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G. F. Papanek
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THE EFFECT OF AID AND OTHER RESOURCE TRANSFERS ON SAVINGS AND GROWTH IN LESS DEVELOPED COUNTRIES*

The early literature discussing the impact of foreign resources on the economic growth of less developed countries was curiously naive, yet it has remained essentially unchallenged until quite recently. Its basic assumption was that each dollar of foreign resources, and particularly of aid, would result in an increase of one dollar in imports and investment. Given this assumption and a reasonably stable incremental capital-output ratio it was possible to calculate the effect of a dollar of aid, or of total foreign resources, on growth. Or to reverse the procedure, it was possible to calculate the aid required to achieve a target rate of growth.[1]

Some aspects of this simple Harrod/Domar-like model were subject to subsequent modifications (including several developed by Hollis Chenery), which greatly increased its sophistication and connection with reality. In later models, growth in many less developed countries was not determined by investment alone, but also by the capacity to import. The incremental capital-output ratio did not remain a fixed figure, but was assumed to change

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*An earlier version of this paper was done jointly with Susan C. Jakubiak. Ellen Levine substantially expanded the country sample and the statistical work. I am very grateful also for the help and comments of a number of colleagues, most notably Lance Taylor, Millard Long, Walter P. Falcon, Anisur Rahman, Raymond Vernon, Shankar Acharya, and Thomas Weisskopf.

[1]The names most prominently associated with this approach are Rosenstein-Rodan (e.g.: "International Aid for Underdeveloped Countries," RES, May, 1961); Millikan and Rostow (e.g., A Proposal: Key to an Effective Foreign Policy, New York: Harper, 1957); and H. B. Chenery (e.g., "Foreign Assistance and Economic Development," AER, September, 1966, with A. Strout; "Development Alternatives in an Open Economy: The Case of Israel," Economic Journal, March, 1962, with M. Bruno; and "Foreign Aid and Economic Development: The Case of Greece," RES, February, 1966, with I. Adelman.)

with the rate and composition of investment. In some cases, other factors that could affect the capital-output ratio, most notably education, were incorporated into the analysis. Domestic saving was often included as an endogenous variable, changing with the rate of growth and sometimes with other factors. But assumptions about the contribution of foreign resources were not changed: they were exactly additive to domestic savings and to domestically financed imports.

Despite their persistence, these assumptions do not have any basis in traditional economic analysis. On the contrary, conventional wisdom would hold that any additional resources are used in part to increase consumption and only in part to augment investment. Analysis would normally focus on the respective proportions. However, until recently, such analysis did not take place with respect to foreign resource inflows.

The Recent Challenge of Past Assumptions

Within the last year or two there has been a drastic change: numerous essays have concluded that only a fraction of foreign resource inflows has been additive to domestic savings, while a large share went to increase consumption. Some of these essays are "revisionist" in the true sense of the term. They argue that foreign inflows, and especially aid, make little contribution to economic growth, once account is taken of their effect in reducing savings, of the poor rate of return on aid-financed investment and of debt service charges. Aid may ease the lot of the recipient country's citizens by permitting higher consumption, which is considered desirable if the analyst's humanitarian instincts outweigh

his Calvinist conviction that people should struggle for their economic salvation, but it does little for growth.[1] Furthermore, some critics have argued that aid and foreign private investment have undesirable social and political consequences, strengthening oppressive governments and institutions--consequences which need to be weighed against its short-term palliative effect in permitting greater consumption. In short, some recent articles[2] have reached almost the opposite extreme from the earlier analysis: these revisionists see almost no increase in investment, and no increase in growth from foreign resources. Most analysts did not go so far. They agree, however, that aid and other foreign inflows reduce domestic savings and are used in part to increase consumption.

These "the critics"[3] made a very useful and significant contribution in challenging the naive view of the benefit of foreign inflows. It is certainly plausible that some share of foreign inflows increases consumption, especially those which take the form of surplus agricultural commodities or are financed by the use of foreign exchange reserves. But much of the critical literature has gone beyond modest claims and suggests that foreign

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[1]Anisur Rahman (in "The Welfare Economics of Foreign Aid," Pakistan Development Review, Summer, 1967) suggests, however, that it may actually be considered desirable, in the interests of intertemporal equity, to use foreign resources to increase consumption rather than investment.

[2]Most notably Griffin and Enos; cf. footnote 3.

