

NBER WORKING PAPER SERIES

ON THE DEFINITION AND MAGNITUDE
OF RECENT CAPITAL FLIGHT

Robert Cumby

Richard M. Levich

Working Paper No. 2275

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
June 1987

Prepared for the Conference on Capital Flight and Third World Debt sponsored by the Institute of International Economics, Washington, DC, October 2-4, 1986. The authors acknowledge Julapa Rungkasiri for dedicated research assistance and John Cuddington, Alain Ize, Don Lessard and John Williamson for helpful comments on an earlier draft. The research reported here is part of the NBER's research program in International Studies. Any opinions expressed are those of the authors and not those of the National Bureau of Economic Research.

On the Definition and Magnitude of Recent Capital Flight

ABSTRACT

This paper presents a survey of alternative definitions of capital flight and empirical estimates of capital flight utilizing a common database. At the conceptual level, we argue that the definition of capital flight requires a somewhat arbitrary distinction between normal capital flows and those representing capital flight. At the empirical level, our results illustrate the range of estimates of capital flight that are possible and how alternative definitions or databases contribute to the dispersion of estimates. Our results show that for some countries, differences in definitions or databases may have substantial effects, causing some estimates of capital flight to be positive and others negative.

We argue that an appropriate definition of capital flight is one that is consistent with the kinds of economic questions under consideration. In theory, capital flight should be viewed within the context of a general equilibrium model. When this is done, capital flight will appear to be a symptom of underlying economic forces rather than a cause of national welfare losses.

Robert E. Cumby
Graduate School of
Business Administration
New York University
100 Trinity Place
New York, NY 10006

212-285-6159

Richard M. Levich
Graduate School of
Business Administration
New York University
100 Trinity Place
New York, NY 10006

212-285-8924

ON THE DEFINITION AND MAGNITUDE OF RECENT CAPITAL FLIGHT

I. Introduction and Overview

The economic performance of the world's lesser developed countries (LDCs) is now a key factor affecting the future of the international financial system. And key to LDC performance is their ability to channel capital funds (from foreign loans, foreign equity, and domestic sources) into domestic investments, while meeting their commitments on existing external debt. It is curious that until recently, the disposition of domestic funds (in particular, the possibility for large scale domestic capital outflows, or "capital flight") was not considered seriously within the context of LDC performance. Perhaps this oversight was aided by the ready availability of foreign funds or the inadequacy of data on domestic capital outflows. But even taking the philosophical stance that private citizens ought to retain the right to invest their funds globally, it still remains that a country's macroeconomic performance could be severely effected by a sudden or prolonged outflow of domestic capital.

Several studies that we review suggest that LDC private capital outflows over the last ten years were at least \$50 billion and perhaps \$200 billion or even higher. Estimates of this magnitude clearly support the view that if LDC capital outflows could be reduced or reversed, the adjustment burden facing LDCs would be eased substantially. Furthermore, the magnitude of LDC capital outflows has been observed by commercial bankers, and cited in order to justify a reduction in further lending to some LDC countries. Thus LDC capital outflows may be a double cost if foreign sources of funds are cut off.

The purpose of this paper is to survey and analyze the various definitions and measures of capital flight that have been offered in the recent literature. Our approach is two-fold. First, at the conceptual level, we discuss the basis for classifying particular domestic capital outflows as "capital flight" rather than as "normal" flows. It has been pointed out in earlier papers that the selection of a particular definition for capital flight ought to be made with consideration for the type of research question under examination. We explore this issue further, asking whether any of the definitions proposed so far are adequate to provide information for the decisions facing bankers and government officials.

The second part of our approach is empirical. We first discuss how to operationalize the various definitions of capital flight. Our objective here is to re-compute alternative estimates of capital flight using a common database. Some researchers have adopted an accounting framework for measuring capital flight that includes only a designated subset of domestic capital outflows. We replicate these measurements on a common database for standard time periods to show the dispersion in estimates of capital flight brought about by alternative definitions. Recent papers by Dooley (1986) and Khan and Ul Haque (1986) use a more indirect approach, measuring capital flight as the difference between all external claims and those external claims that generate receipts captured in the balance of payments accounts. These latter calculations could not be replicated, but they are reported for the sake of comparison.

The empirical analysis also reviews the sources of estimation error that may affect our estimates of capital flight. Evidence on

the extent of overinvoicing of imports and underinvoicing of exports using partner-country trade data comparisons is discussed.

The plan for the paper is as follows. Section II contains our discussion of the conceptual issues related to the measurement of capital flight, and a review of the definitions of capital flight that have been adopted in the literature. Our empirical results and a comparison of alternative capital flight estimates are presented in Section III. The final section offers the policy implications of our findings and other concluding remarks.

The major conclusions we reach can be summarized simply. The empirical evidence suggests that the range of estimates (high - low) of capital flight resulting from the various definitions for our sample countries is usually about \$10 billion but sometimes greater than \$20 billion. That there is considerable dispersion in the estimates should be neither surprising nor discouraging since theory does not offer a unique definition of capital flight. An appropriate definition will be one that is consistent with the kinds of economic questions under consideration. In theory, capital flight should be viewed within the context of a complete (i.e. general equilibrium) economic model. Without such a model, we can only guess whether additional lending to LDCs will foster more capital flight, or whether the same lending might signal an improvement in the prospects for better economic performance and a reversal of capital flight.

II. Alternative Measures of Capital Flight

A. Conceptual Issues Regarding Capital Outflows.

Economic principles do not guide us to a unique or natural definition for the term "capital flight." Domestic residents in an open economy engage in international transactions. Some of these transactions lead domestic residents to acquire financial claims against non-residents. Which of these transactions ought to be classified as domestic capital flight rather than normal capital outflows? The list might include all foreign assets (both reported and unreported, including financial assets, direct foreign investments, and real estate) acquired by the banking and non-bank private sectors as well as the public sector, or it could be only a subset of this complete list.^{1/} Alternatively, one might attempt to distinguish among flows by the circumstances or nature of the investment.

This classification problem is similar to the dilemma of computing the balance of payments under a pegged exchange rate regime. How did economists distinguish between "autonomous" and "accommodating" international transactions? In practice, some arbitrary decisions were made to classify the motives behind anonymous accounting entries.^{2/} Assuming that the classification was done correctly, the policy relevance of such a balance of payments estimate would be primarily as a signal. Policy making is carried out ex ante to effect future outcomes, while the balance of payments figure reflects ex post events. To enhance its relevance for policy, the balance of payments definition would need to be imbedded within a complete (i.e. general equilibrium) model to determine how current and prospective economic policies might influence the future balance of payments and national welfare.

The analogy to the problem of estimating the magnitude of capital flight and determining the impact of capital flight on welfare is clear. Classifying capital transactions to arrive at an estimate of capital flight will require a certain number of arbitrary distinctions. Absent a complete model, it should not be clear how future policies will effect capital flight or how capital flight effects welfare. And even if capital flight reduces domestic welfare, the optimal amount of capital flight will not be zero as long as there are costs to preventing it.

1. Alternative Classification Measures

To approach the distinction between "capital flight" and "normal" capital outflows, one obvious dichotomy is the division between legal and illegal transactions. It seems fair to say that all illegal transactions are not "normal." However, illegal transactions need not be motivated by a desire to avoid domestic financial markets, per se. The primary motivation for certain current account transactions may be the evasion of tariffs, quotas, or laws regarding trade in illegal drugs or other activities, and these transactions necessarily generate a capital account dimension. However, illegal transactions are not reported, so it is difficult to determine how much they contribute to "capital flight." Evidence presented in Gulati (1987) and in Section III on partner-country trade data provides some indication of which countries are engaged in overinvoicing imports and underinvoicing exports, perhaps to effect capital flight.

Within the category of legal international capital transactions, our bias would be to classify all freely organized transactions as "normal." Assuming that domestic investors are risk-averse utility

maximizers, portfolio theory strongly suggests that investors will hold a well-diversified portfolio of financial assets that maximizes real returns for a given level of risk. For investors from small countries with poorly developed capital markets, there will be a natural demand for assets in other countries with more developed capital markets. Where inflation has eroded real returns or real wealth, it is normal to expect investors to seek other markets or units-of-account that preserve purchasing power. When substantial exchange rate changes are expected (in larger industrial countries or poorer developing countries), we expect to find investors positioning themselves in advance to make the best of the situation. Whenever markets are highly integrated and transaction costs are low, private individuals will have strong incentives to circumvent what appear to be arbitrary barriers to their own utility maximization.^{3/}

Our bias for classifying all freely organized legal transactions as "normal" may seem in opposition to the notion that "flight capital is capital which flees" advanced by Ingo Walter and Charles Kindleberger elsewhere in this volume. In a market paradigm, the decisions of investors concerning whether to invest funds at home or abroad depend on relative returns suitably adjusted for rates of inflation, expected exchange rate changes, taxes and risk factors. If, for example, this return differential favors the United States over Mexico, on what basis can we conclude that capital is fleeing from Mexico rather than being drawn into the United States? In general, economic models presume that private domestic investors are scanning the environment in search of higher expected returns and that capital movements are motivated by self-interest. In order to justify a negative connotation ("capital flight") for a subset of capital

movements, there must be a derogation from the market paradigm, such as a deviation between private and social welfare.

