exchange in El Salvador and Guatemala, see Luis Rene Caceres and Oscar Nuñez, "La Determinación de la Tasa de Cambio en el Mercado Negro de El Salvador", *El Trimestre Económico*, vol. 58, April/June 1991, pp. 249-262; and "Influencias Domésticas y Externas en la Determinación de las Tasas de Cambio en los Mercados Negros de Guatemala y El Salvador", and "The Bid-Ask Spreads in the Black Markets of El Salvador and Guatemala, both unpublished.

22 José Roberto López and Mitchell A. Seligson, *Small Business Development in El Salvador: The Impact of Remittances*, Commission for the Study of International Migration and Cooperative Economic Development, working paper no. 44, Washington, D.C. June 1990; Segundo Montes, "La Crisis Salvadoreña y las Consecuencias de una Repatriación Masiva de Refugiados en los Estados Unidos", *Boletín de Ciencias Económicas*, vol. 10, January/February 1987, pp. 5-16.

Abstract

This paper tries to estimate the amounts, causes and consequences of capital flight from the Central American countries. The findings indicate that capital flight has reached considerable magnitudes, particularly in Costa Rica and Guatemala. Moreover, there has been a recurrent leakage of resources by means of misinvoicing of external trade, particularly in the eighties.

As for the causes of capital flight, there is weak support for the role of the exchange rate overvaluation and external debt increments as explanatory variables of capital flight. Since this problem became pronounced in the 1980's it is possible that the underlining explanation rests on the lack of confidence.

Simple econometric models were estimated for Guatemala, Honduras and El Salvador to seek determine the macroeconomic consequences of capital flight. The model indicates that in the case of El Salvador, the cost has been an annual reduction of economic growth of 0.8%.

LA FUITE DES CAPITAUX DES PAYS D'AMERIQUE CENTRALE

RESUME

Ce papier essaie d'estimer les montants, les causes et les conséquences de la fuite de capitaux des pays d'Amérique Centrale. Des enquêtes indiquent que la fuite de capitaux a atteint des proportions considérables, particulièrement au Costa-Rica et au Guatemala. De plus, il y a eu une perte récurrente de ressources, engendrée par la fausse facturation des transactions du commerce extérieur, particulièrement dans les années 80.

Comme pour les causes de la fuite des capitaux, le rôle de la surévaluation du taux de change et de l'augmentation de la dette externe comme variables explicatives de la fuite de capitaux n'est pas clairement établi. Vu que ce problème s'est accentué dans les années 80, il est possible que l'explication la plus saillante réside dans un manque de confiance.

Des modèles économétriques simples ont été établis pour le Salvador, le Guatemala et le Honduras pour déterminer les conséquences macroéconomiques de la fuite des capitaux. Le modèle indique que dans le cas du Salvador, le coût a été une réduction annuelle de la croissance économique de 0.8%.