[3]They include: (a) K. B. Griffin and J. L. Enos, "Foreign Assistance: Objectives and Consequences," Economic Development and Cultural Change, April 1970; and K. B. Griffin, "Foreign Capital, Domestic Savings and Economic Development," Bulletin, Oxford University, Institute of Economics and Statistics, May 1970; (b) Anisur Rahman, "Foreign Capital and Domestic Savings: A Test of Haavelmo's Hypothesis with Cross-Country Data," RES, February, 1968; (c) Kaj Areskoug, External Borrowing: Its Role in Economic Development (Praeger, 1969); (d) Thomas Weisskopf, "The Impact of Foreign Capital Inflow on Domestic Savings in Underdeveloped Countries," Journal of International Economics (forthcoming); (e) H. B. Chenery, "Development Alternatives for Latin America," (with P. Eckstein), JPE, July/August, 1970, "A Uniform Analysis of Development Patterns," (with H. Elkington and C. Sims), Economic Development Reports, Nos. 148 and 158, Center for International Affairs, Harvard University, and "Targets for Development," Economic Development Report, 153.

inflows cause a reduction in domestic savings, and that the magnitude of the reduction is measurable.[1] These results are summarized in Table 1.

TABLE 1

The Effect of Resource Inflows on Savings or Investment

	No. of Observations	Times Series or Cross-Country	Savings or Investment	Effect of Foreign Inflows
Griffin & Enos; Griffin	32	C	S	- .73
Rahman	31	C	S	- .25
Areskoug	22	T	I	+ .40
Weisskopf	38	T	S	- .23*
Chenery (JPE)	16	T	S	+ .64 to -1.15**
Chenery (EDR 148)	90	C	S	- .49
Chenery (EDR 148)	90	C	I	+ .11

*According to Weisskopf this is a minimum estimate and the reduction in savings is probably greater.

**12 out of 16 countries show a negative relationship.

[1]Weisskopf: "The numerical results ... support the hypothesis that the impact of foreign capital inflow on ex ante domestic savings ... is significantly negative." Chenery: (JPE) "In twelve out of sixteen cases, the impact of additional foreign capital on saving was found to be negative." (EDR, No. 148) "... the effect of a change in the inflow of capital ... [is a]: Fall in savings .49". Griffin and Enos: "... foreign assistance has neither accelerated growth nor helped to foster democratic political regimes. If anything, aid may have retarded development by leading to lower domestic savings, by distorting the composition of investment and thereby raising the capital-output ratio, by frustrating the emergence of an indigenous entrepreneurial class, and by inhibiting institutional reforms."

Implicit Savings Functions

While the critics suggest that there is a negative causal relationship between foreign inflows and domestic savings they are generally not specific about the savings function which underlies their assumed relationship. Nor do they compare their implicit function with the functions derived from the rather limited work on savings in less developed countries.

There are at least three plausible savings functions[1] which alone or in combination would result in a small or zero increase in investment as a result of foreign inflows:

(i) Rahman, Griffin and Weisskopf imply that savings are substantially determined by government policy and that a government's saving effort will be less vigorous if greater foreign resources are available. Specifically, if one assumes that savings are a function of government effort or policies, that governments have a fixed growth rate as their objective, that achievement of this growth rate requires a given investment, then, if any resources for investment come from abroad, a government will change its policies and programs to reduce domestic savings by an equivalent amount.

(ii) If savings are in part a function of investment opportunities, as suggested by Houthakker[2] and Griffin, and some opportunities are pre-empted by foreign capital, then again every unit of capital inflows will be offset in part by a compensating decline of domestic savings.

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[1] Griffin suggest, in addition, that the availability of foreign capital reduces the incentive to save of domestic investors and that the availability of imported consumer goods, financed by foreign capital, also reduces savings incentives. It is questionable whether these would be major factors in the overall rate of savings.

[2] H. S. Houthakker, "On Some Determinants of Savings in Developed and Underdeveloped Countries," in E. A. G. Robinson (ed.) Problems in Economic Development, London, 1965.