2. Capital Flight and Nationalism

The notion that capital flight represents a source of disutility focuses on a nationalistic measure of social utility. In a variety of cases, it can be argued that domestic capital outflows might reduce domestic social welfare, even though they increase the private welfare of both domestic and foreign residents who participate in the capital transfer. Cuddington (1986) outlines several such cases, for example:

- (i) Hot money flows may destabilize financial markets,
- (ii) Social returns on domestic projects may exceed private domestic returns,
- (iii) By raising a country's gross borrowing needs, capital flight raises the marginal cost of foreign debt (Special case of [ii]),
- (iv) Once capital leaves it never returns resulting in lower domestic investment and a lower domestic tax base.

As Cuddington suggests, each of these cases can be refuted by demonstrating that policies to restrict capital flight would either be ineffective or second-best policies. Regarding (i), it could certainly be a possibility that underlying macroeconomic policies and market fundamentals, rather than capital flight, were responsible for financial market volatility. Regarding (ii), the first-best policy would be to attack a distortion of this sort directly by providing additional incentives to the private rate of return on capital. And regarding (iv), reversals of capital flight have indeed occurred. But even if they had not, it is an exaggeration to claim that flight capital is "lost to the country," and there is no certainty that the

alternative placement of flight capital would be in domestic investment.

As noted earlier, any definition of capital flight may seem to reflect arbitrary distinctions. One way to reduce these is to link a definition of capital flight to its impact on national utility.

Under the assumption that funds committed to capital flight would have been used for domestic investment, then the total build-up of foreign assets scales the magnitude of national disutility from capital flight. This assumption suggests that an expansive definition of capital flight that captures the reported and unreported increase in foreign assets for both the private and public sectors would be appropriate. Defining capital flight as the total build-up of foreign assets implies that (i) foreign assets, even the working capital balances of source country multinational firms, never yield higher national utility than domestic assets, and (ii) a build-up of domestic assets, rather than consumption of foreign goods or wasteful domestic spending, was the alternative to capital flight. Both Erbe (1985) and the World Bank (1985) use an expansive measure of capital flight.

Dooley (1986) proposes that the stock of claims held on non-residents that do not generate investment income on the balance of payments be taken as a measure of capital flight. The presumption here is that the interest earned on legal and normal capital outflows would be reported in the balance of payments. Interest earned on illegal capital outflows, or outflows motivated by tax avoidance or the demand for secrecy are assumed to go unreported. Capital flight can be approximated by capitalizing the stream of reported investment income and subtracting this from total external claims.

In one sense, this technique could be viewed as a novel approach

for measuring the stock of unreported external claims, i.e. capital flight. But the definition implies that if all capital outflows and the investment income on them were reported, then there would be zero capital flight. This suggests that the loss of national utility from capital flight comes not from the diversion of domestic capital to offshore investments, but rather from the loss of foreign exchange receipts upon repatriation of offshore earnings and the loss of taxing power over these offshore earnings. Even this is somewhat of an overstatement since domestic residents could reinvest (and report) their offshore earnings without producing any foreign exchange earnings for the domestic economy. With Dooley's definition, the disutility of capital flight seems to correspond with the inability of a country to generate foreign investment receipts sufficient to service its own external debt. However, if individuals have transferred funds offshore at lower yields (reflecting their demand for secrecy, stability or safe haven), then the country could still have a debt servicing problem even if all investment income is reported.

B. Measuring Capital Flight

The definitions of capital flight found in the previous literature can be usefully grouped into two types. The first type does not distinguish between "normal" capital flows and capital flight and seeks to measure the acquisition of net foreign assets, or some subset of these claims, by the private sector. The second type attempts to make the distinction between "normal" capital and flight capital by measuring the stock of foreign claims that does not generate income that is reported in the balance of payments accounts.

The broadest definition of capital flight has been employed by the World Bank (1985) and by Erbe (1985). This measure takes inflows of capital in the form of increases in external debt and net foreign direct investment and subtracts from these inflows the current account deficit and the increase in official reserves. The difference between these inflows and the extent to which they are used to finance the current account deficit and an increase in reserves is taken to reflect an increase in net foreign claims by the private sector. This increase in net foreign assets is the measure of capital flight they adopt.

The capital flight definition adopted by Morgan Guaranty (1986) also measures capital flight as a residual. In addition to the current account deficit and the increase in official reserves, Morgan Guaranty (1986) also subtracts the increase in short term foreign assets of the banking system from total capital inflows. The Morgan definition then does not consider acquisition of foreign assets by banks to be capital flight, while acquisition of foreign assets by other agents is considered to be capital flight.

Cline (1986) critiques the capital flight definition adopted by Morgan and discusses adjustments to the Morgan calculations. He argues that income from tourism and border transactions should be excluded from current account earnings since these earnings are beyond the control of foreign exchange control authorities, and thus should not be counted when calculating capital flight. In addition, he argues that reinvested investment income should not be considered capital flight since this income is also beyond the control of the authorities and that if residents do not repatriate income from capital held abroad, this should not be considered additional flight

of capital.

What is the justification for these exclusions from the broad measure of capital flight? Morgan Guaranty (1986) offers no justification for treating the banking system differently from other firms and individuals. None will be given here. The question that Cline wishes to address regards the extent to which future inflows of funds will result in additional capital flight. He wishes to determine the " 'marginal propensity' of capital to leave" the country and argues that "the presence of a tourism surplus not garnered by the government, and of non-repatriated private interest earnings abroad, have little to do with the issue of how new capital is used when obtained."

One aspect of determining how likely will be future capital flight is the extent to which capital controls are effective in preventing acquisition of foreign assets by the private sector. The adjustments suggested by Cline may be relevant to determine the extent to which the private sector has been able to circumvent exchange controls in the past.^{4/} If after making these adjustments, the degree of capital flight is greatly reduced, the evidence would suggest that capital controls have been somewhat successful in restricting movements of funds abroad. On the other hand, if we are interested in the extent to which a country is likely to experience capital flight in the future, then we should examine how macroeconomic conditions and government policies underlying capital outflows have changed rather than attempting to identify particular items that should or should not be counted as income that is subject to capital flight.

Cuddington (1986) takes a different approach to measuring capital

flight. His focus is on short-term capital flows, which he believes to be the typical meaning of capital flight, rather than all private sector acquisition of external claims. Capital flight, defined to consist of acquisition of short-term external assets by the non-bank private sector, is calculated by adding the errors and omissions to selected short-term capital items that are chosen individually for each country he considers.

Why should the focus be on short-term capital movements rather than both short-term and long-term capital? Cuddington (1986) chooses to consider only short-term capital since he is examining "hot money", funds that respond quickly to changes in expected returns or to changes in risk. Presumably these are also the funds that potentially will be the quickest to return to the country when conditions change. There are a couple of problems with measuring capital flight in this way, however. First, as Cuddington (1986) notes, the errors and omissions do not consist only of unreported short-term capital. Second, the case for considering only short-term funds is less than compelling. An investor, reacting to unfavorable conditions at home (such as an anticipated devaluation), may acquire stocks, long-term bonds, or deposits with more than a year to maturity or "real" assets as well as a short-term financial assets. The motivation for all such acquisitions will be identical as will their effect on the investor's home country. In addition, it is difficult to make the case that short-term funds are more likely to react quickly either in leaving the investor's home country or in returning. In today's international financial markets there is very little loss of liquidity associated with acquiring long-term bonds (especially U.S. government bonds, corporate bonds traded on U.S. markets, or Eurobonds) or equities.^{5/}

Thus, whether one wishes to measure private-sector acquisition of foreign assets or the component of these asset that can flow and reflow quickly, is seems best to look beyond short-term capital flows.

An alternative (not pursued in any previous attempts to measure capital flight) is to combine private sector external borrowing with government and government-guaranteed external borrowing and measure the acquisition of gross rather than net private sector external assets. The reason for doing so is that should a balance-of-payments crisis arise, the government may, as has happened in a number of cases, take on the obligation of servicing this private debt. If so the private external borrowing may be considered a contingent liability of the government.^{6/} One might also include foreign exchange value guaranties provided to holders of foreign currency denominated accounts and any forward market intervention that the authorities have undertaken.

Dooley (1986) and Khan and Ul Haque (1986) define capital flight as those external assets held by the private sector that do not generate income recorded in the balance of payments accounts of the country.

Dooley (1986) measures the stock of external claims by summing identified capital flows in the balance of payments accounts and making two adjustments to capture unreported capital flows. The first of these is to add the errors and omissions. The second adjustment Dooley carries out is based on a comparison of the World Bank data on the stock of external debt and external borrowing reported in the balance-of-payments accounts. If both sources report borrowing accurately, one ought to be able to match closely the change in the

stock of debt reported by the World Bank with the net flows of new borrowing reported in the balance of payments accounts. This is frequently not the case, however. In several countries the annual change in the stock of external debt as reported by the World Bank is considerably larger than flows reported in the balance of payments accounts, suggesting that part of the increase in external debt goes unrecorded in the balance of payments accounts. In the cases where a discrepancy arises, the unrecorded increase in external liabilities must correspond to an underestimate of balancing transactions. Dooley (1986) assumes that all of the underestimated balancing transactions consist of private sector acquisition of foreign assets. He therefore adds the difference between each year's change in external debt as reported by the World Bank and the increase as recorded by the balance of payments accounts to his estimate of the increase in private sector foreign assets. He then computes a market interest rate for each country's assets and calculates the stock of external assets that would give rise to the level of investment income recorded in the balance of payments accounts at this market interest rate. The difference between the two measures of external assets is his measure of capital flight.

Unlike any of the studies discussed above, Dooley (1986) and Khan and Ul Haque (1986) attempt to distinguish capital flight from "normal" capital flows that correspond to ordinary portfolio diversification and business activities of domestic residents. Both point out that looking only at the gross increase in external assets as a measure of capital flight may give misleading results since in many countries that are generally recognized not to be experiencing capital flight, domestic residents acquire both foreign assets and

foreign liabilities. That is, there are generally two-way capital flows between countries and to identify one side of these flows as capital flight would be seriously misleading. Their solution is to identify foreign assets that do not generate reported income as capital flight because the presumption is that if the income is unrecorded, the motive of the investor is to place funds beyond the control of the authorities. Both claim that such capital is "lost to the country" and is identified as flight capital.

The problem of distinguishing "normal capital flows" from "capital flight" was discussed earlier. Does the solution adopted by Dooley (1986) and Khan and Ul Haque (1986) succeed in making this distinction? If this capital is "lost to the country" while owned by residents of the country, it must be that these foreign assets represent a welfare loss and should be distinguished from those that do not. If the problem associated with capital flight involves an externality of the sort described above (in which the social rate of return on capital invested domestically exceeds the private rate of return on such investments or in which there is a shadow value of foreign exchange that exceeds the market price), it seems that any movement of funds abroad that otherwise would have been invested at home should be considered in a measure of capital flight. The same would be true if the nature of the distortion is the absence of credibility on the part of the policy maker. In each of these cases, whether or not the income from foreign investments is reported or not seems irrelevant. One may wish to distinguish repatriated investment income from reinvested income on these grounds, as noted earlier, however. If on the other hand, the problem that is addressed is the

erosion of the domestic tax base and the need to levy taxes on other reported income that have less desirable allocative or distributional effects, their definition seems to be the natural one.

An alternative means of distinguishing capital flight from "normal" capital flows might be to examine the extent to which private sector capital flows are two-way flows or one-way flows. In a situation in which private sector capital account credits greatly exceed private sector capital account debits, one might judge that capital is fleeing and that the "normal" two-way flow of funds is not occurring. While this means of distinguishing flight capital from "normal" capital flows might be conceptually useful in devising a measure of capital flight corresponding to Walter's (1987) definition, given the obvious data problems, it is difficult to see how it could be implemented.

III. Empirical Results

In this section we present estimates of capital flight based on a common database and a standard time period and obtained using the definitions and methods above. We do this with several goals in mind. First, we will be able to show in a concise way the range of estimates of capital flight implied by the alternate definitions discussed above. Second, by comparing our estimates with those reported in previous work we will be able to determine the extent to which the estimates of capital flight are sensitive to differences in data sources. Finally, we will be able to determine if the different definitions adopted by the World Bank (1985), Erbe (1985), Morgan Guaranty (1986), and Cline (1986) give rise to significantly different estimates of capital flight.

Our results show that in some cases important differences arise when we compare our estimates of capital flight to those obtained by others when using the same definitions but somewhat different data sources. On the other hand, the differences in definitions adopted by previous authors make only marginal differences in most cases. We also consider adjustments to the capital flight estimates to reflect capital flight in the form of mis-invoicing of trade flows and valuation changes on external debt due to exchange rate changes.

Tables 1 - 6 present summary measures of changes in external debt and some balance of payments aggregates for six countries from 1976 to 1984. The six countries considered are Argentina, Brazil, Korea, Mexico, the Philippines, and Venezuela. In addition, these tables present several estimates of capital flight obtained using a single, consistent data set and several definitions of capital flight described previously.^{7/} We have adopted the sign convention used in

the balance-of-payments accounts. In order to facilitate comparisons across the various estimates we present totals for 1976 to 1982 as well as for 1976 to 1984.^{8/}

Several conclusions emerge immediately from these tables. First, the extent of capital flight according to all measures is greater for Argentina, Mexico, and Venezuela than for the other three countries, with Mexico leading the list. In these three countries, the estimates of capital flight are large not only in absolute terms but also in relation to the increase in external debt accumulated over the period considered. The estimated degree of capital flight from Korea and the Philippines is very small. Regardless of the definition employed, countries estimated to have experienced considerable capital flight are those in which the increase in external debt greatly exceeds the cumulative current account deficits. Second, the smallest estimate of capital flight is generally obtained using Cuddington's definition. This is not surprising since he considers only short-term capital flows. Third, there is generally very little difference between the estimates obtained using the Morgan definition and those obtained using that of the World Bank and Erbe.^{9/} Fourth, the estimates of capital flight provided by Dooley and by Khan and Ul Haque show that in most cases not only has the private sector acquired a substantial volume of foreign assets, but also a substantial fraction of these assets does not generate income that is reported in the balance of payments accounts. Finally, in many cases the estimates presented here are very close to the estimates presented by other authors.

The most striking exception to this last point is found when Erbe's reported capital flight estimates are compared to our estimates

based on her definition. The bulk of the difference can be traced to differences in estimates of the increase in external debt.^{10/} A fairly sizable difference can also be found between the Morgan estimates of capital flight from Brazil and our estimate based on the Morgan definition. The source of this difference seems to be in different estimates of the change in reserves and foreign assets of the banking system. These differences suggest that the estimates of capital flight are sensitive to the data sources employed, and are especially sensitive to differences in estimates of external debt.

A few remarks about individual countries are in order. Argentina experienced substantial capital flight between 1976 and 1982 according to all measures. However, the data also show that no additional capital flight occurred in 1983 and 1984. The estimates of capital flight from Brazil, while considerably smaller than for the other Latin American countries, show substantial variation across definitions. All estimates except those based on Cuddington's definition point to a much smaller volume of capital flight between 1976 and 1982 than between 1976 and 1984, and indicate that capital flight of approximately \$6 billion occurred in 1983 and 1984. Venezuela, like Mexico, is estimated to have experienced sizable capital flight both between 1976 and 1982 and during 1983 and 1984. Interestingly, the estimates of capital flight during 1983 and 1984 based on all definitions except Cline's and Cuddington's indicate that capital flight during those two years exceeds the increase in external debt by a factor of approximately four.

The most interesting case presented here is that of Mexico. In addition to the large volume of capital flight experienced by Mexico, the estimated increase in 1983 and 1984 is also striking. The

adjustments to the Morgan definition of capital flight proposed by Cline lead to a substantial downward revision of the degree of capital flight both over the entire period and over the 1976-1982 period. However, since the idea behind these adjustments is to determine the extent to which exchange controls have been effective, it would be useful to concentrate on the estimated capital flight during 1983 and 1984. While these adjustments reduce the degree of capital flight by approximately \$6 billion for 1983 and 1984, capital flight of approximately \$12 billion is estimated to have occurred during this period even if the Cline adjustments are used.

One possible reason that the capital flight estimates may be somewhat misleading is that changes in the dollar value of external debt are employed. If a significant fraction of external debt is denominated in currencies other than the U.S. dollar, then the dollar value of that debt will change as exchange rates change. For example, if part of a country's external debt is denominated in DM and the U.S. dollar appreciates relative to the DM, the dollar value of the debt will fall. As a result, the capital flight estimates derived from changes in the dollar value debt will be understated when the dollar appreciates as it did from 1980 through 1984. Similarly, these valuation changes will overstate the extent of capital flight when the dollar depreciates. How quantitatively important are these valuation changes? It is difficult to determine the precise magnitude of these valuation changes since time series on the currency composition of external debt are not readily available. In order to shed some light on the potential magnitude of these valuation changes, we have calculated some hypothetical valuation changes assuming that 10% of

debt is denominated in DM and then assuming that 10% of debt is denominated in yen.