(iii) If savings are in large part a function of the level and rate of change of per capita income, as also argued by Houthakker, then the contribution of foreign inflows to investment will depend on the marginal propensity to save out of additional income. Since capital inflows have averaged only 3.4 percent of GDP, and marginal propensities to save in less developed countries seem to be quite low (20 percent or less) the contribution of capital inflows would then generally be quite small with respect to investment and negligible with respect to growth. Given this limited impact on growth, capital inflows would not significantly affect domestic savings rates in subsequent periods in most countries.[1]

However, another set of plausible savings functions would produce a substantial increase in investment as a result of foreign inflows:

(iv) If savings are substantially a function of the foreign exchange available to import capital goods and inputs to keep installed capacity functioning, then savings would increase with foreign inflows. The importance of the foreign exchange constraint is confirmed by some of Chenery's recent work. Foreign inflows are shown to contribute to growth in addition to their contribution to investment. Similarly, in Weisskopf's analysis, investment in eight out of thirty-one countries was foreign exchange constrained, and another six countries had both a

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[1] E.g.: even in a country receiving capital inflows at the high rate of 6 percent of GDP, with a marginal propensity to save of 20 percent, investment would increase by only 1.2 percent of GDP. With an incremental-capital-output ratio of 3, growth would be raised by 0.4 percent of GDP, and subsequent domestic savings by less than 0.1 percent of GDP.

savings and foreign exchange constraint.[1]

(v) If savings are a function of the level and rate of growth of the income of particular groups, such as industrialists or exporters, (cf. Houthakker) capital inflows may rapidly raise savings by increasing the income of these groups, even if average income changes little.

(vi) If savings are a function of income but there is no effective mechanism for achieving a reduction in savings to compensate for any increase in investment directly financed by foreign capital, the net effect of foreign inflows on investment will depend on the proportion of inflows allocated to investment. When foreign resources first flow into a country, a large share is directly invested--almost all of aid and of foreign private investment --and aid donors exert pressure for increases in domestically financed investment. The question then is whether in a second round the government can and will make compensatory adjustments in domestic savings and consumption in order to meet its specified objective function.

In short, there are plausible savings functions which could result in one dollar of foreign inflows producing anything from no increase in investment to more than one dollar of additional investment. But all of the critical analyses agree that the average impact has been to increase investment by only $0.11 to $0.77 for every dollar of inflow. While other results might be plausible, are there any reasons to question these quantitative results? In fact, their usefulness and reliability can be doubted because the measures of savings reflect an accounting convention rather than a behavioral relationship, because of statistical problems and, most important, because in many cases the measures involve only correlation not demonstrated causality.

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[1] Robin Morris ("Can we Measure the Need for Development Assistance," Economic Journal, September, 1970) concludes that an equal number of countries had a dominant savings and foreign exchange constraint.

Accounting Conventions vs. Behavioral Effects

The negative statistical relationship between savings and foreign inflows found in recent analyses can be in part (or even wholly) the result of an accounting convention, not of a behavioral relationship. Savings are conventionally calculated by subtracting total foreign inflows from investment. Then, if part of foreign inflows is used to increase consumption, domestic savings can appear to have declined even if in reality a greater savings effort has been made.

A simple example will make this clear. Assume foreign inflows are 10 units, of which 7 units are used to increase investment and 3 units increase consumption; assume also that domestic savings simultaneously are increased from 10 units to 12; then total investment will be 19 and conventionally calculated domestic savings will be 9 units (19 of investment minus 10 of inflows.) In this case the accounting convention will produce a result--a decline in savings--that is the opposite of what actually happened--a rise in domestic savings.

Conceptually the problem can be avoided by examining the inflows in terms of their contribution to investment. In the example above, the effect of 10 units of foreign resources would be stated in terms of a 7-unit increase in investment and a 3-unit increase in consumption, rather than the conventional formulation of a one-unit decline in savings. However, the alternative approach is generally not feasible, because data are inadequate to measure the actual use of foreign resources.[1]

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[1] Anisur Rahman has, quite correctly, pointed out that the normal approach is consistent with conventional economic definitions of savings and is justified in terms of economic analysis. However, it incorrectly describes the behavior of the economy.

Inappropriate Aggregation, Conflicting Results and Other Statistical Problems

The critics analyses suffer from some serious statistical problems. First, they aggregate all foreign inflows and deal with the net total flows only. Yet one would not expect aid to have the same impact on growth and savings as foreign private investment. Both are likely to differ in effect from changes in reserves, capital flight, short-term speculative movements or commercial borrowing. To draw any conclusions about the effect of one component, such as aid, one needs to analyze it separately from other flows.