The hypothetical valuation changes on external debt are presented in Table 7. As can be seen in Table 7A, if 10% of external debt is DM denominated, the increase in the dollar value of the debt understates slightly the level of new borrowing undertaken by the country. The capital flight estimates based on these figures will then also be slightly underestimated. The calculations reported in Table 7B indicate that the size of valuation changes that result if 10% of external debt is yen denominated are even smaller than is the case in Table 7A. In neither case is the size of valuation changes sufficient to result in substantial underestimates or serious overestimates of capital flight, except in the unlikely case that a very large fraction of external debt is denominated in currencies other than U.S. dollars.

A comparison of partner country data on trade flows can be used to consider two additional potential sources of mismeasurement of capital flight. The first of these possibilities is that balance of payments data are of such dubious quality so as to warrant a broad degree of skepticism about any particular number that is derived from them. The second of the possibilities is that additional capital flight occurs through systematic mis-invoicing of imports and exports. Gulati (1987) presents estimates of the degree to which capital flight estimates could be adjusted to reflect mis-invoicing of trade flows.^{11/}

There are several reasons for differences to arise in partner country data on trade flows, quite apart from any systematic falsification of invoices. One of these, problems arising from timing lags due to transit, can produce differences for two reasons. First, goods shipped and recorded by the exporting country in one year may

not arrive and get recorded by the importing country until the following year. Second, when a country records these trade data in local currency, timing lags may result in their conversion into dollars at different exchange rates in the importing and exporting countries. A second major source of differences in partner country reports of trade flows arises from mistaken allocation of the destination of exports or the origin of imports. Such mistakes can arise quite easily due to transit trading, re-export, or the participation of third-country merchants.

In order to attempt to sort out the extent to which the discrepancies in partner country trade data are due to systematic falsification of invoices and to poor quality data, we have carried out a number of calculations that can be compared to those reported in Gulati (1987). In Table 8 we examine trade between the U.S. and four industrial countries, Canada, France, Germany, and the U.K.^{12/} As Table 8A indicates, reported exports of these countries to the U.S. correspond very closely to reported U.S. imports from these countries. The ratios of these reported magnitudes are generally much closer to one than is the found in Gulati (1987). On the other hand, sizable differences are found in Table 8B between reported French and German imports from the U.S. and reported U.S. exports to these countries. These differences suggest either systematic overinvoicing of imports by these countries or, perhaps, may simply indicate that the destination of shipments from the U.S. to the EEC countries may not be accurately ascribed to the proper country. In any event, the size of these differences is striking and raises questions about the general quality of the data.

A second set of comparisons is found in Table 9, where trade data for five European countries with Germany are examined. Intra-European trade data provide an interesting benchmark comparison since the data problems described earlier should be minimized due to short transport time, relatively stable intra-European exchange rates, and the absence of intra-EEC trade restrictions. A fairly close correspondence between partner country reports is found in Table 9, with the exception of French-German trade since approximately 1980. There is evidence of underinvoicing of exports, perhaps indicating capital flight from France. On the other hand, this apparent underinvoicing of exports corresponds to apparent underinvoicing of imports during the same period. Since the ratios in both 9A and 9B are nearly always less than one, it seems that either a systematic bias may be present in the German partner country trade data or the CIF/FOB adjustment which uses average ratios for each country overstate the corrections that needs to be made to intra-European trade.

The final set of comparisons is found in Table 10, where we examine partner country trade flows between some Latin American countries. The first of these comparisons is between Mexico and Brazil. No striking differences are found between the partner country reports in this case, especially when compared to the size of the differences found in the Mexico-U.S. and Mexico-industrial countries comparisons reported by Gulati. This would suggest that systematic falsification of invoices rather than other data problems accounts for the differences found by Gulati for Mexico. Next, consider the Venezuela-Brazil comparison and the Argentina-Brazil comparison. In the first of these we find that there is a relatively close correspondence between the partner country reports, except in 1980 and

1981, when reported Brazilian exports fall considerably short of reported Venezuelan imports, and in 1978, when reported Venezuelan exports fall short of reported Brazilian imports. On the other hand, large differences are found between the partner country reports for Argentina and Brazil. Here we find that, in several years, reported Argentine exports to Brazil fall considerably short of reported Brazilian imports from Argentina, while in others the correspondence is relatively close. We also find that reported Argentine imports from Brazil fall short of reported Brazilian exports to Argentina, although the difference is smaller.

It seems then that both data problems and systematic falsification of invoices account for the differences in partner country reports of trade flows. The differences reflect, at least in part, capital flight that may not be detected in the estimates discussed above. To the extent that the differences point to underreported trade flows, they must also reflect underrecorded balancing items. If we assume that the underrecorded balancing items are increases in private sector foreign assets, then the capital flight estimates discussed above will be underestimates. If we add import overinvoicing and export underinvoicing, and assume that the difference reflect capital flight rather than other data problems, as Gulati (1987) shows, the estimates of capital flight are generally reduced since import underinvoicing generally dominates export underinvoicing.

IV. Policy Implications and Concluding Remarks

Our objective in this paper has been to survey the alternative definitions of capital flight that have been offered in the recent literature. At the conceptual level, we have noted that the definition of capital flight requires a somewhat arbitrary distinction between normal capital outflows and those that are labeled as capital flight. Any specification of capital flight ought to be consistent with the economic or policy question under consideration. Most current policy issues presume a nationalistic point of view in which capital flight reduces national welfare. Policy decisions will be aided to the extent that a definition of capital flight represents a good proxy for the measure of national welfare loss.

At the empirical level, we have attempted to replicate several of the leading definitions of capital flight using a common database. Doing so illustrates the range of estimates of capital flight that are possible, and how alternative definitions and databases contribute to the dispersion of estimates. Our results show that for some countries, differences in definitions or databases may be substantial, causing some estimates of capital flight to be positive and others negative. The change in a country's external debt position plays a major role in several definitions of capital flight. Our results suggest that revisions to external debt figures and differences across data sources may account for up to \$5 - \$10 billion of the difference in capital flight estimates.

The evidence suggests that capital flight is often a large absolute number. It is sometimes large relative to the stock of external debt. Capital flight is probably always small relative to the stock of domestic assets or other measures of net national wealth.

What, then, is the relevance of these capital flight estimates for policy makers?

In balance of payments analysis, it is well-known that the set of international transactions are interdependent. Consequently, to take the current U.S. case as an example, it is unreasonable to hope that if the United States imposed a tariff and reduced its imports from Japan by \$10 billion that the U.S. current account balance would improve by \$10 billion. Because the U.S. current account surplus equals the sum of net private U.S. savings plus the U.S. fiscal surplus, we need to know the impact of the tariff on these variables to determine its net effect on the current account. To make this calculation requires a general equilibrium model of the economy.

Policy making vis-a-vis capital flight is much the same. It is unreasonable to claim that if \$10 billion in capital flight could be reversed, then the country's external debt needs would be reduced by \$10 billion.^{13/} At a minimum, this conclusion would assume that the alternative use of the \$10 billion was toward domestic investment. But if underlying forces in the economy were unchanged, domestic residents might be inclined to spend their \$10 billion on foreign imports, or to convert these funds into gold or other commodities to preserve purchasing power.

From these examples it seems clear that capital flight is best thought of as a symptom of underlying economic forces rather than a cause of national welfare losses. To understand the role of capital flight, its impact on the national economy and the welfare gains from reversing it, an appropriate definition of capital flight must be imbedded in a complete model of the economy.

A current issue of concern is the impact that capital flight might have on the willingness of commercial banks to increase their lending to LDCs. Surely if domestic residents are unwilling to invest in their own countries, the argument goes, then commercial banks should be unwilling also. And the argument can be bolstered by the statistical relationship between new borrowings over the last several years and increases in capital flight.

But this current argument can be easily refuted.^{14/} First, we would expect domestic residents to hold a diversified portfolio of international investments, even during normal times. As transaction costs decline, we would expect domestic residents to reduce their exposure to country specific disturbances. Extreme risk aversion or market uncertainty would enhance the attractiveness of offshore investments. During a crisis period, an expected discontinuity in financial policy could lead to a run on international reserves to engage in capital flight.

Second, commercial banks might be modeled as well-diversified professional lenders. In a corporate reorganization, banks have the power to force a change in management policies, to set covenants to protect their self-interests, to take an equity participation for enhancing returns, and to base their decisions on information that may not be available to the general public.

Thus commercial banks might be in a more desirable situation than individual investors -- there is a possibility that the interest rate needed to draw in additional bank lending is insufficient to retain the marginal domestic investor. We could easily envisage a model in which additional bank lending, perhaps accompanied by an IMF program, was taken as a signal that banks had re-appraised economic conditions

and had extracted certain pledges regarding the conduct of monetary and fiscal policy. In such a case, fresh bank lending might be accompanied by a reversal of capital flight.

The estimates of capital flight presented in this paper confirm that world capital markets are becoming more highly integrated. In the human capital literature, it was argued that given the mobility of factors, human capital would migrate if it did not receive a competitive market wage. Now the analogy is that financial transactions and financial capital will migrate also if domestic depositors and investors are not offered financial services with competitive risks and returns. In this environment, capital flight ought to be viewed as a symptom of underlying economic problems, rather than as the source of the problem.

FOOTNOTES

1. Cuddington (1986) reminds us that human capital could be included in a measure of capital flight. Indeed, in the 1960s, the "brain drain" was viewed by some as a serious factor detrimental to the economic development of some countries. During that debate, nationalists (e.g. Patinkin [1968]) stressed the distributional effects of capital movements thereby rejecting "the world" as the appropriate unit for welfare maximization. Internationalists (e.g. Johnson [1968]) argued that the brain drain was largely a symptom of other source country policies, exacerbated by the increasing integration of labor markets and the mobility of well-educated people. The current debate on capital flight echoes many of the arguments used regarding the brain drain.
2. In a slightly different situation, the theoretical construct may be well-defined (e.g. the money supply, the labor supply, the price level), but there is no easy way to operationalize the concept. Here the solution may be to pick a proxy variable (e.g. M2, or men and women above the age of 16 who are actively seeking employment, or a sample of prices of consumer goods and services) which the policy maker can influence or about which he collects data.
3. United States policies to stem capital outflows in the 1960s such as the Interest Rate Equalization Tax (1963) and the Voluntary Foreign Credit Restraint program (1968) were not viewed as highly successful. The Eurocurrency and Eurobonds markets quickly developed over this period to expedite capital outflows and the offshore demand for funds.

4. Indeed, it is in the context of discussing the degree of capital flight in Mexico after the imposition of exchange controls that Cline suggests these adjustments.
5. Some "real" assets, like real estate are considerably less liquid, however, and funds invested in these are less likely to respond quickly to changes in conditions in the investor's home country.
6. We are indebted to Alain Ize and Don Lessard for suggesting this point.
7. A description of the data sources and tables containing detailed data used to generate these tables is found in the appendix. The adjustments to the Morgan-World Bank-Erbe estimates suggest by Cline are not relevant for all countries and are presented here only for the purpose of comparison. We will discuss the importance of his adjustments when we turn to a discussion of Mexico.
8. There are three exception, as is noted in the footnotes to the tables. The World Bank numbers are for 1979-1982 rather than for 1976-1982. Dooley does not provide sufficient data for us to recreate his market interest rate so that the estimates presented are his. In addition, he considers only 1978 to 1984. Finally, Khan and Ul Haque use Dooley's estimates. As Cuddington (1987) points out, when calculating these totals we ignore the effect of possible interest compounding and hence the total probably understates the increase in the value of assets held abroad.
9. The only exception to this is found in the case of Korea, where the estimates of capital flight are reduced from \$6.1 billion to \$2.8 billion and \$7.6 billion to \$3.5 billion when the banking system's acquisition of foreign assets is excluded. A slight but

- noticeable reduction is also found in the case of the Philippines.
10. Erbe (1985) uses OECD estimates of external debt, while World Bank estimates are used here.
 11. Partner country trade data have been used to examine the accuracy of balance of payments data by Morgenstern (1974) and to infer the extent of capital flight effected through mis-invoicing by Bhagwati (1964), Naya and Morgan (1969), and Bhagwati, Krueger, and Wibulswasdi (1974). Gulati (1987) provides updated estimates.
 12. The trade data are taken from the IMF's Direction of Trade Yearbook. Since exports are reported fob while imports are reported cif, the import data are adjusted using each country's cif/fob ratio reported in International Financial Statistics so that both imports and exports are fob for the purpose of the analysis undertaken here.
 13. Perhaps this claim is reasonable in the case of official misconduct, when public funds are moved offshore rather than recycled into the domestic economy. See Erbe (1985, p.268) for an example.
 14. An analytical model by Diwan (1986) leads to a similar argument. Diwan posits that a country may be engaged in very high risk projects, and so domestic residents will acquire foreign assets to spread their risk. If external funding is less than adequate, a demand for insurance services is still present which domestic residents attempt to satisfy by placing funds offshore. The model predicts that increased commercial bank lending to LDCs should lead to a reduction in capital flight.

Table 1: External Debt, Balance of Payments, and Capital Flight
 Argentina
 (Billions of U.S. Dollars)

	76 - 82	76 - 84
A. Current Account Surplus	-8.6	-13.6
Excluded Items	6.1	7.7
B. Net Foreign Direct Investment	2.7	3.1
C. Private Short-Term Capital	-14.9	-14.7
D. Portfolio Investment: Bonds & Equities	0.0	0.0
E. Banking System Foreign Assets	0.3	-0.3
F. Change in Reserves	-2.8	-0.5
G. Errors and Omissions	-0.8	-1.2
H. Change in Debt	34.1	36.3

Capital Flight Estimates

	Consistent Data Set		Previous Estimates
	76 - 82	76 - 84	76 - 82
World Bank (H + B + A + F) (a)	22.4	NA	19.2
Erbe (H + B + A + F)	25.3	25.3	23.2
Morgan (H + B + A + E + F)	25.5	25.0	27.0
Cline (Morgan, less excluded items in A)	19.4	17.3	NA
Cuddington (-G - C)	15.6	16.0	15.2
Dooley and Khan and Ul Haque (b)	21.7	21.4	21.7

Sources: See Data Appendix.

(a) Estimates for 1979-1982 are given rather than 1976-1982.

(b) Estimates for 1978-1982 are given rather than 1976-1982. All numbers are from Dooley (1986) and are not replicated using consistent data base.

Table 2: External Debt, Balance of Payments, and Capital Flight
Brazil
(Billions of U.S. Dollars)

	76 - 82	76 - 84
A. Current Account Surplus	-70.0	-76.8
Excluded Items	3.6	4.8
B. Net Foreign Direct Investment	13.6	16.5
C. Private Short-Term Capital	NA	NA
D. Portfolio Investment: Bonds & Equities	NA	NA
E. Banking System Foreign Assets	1.2	1.3
F. Change in Reserves	3.2	-0.3
G. Errors and Omissions	0.3	0.1
H. Change in Debt	65.9	79.3

Capital Flight Estimates

	Consistent Data Set		Previous Estimates
	76 - 82	76 - 84	76 - 82
World Bank (H + B + A + F) (a)	5.8	18.7	3.5
Erbe (H + B + A + F)	12.6	18.7	7.8
Morgan (H + B + A + E + F)	11.5	17.3	3.0
Cline (Morgan, less excluded items in A)	7.9	12.5	NA
Cuddington (-G)	-0.3	-0.1	-0.3
Dooley and Khan and Ul Haque (b)	-1.7	6.0	-1.7

Sources: See Data Appendix.

(a) Estimates for 1979-1982 are given rather than 1976-1982.

(b) Estimates for 1978-1982 are given rather than 1976-1982. All numbers are from Dooley (1986) and are not replicated using consistent data base.

Table 3: External Debt, Balance of Payments, and Capital Flight
Korea
(Billions of U.S. Dollars)

	76 - 82	76 - 84
A. Current Account Surplus	-18.2	-21.1
Excluded Items	4.1	6.2
B. Net Foreign Direct Investment	0.2	0.2
C. Private Short-Term Capital	1.8	1.9
D. Portfolio Investment: Bonds & Equities	0.0	0.0
E. Banking System Foreign Assets	-3.4	-4.1
F. Change in Reserves	-4.3	-4.7
G. Errors and Omissions	-2.9	-4.8
H. Change in Debt	28.4	33.2

Capital Flight Estimates

	Consistent Data Set	Previous Estimates	
	76 - 82	76 - 84	
		76 - 82	
World Bank (H + B + A + F) (a)	3.3	7.6	0.9
Erbe (H + B + A + F)	6.1	7.6	-6.0
Morgan (H + B + A + E + F)	2.8	3.5	6.0
Cline (Morgan, less excluded items in A)	-1.4	-2.7	NA
Cuddington (-B - C)	1.1	2.8	1.1
Dooley and Khan and Ul Haque (b)	2.8	3.6	2.7
Change in Debt	28.4	33.2	

Sources: See Data Appendix.

(a) Estimates for 1979-1982 are given rather than 1976-1982.

(b) Estimates for 1978-1982 are given rather than 1976-1982. All numbers are from Dooley (1986) and are not replicated using consistent data base.

Table 4: External Debt, Balance of Payments, and Capital Flight
Mexico
(Billions of U.S. Dollars)

	76 - 82	76 - 84
A. Current Account Surplus	-42.1	-32.9
Excluded Items	22.0	27.8
B. Net Foreign Direct Investment	9.7	10.6
C1. Private Short-Term Capital; Other Assets	-9.8	-15.8
D. Portfolio Investment; Bonds & Equities	0.1	0.2
E. Banking System Foreign Assets	0.5	0.2
F. Change in Reserves	0.6	-3.5
G. Errors and Omissions	-19.6	-20.8
H. Change in Debt	67.9	79.4

Capital Flight Estimates

	Consistent Data Set	Previous Estimates
	76 - 82	76 - 84
World Bank (H + B + A + F) (a)	25.3	53.6
Erbe (H + B + A + F)	36.1	53.6
Morgan (H + B + A + E + F)	35.7	53.4
Cline (Morgan, less excluded items in A)	13.7	25.6
Cuddington (-G - C1)	29.3	36.2
Dooley and Khan and Ul Haque (b)	17.3	30.4

Sources: See Data Appendix.

(a) Estimates for 1979-1982 are given rather than 1976-1982.

(b) Estimates for 1978-1982 are given rather than 1976-1982. All numbers are from Dooley (1986) and are not replicated using consistent data base.

Table 5: External Debt, Balance of Payments, and Capital Flight
Philippines
(Billions of U.S. Dollars)

	76 - 82	76 - 84
A. Current Account Surplus	-11.7	-15.7
Excluded Items	2.3	3.7
B. Net Foreign Direct Investment	0.5	0.6
C1. Private Short-Term Capital; Other Assets	-3.3	-3.1
D. Portfolio Investment: Bonds & Equities	NA	NA
E. Banking System Foreign Assets	-1.3	-1.4
F. Change in Reserves	-1.1	0.7
G. Errors and Omissions	-0.3	-0.6
H. Change in Debt	19.2	19.4

Capital Flight Estimates

	Consistent Data Set		Previous Estimates
	76 - 82	76 - 84	76 - 82
World Bank (H + B + A + F) (a)	4.5	5.0	NA
Erbe (H + B + A + F)	7.0	5.0	-3.0
Morgan (H + B + A + E + F)	5.6	3.7	7.0
Cline (Morgan, less excluded items in A)	3.3	0.0	NA
Cuddington (-G - C1)	3.7	3.7	NA
Dooley and Khan and Ul Haque (b)	5.4	1.8	5.4

Sources: See Data Appendix.

(a) Estimates for 1979-1982 are given rather than 1976-1982.

(b) Estimates for 1978-1982 are given rather than 1976-1982. All numbers are from Dooley (1986) and are not replicated using consistent data base.

Table 6: External Debt, Balance of Payments, and Capital Flight
Venezuela
(Billions of U.S. Dollars)

	76 - 82	76 - 84
A. Current Account Surplus	-3.8	5.6
Excluded Items	.4	6.8
B. Net Foreign Direct Investment	-0.2	-0.1
C1. Private Short-Term Capital; Other Assets	-11.2	-13.3
D. Portfolio Investment: Bonds & Equities	-0.9	-0.9
E. Banking System Foreign Assets	-0.3	-0.9
F. Change in Reserves	-1.8	-3.7
G. Errors and Omissions	0.9	1.0
H. Change in Debt	26.3	28.7

Capital Flight Estimates

	Consistent Data Set		Previous Estimates
	76 - 82	76 - 84	76 - 82
World Bank (H + B + A + F) (a)	20.7	30.5	22.0
Erbe (H + B + A + F)	20.5	30.5	11.0
Morgan (H + B + A + E + F)	20.2	29.6	25.0
Cline (Morgan, less excluded items in A)	15.7	22.8	NA
Cuddington (-G - C1 - D)	11.2	13.1	10.4
Dooley and Khan and Ul Haque (b)	13.3	25.7	13.3

Sources: See Data Appendix.

(a) Estimates for 1979-1982 are given rather than 1976-1982.

(b) Estimates for 1978-1982 are given rather than 1976-1982. All numbers are from Dooley (1986) and are not replicated using consistent data base.

Table 7: Potential Valuation Changes on External Debt
(Billions of U.S. Dollars)

A. 10% of Debt Denominated in DM

Country	1976-1982	1976-1985
Argentina	-0.3	-1.5
Brazil	-0.4	-2.8
Korea	-0.3	-1.3
Mexico	-0.5	-2.8
Philippines	-0.2	-0.8
Venezuela	-0.5	-1.3

B. 10% of Debt Denominated in Yen

Country	1976-1982	1976-1985
Argentina	0.2	-0.1
Brazil	0.9	0.2
Korea	0.3	0.0
Mexico	0.5	-0.1
Philippines	0.1	-0.3
Venezuela	0.1	-0.2

Table B: Partner Country Trade Data Comparisons

A. Ratios of Reported Exports to Reported U.S. Imports

	1976	1977	1978	1979	1980	1981	1982	1983	1984
CANADA	1.01	1.00	1.00	1.02	1.02	1.04	1.04	1.07	1.04
FRANCE	1.00	1.07	1.04	0.99	0.93	0.95	0.94	0.95	0.93
GERMANY	1.02	0.99	1.01	1.03	1.01	1.01	1.01	1.01	0.97
U.K.	1.03	1.04	0.87	1.06	1.08	0.98	1.01	1.03	0.95

B. Ratios of Reported Imports to Reported U.S. Exports

	1976	1977	1978	1979	1980	1981	1982	1983	1984
CANADA	1.05	1.05	1.06	1.13	1.13	1.11	1.11	1.12	1.11
FRANCE	1.30	1.34	1.38	1.40	1.39	1.29	1.23	1.31	1.28
GERMANY	1.18	1.10	1.21	1.26	1.25	1.19	1.22	1.21	1.17
U.K.	1.07	1.04	1.02	0.92	1.02	0.92	1.03	1.01	0.97

Source: IMF, Direction of Trade Yearbook, and International Financial Statistics.

Table 9: Partner Country Trade Data Comparisons

A. Ratios of Reported Exports to Reported German Imports

	1976	1977	1978	1979	1980	1981	1982	1983	1984
DENMARK	1.03	1.03	1.04	1.05	1.05	1.05	1.02	1.05	1.06
FRANCE	0.97	0.95	0.97	0.96	0.91	0.87	0.80	0.84	0.87
NETHERLANDS	1.06	1.05	1.04	1.02	1.06	1.07	1.06	1.08	1.08
U.K.	1.00	0.89	0.86	0.98	0.97	0.94	0.87	0.89	0.87
SWITZERLAND	0.89	0.89	0.93	0.93	0.90	0.91	0.92	0.96	0.95

B. Ratios of Reported Imports to Reported German Exports

	1976	1977	1978	1979	1980	1981	1982	1983	1984
DENMARK	0.93	0.95	0.92	0.92	0.92	0.92	0.94	0.91	0.91
FRANCE	0.88	0.86	0.86	0.85	0.82	0.80	0.75	0.78	0.76
NETHERLANDS	0.92	0.90	0.90	0.90	0.88	0.88	0.88	0.86	0.87
U.K.	0.95	0.82	0.91	1.00	0.96	0.95	0.94	0.99	0.98
SWITZERLAND	0.90	0.91	0.93	0.91	0.88	0.91	0.92	0.92	0.91

Source: IMF, Direction of Trade Yearbook, and International Financial Statistics.

Table 10: Partner Country Trade Data Comparisons

A. Ratios of Reported First Country Exports to
Reported Second Country Imports

	1976	1977	1978	1979	1980	1981	1982	1983	1984
MEX - BRAZIL	0.99	1.02	1.07	0.98	0.99	1.11	1.13	1.13	1.05
VEN - BRAZIL*	1.04	0.95	0.82	1.03	1.23	1.05			
ARG - BRAZIL	0.94	0.73	0.57	0.60	0.94	1.06	1.00	0.99	0.97
PHIL - H.K.	1.05	1.16	1.20	1.20	1.14	1.21	1.40	1.07	1.07
KOREA - H.K.	1.06	1.04	1.11	1.16	1.17	1.30	1.33	1.30	1.51

B. Ratios of Reported First Country Imports to
Reported Second Country Exports

	1976	1977	1978	1979	1980	1981	1982	1983	1984
MEX - BRAZIL	1.01	0.91	0.89	0.83	0.87	0.91	0.96	0.92	0.89
VEN - BRAZIL*	1.00	1.14	0.97	0.95	0.73	0.56			
ARG - BRAZIL	0.80	0.96	0.68	0.87	0.85	0.82	0.93	0.67	0.64
KOREA - H.K.	0.35	0.29	0.31	0.40	0.40	0.65	0.71	0.54	0.88
PHL - H.K.	0.52	0.51	0.57	0.55	0.58	0.56	0.54	0.66	0.68

Source: IMF, Direction of Trade Yearbook, and International Financial Statistics.

* Venezuela uses partner country data after 1981.

REFERENCES

- Bhagwati, Jagdish N., Anne O. Kruger and Chaiyawat Wibulswasdi. "Capital Flight from LDCs: A Statistical Analysis," in J.N. Bhagwati (ed.) Illegal Transactions in International Trade, Amsterdam: North-Holland Publishing, 1974.
- Bhagwati, Jagdish N. "On the Underinvoicing of Imports," in in J.N. Bhagwati (ed.) Illegal Transactions in International Trade, Amsterdam: North-Holland Publishing, 1974.
- Cline, William. Unpublished estimates, 1986.
- Cuddington, John T. "Capital Flight: Estimates, Issues, and Explanations," Princeton Studies in International Finance, 1986. (forthcoming)
- Cuddington, John T. "Macroeconomic Determinants of Capital Flight," Chapter X in this volume.
- Diwan, Ishac. "LDC's Debt, Potential Repudiation and Capital Flight," New York University Graduate School of Business Administration, Unpublished manuscript, September 1986.
- Dooley, Michael P. "Capital Flight: A Response to Differences in Financial Risks," Staff Papers, 1986. (forthcoming)
- Dooley, Michael P., William Helkie, Ralph Tryon, and John Underwood, "An Analysis of External Debt Positions of Eight Developing Countries Through 1990," Journal of Development Economics, May 1986.
- Erbe, Susanne. "The Flight of Capital from Developing Countries," Intereconomics, November/December 1985, pp. 268-75.
- Gulati, Sunil K. "Adjusting Capital Flight Measurement for Over and Under-invoicing: Some Surprises," Chapter X in this volume.
- Johnson, Harry G. "An 'Internationalist' Model," Chapter 5, pp. 69-91, in Walter Adams (ed.), The Brain Drain, New York: Macmillan, 1968.
- Khan, Mohsin S. and Nadeem Ul Haque. "Capital Flight from Developing Countries," The World Bank, Finance and Development, 1986. (forthcoming)
- Morgan Guaranty Trust Company. "LDC Capital Flight," World Financial Markets, March 1986.
- Morgenstern, Oskar. "On the Accuracy of Economic Observations: Foreign Trade Statistics," in J.N. Bhagwati (ed.) Illegal Transactions in International Trade, Amsterdam: North-Holland Publishing, 1974.

Naya, Seiji and Theodore Morgan. "The Accuracy of International Trade Data: The Case of Southeast Asian Countries," in J.N. Bhagwati (ed.) Illegal Transactions in International Trade, Amsterdam: North-Holland Publishing, 1974.

Patinkin, Don. "A 'Nationalist' Model," Chapter 5, pp. 92-108, in Walter Adams (ed.), The Brain Drain, New York: Macmillan, 1968.

Walter, Ingo. "The Mechanisms of Capital Flight," Chapter X in this volume.

World Development Report. Washington, D.C.: World Bank, 1985.

</ref_section>

APPENDICES

A: Data Sources

B: Yearly Estimates of Capital Flight for Argentina, Brazil, Korea, Mexico, Philippines, Venezuela (1976-1984).

Data Appendix

The sources and methods used for the calculation of the capital flight and balance of payments figures found in Tables 1 through 6 in the detailed tables included in this appendix are as follows.

- A. Current Account Surplus: IMF, Balance of Payments Yearbook, 1985.
- B. Net Foreign Direct Investment: IMF, Balance of Payments Yearbook, 1985.
- C. Non-bank Private Short-Term Capital: IMF, Balance of Payments Yearbook, 1985. Items identified as "Other short-term capital of other sectors."
- D. Portfolio Investment: Bonds and Corporate Equities: IMF, Balance of Payments Yearbook, 1985. Items identified as "Other bonds, assets" and "Corporate Equities."
- E. Banking System Foreign Assets: IMF, International Financial Statistics. Calculated as the change in line 7ad (multiplied by -1 for consistency with the balance of payments sign convention).
- F. Change in Reserves: IMF, Balance of Payments Yearbook, 1985.
- G. Net Errors and Omissions: IMF, Balance of Payments Yearbook, 1985.
- H. Change in Debt: Data from 1978 to 1984 are World Bank data, obtained from Dooley (1986). Data from 1976 and 1977 are from Dooley et. al. (1983).

Items A, B, C, D, F, and G are reported in millions of SDRs. Conversion into U.S. dollars is made using the period average SDR/dollar exchange rate (IFS line sb).

Capital flight estimates, except for those labeled Dooley, are obtained from these items using the formulas in the following tables. The estimates using Dooley's definition are taken directly from Dooley (1986).

ARGENTINA

Millions of US \$

	1976	1977	1978	1979	1980	1981	1982	1983	1984
A. Current Account Surplus									
1. Travel (credit)	653	1131	1870	-500	-4783	-4635	-2379	-2439	-2542
2. Reinvested FDI Income	180	212	280	267	344	413	611	452	440
3. Other Investment Income (credit)	0	0	0	0	0	0	0	0	0
H. Net Foreign Direct Investment	0	127	316	680	1227	882	523	441	264
C. Nonbank Private Short-Term Capital									
1. Other Assets	-45	482	-1510	1450	-1991	-8465	-4808	-1513	1687
2. Loans Extended	0	0	0	0	0	0	0	0	0
3. Loans Received	662	-1	29	846	-36	-1487	-511	291	706
4. Other Liabilities	-708	-290	-755	1965	2927	-2211	-2675	-1242	13
D. Portfolio Investment:	2	773	-784	-1360	-4881	-4767	-1622	-561	968
Bonds and Corporate Equities	0	0	0	0	0	0	0	0	0
E. Banking System Foreign Assets	NA	NA	NA	NA	NA	NA	254	-466	-79
F. Change in Reserves	-921	-1637	-2191	-4234	2628	3056	680	2473	-144
G. Net Errors and Omissions:	-221	135	13	243	-310	-213	-402	-443	-52
H. Change in Debt (f)	400	1500	1900	7600	6400	6400	9900	2400	-200

Capital Flight Estimates in Millions of U.S. Dollars

	1976	1977	1978	1979	1980	1981	1982	1983	1984
World Bank, WDR; Erbe	132	540	1852	3128	5036	5751	8455	2615	-2617
Morgan H + B + A + E + F	132	940	1852	3128	5036	5751	8709	2149	-2696
Cline (Morgan excluding 1-3 in A.)	-98	600	1256	2181	3465	4457	7575	1255	-3400
Cuddington G + C	266	-618	1497	-1693	2301	8680	5210	1955	-1635
Dooley	NA	NA	2000	4700	-900	6200	9700	200	-500

BRAZIL
Millions of US \$

	1976	1977	1978	1979	1980	1981	1982	1983	1984
A. Current Account Surplus									
1. Travel (credit)	-6551	-5106	-7031	-10468	-12793	-11763	-16332	-6810	53
2. Reinvested FDI Income	57	55	68	75	126	236	66	38	66
3. Other Investment Income (credit)	0	0	0	0	0	0	0	0	0
	282	358	640	245	314	355	696	492	660
B. Net Foreign Direct Investment	1372	1684	1874	2220	1544	2317	2551	1374	1555
C. Nonbank Private Short-Term Capital									
1. Other Assets	1091	298	-126	26	1994	111	-287	-359	-3883
2. Loans Extended	-21	187	46	32	47	58	75	15	-3514
3. Loans Received	0	0	0	-3	0	0	0	0	0
4. Other Liabilities	880	-42	50	-8	1939	48	-363	-373	-357
	231	154	-224	3	8	4	1	1	-12
D. Portfolio Investment:									
Bonds and Corporate Equities	NA	NA	NA	NA	NA	NA	NA	NA	NA
E. Banking System Foreign Assets	-245	-39	-829	226	328	-599	-11	175	-350
F. Change in Reserves	-2683	-495	-4559	2907	3462	-674	5255	1873	-5410
G. Net Errors and Omissions	496	-618	279	1227	-351	-390	-379	-617	406
H. Change in Debt (\$)	7800	8200	12300	6700	9900	9900	11100	4500	8900

Capital Flight Estimates in Millions of U.S. Dollars

	1976	1977	1978	1979	1980	1981	1982	1983	1984
World Bank, WDR; Erbe H + B + A + F	-62	4283	2584	1359	2113	-221	2575	937	5098
Morgan H + B + A + E + F	-308	4244	1755	1585	2441	-820	2564	1112	4748
Cline (Morgan excluding 1-3 in A.)	-647	3831	1048	1264	2001	-1410	1802	582	4023
Cuddington G	-496	618	-299	-1227	351	390	379	617	-406
WDR, Erbe H + B + A + F	-554	4205	926	1811	2769	-1419	2553	1287	4398
Dooley	NA	NA	4800	-4900	400	1500	-3500	1700	6000

		KOREA										
		Millions of US \$										
		1976	1977	1978	1979	1980	1981	1982	1983	1984		
A. Current Account Surplus												
1. Travel (credit)		-307	9	-1062	-4156	-5323	-4641	-2679	-1578	-1344		
2. Reinvested FDI Income		275	370	408	327	370	448	502	595	675		
3. Other Investment Income (credit)		0	0	0	0	0	0	0	0	0		
		25	46	99	137	303	443	374	347	0		
B. Net Foreign Direct Investment		75	72	61	17	-5	59	-78	-57	75		
C. Nonbank Private Short-Term Capital												
1. Other Assets		354	23	-1198	844	1938	-136	3	695	-774		
2. Loans Extended		-83	-306	-255	-371	-90	12	50	102	117		
3. Loans Received		0	0	0	0	0	0	0	0	0		
4. Other Liabilities		97	-15	-289	26	-47	-14	12	16	-2		
		339	346	-652	1187	2076	-132	-59	777	-890		
D. Portfolio Investment:												
Bonds and Corporate Equities		0	0	0	0	0	77	0	0	52		
E. Banking System Foreign Assets												
		-222	-347	-810	-575	-897.2	-560.4	29	-384	-334		
F. Change in Reserves												
		-1314	-1371	-709	-973	-297	304	-44	202	-589		
G. Net Errors and Omissions												
		-242	-35	-326	-328	-331	-360	-1288	-951	-918		
H. Change in Debt (\$)												
		2000	2400	3000	5500	6500	4900	4100	2100	2700		

Capital Flight Estimates in Millions of U.S. Dollars

World Bank, WJRI: Erbe H + B + A + F	454	1111	1291	487	875	622	1298	668	842
Morgan H + B + A + E + F	232	764	481	-88	-22	62	1327	284	508
Cline (Morgan excluding 1-3 in A.)	-68	348	-26	-552	-695	-830	450	-659	-625
Cuddington G + C	-112	12	1524	-516	-1607	495	1285	57	1692
Dooley	NA	NA	500	1700	-100	-500	1200	300	500

MEXICO

Millions of US \$

	1976	1977	1978	1979	1980	1981	1982	1983	1984
A. Current Account Surplus	-3410	-1849	-3163	-5452	-8162	-14020	-6051	5323	3905
1. Border Travel (credit)	1398	1255	2085	2742	3573	4593	1236	1103	1331
2. Reinvested FDI Income	0	0	0	0	0	0	0	0	0
3. Other Investment Income (credit)	124	168	403	694	1023	1389	1320	1282	2054
B. Net Foreign Direct Investment	628	556	829	1335	2184	2541	1644	454	392
C. Nonbank Private Short-Term Capital	-405	-1657	-538	-1115	2800	3978	-2222	-6231	-4506
1. Other Assets	-708	-863	-441	-1755	-892	-2592	-2458	-3368	-2346
2. Loans Received	302	-794	-98	640	3691	6570	235	-2862	-2159
a. Government-Owned Enterprises	38	-198	-187	-97	267	4784	-639	12	-23
b. Private Enterprises	264	-595	89	736	3424	1786	873	-2875	-2136
D. Portfolio Investment:									
Bonds and Corporate Equities	-53	-32	1	-52	-131	-12	300	-106	-192
E. Banking System Foreign Assets	0	0	-115	-296	-610	336	204	50	259
F. Change in Reserves	172	-321	-388	-317	-959	-1097	3546	-2020	-2134
G. Net Errors and Omissions	-2623	6	-130	647	-3776	-8318	-5399	-946	-238
H. Change in Debt (\$)	6600	6600	4600	7100	14300	20800	7900	7900	3600

Capital Flight Estimates in Millions of U.S. Dollars

World Bank, WDR; Erbe H + B + A + F	3990	4985	1878	2666	7363	8224	7039	11656	5763
Morgan H + B + A + E + F	3990	4985	1763	2370	6753	8560	7243	11706	6022
Cline (Morgan excluding 1-3 in A.)	2468	3562	-725	-1066	2157	2578	4686	9322	2636
Cuddington G + C1	3331	857	571	1107	4667	10910	7856	4314	2584
Dooley	NA	NA	-100	1500	6900	6900	2100	11200	1900

		PHILIPPINES									
		Millions of US \$									
		1976	1977	1978	1979	1980	1981	1982	1983	1984	
A. Current Account Surplus											
1. Travel (credit)		-1101	-754	-1093	-1496	-1913	-2125	-3210	-2753	-1241	
2. Reinvested FDI Income		92	145	210	238	320	343	449	465	367	
3. Other Investment Income (credit)		0	0	0	0	0	0	0	0	0	
		15	30	29	37	86	180	159	211	286	
B. Net Foreign Direct Investment		126	209	101	8	-107	172	15	105	-6	
C. Nonbank Private Short-Term Capital											
1. Other Assets		-98	-167	-79	-596	319	11	95	-646	545	
2. Loans Extended		-312	-337	-342	-889	-389	-702	-361	99	99	
3. Loans Received		0	0	0	0	0	0	0	0	0	
4. Other Liabilities		214	169	263	293	708	712	456	-744	446	
		0	0	0	0	0	0	0	0	0	
D. Portfolio Investment:											
Bonds and Corporate Equities		NA	NA	NA	NA	NA	NA	NA	NA	NA	
E. Banking System Foreign Assets		405	77	-394	-403	-816	29	-207	71	-122	
F. Change in Reserves		57	29	-878	-376	-961	348	703	2044	-262	
G. Net Errors and Omissions		-148	210	115	245	122	-504	-373	-347	96	
H. Change in Debt (\$)		1500	1600	2700	2500	4100	3400	3400	-300	500	

Capital Flight Estimates in Millions of U.S. Dollars											
World Bank, MDR; Erbe		H + B + A + F	1084	831	636	1119	1795	908	-904	-1010	
Morgan H + B + A + E + F		986	1161	437	233	303	1824	701	-833	-1132	
Cline (Morgan excluding 1-3 in A.)		879	986	198	-43	-103	1301	93	-1509	-1785	
Cuddington G + C1		459	127	227	643	267	1205	734	248	-196	
Dooley		NA	NA	1600	1200	1300	300	1000	-3700	100	

VENEZUELA
Millions of US \$

	1976	1977	1978	1979	1980	1981	1982	1983	1984
A. Current Account Surplus									
1. Travel (credit)	254	-3179	-5735	350	4728	4000	-4246	4427	4972
2. Reinvested FDI Income	109	168	205	178	243	187	309	310	358
3. Other Investment Income (credit)	0	0	0	0	0	0	0	0	0
3. Other Investment Income (credit)	163	128	260	322	521	1009	631	629	1078
B. Net Foreign Direct Investment	-889	-4	68	88	55	184	253	86	58
C. Nonbank Private Short-Term Capital									
1. Other Assets	-1449	-453	-316	1876	-1971	-2760	-5773	-3493	-3017
2. Loans Extended	-859	-221	-417	-640	-1446	-2609	-4951	-723	-1313
3. Loans Received	0	0	0	0	0	0	0	0	0
a. Private Enterprises	-686	-216	29	2568	-570	-262	-838	-2798	-1666
b. Public Enterprises	40	72	66	413	85	-38	168	-1835	-132
4. Other Liabilities	-726	-288	-38	2155	-655	-224	-1006	-962	-1533
4. Other Liabilities	96	-16	73	-53	46	111	17	27	-38
D. Portfolio Investment:									
Bonds and Corporate Equities	-192	-107	-239	6	-263	-118	-10	-7	-1
E. Banking System Foreign Assets	4	-113	-199	-156	8	59	99	-686	102
F. Change in Reserves	-2343	-801	1664	-4098	-3764	21	8165	-336	-1568
G. Net Errors and Omissions	2024	2278	1489	497	-1128	-2139	-2161	7	104
H. Change in Debt (\$)	-1200	6400	6100	7300	5500	2300	-100	500	1900

Capital Flight Estimates in Millions of U.S. Dollars

World Bank, WDRj Erbe H + B + A + F	-4178	2416	1496	3640	6519	6505	4072	4677	5362
Morgan H + B + A + E + F	-4174	2303	1297	3484	6527	6564	4171	3991	5464
Cline (Morgan excluding 1-3 in A.)	-4445	2007	832	2984	5763	5367	3230	3052	4028
Cuddington G + C1 + D	-973	-1950	-833	136	2837	4866	7122	723	1211
Dooley	NA	NA	400	8200	5500	-200	-600	9700	2700