Second, some of the data used inevitably have an unusual margin of error, which may introduce systematic bias.[1] Non-monetary investment is widely underestimated and is especially important in the least developed countries. The same countries also tend to underestimate monetary investment, since their calculations are often based on capital goods imports and production, with inadequate allowance for domestic value added. On the other hand, some of the more developed of the less developed countries tend to overestimate investment, since their capital goods are more highly protected than other commodities. Argentina is an example. Savings estimates, when calculated as a residual by subtracting inflows from investment are subject to greater error than investment estimates. Then if the least developed countries, that is the poorest ones, receive more aid, there would tend to be a specious correlation in cross country analysis between aid and low savings rates.

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[1]For the U.S., Paul Taubman found that different savings series gave quite different marginal propensities to save out of normal income, ranging from .07 to .20 for the same model. ("Personal Savings: A Time Series of Three Measures of the Same Conceptual Series," RES, February, 1968.)

Third, most of the analyses compound possible error by incorrect calculation of the magnitude of foreign resource inflows. With the exception of some of Chenery's work, all ignore net factor payments to abroad. They calculate foreign resource inflows as the difference between current export earnings and import payments, but actual foreign inflows are larger by the net factor payments made to foreigners. Such payments are of considerable importance. With a mean of 2 percent of GDP, they almost equal foreign inflows as usually measured. Their range is considerable and closely correlated with export earnings: e.g., minus 8 percent of GDP for Jordan and 4 percent for Morocco; plus 15 percent for Iraq, 10 percent for Venezuela, Trinidad-Tobago and Zambia, and 7 percent for Iran.[1] To ignore flows of such magnitude creates the possiblity of serious random error and bias. Weisskopf also ignores service payments, and deals only with commodity flows, reducing his average estimate of foreign resource inflows. Most analyses, except Weisskopf's, include a few countries that have a net outflow of resources. In effect, they suggest that since countries with capital exports have high savings and growth rates, capital imports cause low savings and growth rates.

Finally, it is clear that different analysts obtain strikingly different results, which casts some doubt on their reliability. The variation between 11 percent and 77 percent in average impact of foreign inflows on investment and the general dispersion noted in

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[1]All figures rounded decade averages. Source: I.B.R.D. "World Tables". A Statistical Appendix is available from the author, giving basic data by country, sources and definitions.

Table 1 are not negligible. They might be explained in part by differences in sample, time period and method of analysis. However comparing time series results for the same countries still produced widely different results (Table 2). Of course, the specifications of the models differ among analysts, but the very large variations should give one pause, especially since the differences are not systematic as one might expect if they were due to differences in specification.

TABLE 2

THE EFFECT OF CAPITAL INFLOWS ON SAVINGS AS ESTIMATED IN THREE TIME SERIES ANALYSES

	Weisskopf (generally 1953-66)	Chenery (JPE) (generally 1950-64)	Areskoug[1] (generally 1950-64)
Colombia[2]	- .07	- .36	-1.53
Costa Rica	- .58	- .26	
Honduras	- .88	- .25	
Mexico	- .06	- .76	- .58
Chile		- .42	+ .01
Brazil		+ .07	-1.02
Guatemala		+ .02	+4.30
Panama		-1.15	- .57
Paraguay		+ .04	+1.54

[1]Actually Areskoug calculates the effect of foreign borrowing on investment, not savings. His relationship has been transformed into savings by simple arithmetic, using the identity S = I - Inflows.

[2]For 1950-1963 Griffin's coefficient is -0.84.

Correlation vs. Causality

The most serious question on recent evidence about a negative causal relationship between foreign inflows and savings is with respect to the direction of causality. There are clearly many cases where high foreign inflows are associated, among countries or over time, with low savings and, in some cases, low growth rates. However, quite frequently a look at the specific circumstances will lead to doubts that low savings and growth are caused by high inflows. Rather, both are more likely to have been caused by a poor or deteriorating economic and/or political situation.

Poor countries, and countries passing through a temporal crisis often have low savings rates and (ceteris paribus) low growth rates. If, at the same time, such countries frequently have greater inflows because of greater need, then savings and growth will be negatively associated with inflows for many countries without any causal relationship between them. Aid is a major part of foreign inflows which goes primarily to the needy: poor or crisis-ridden countries. This is not the same as arguing that aid is allocated to all needy countries and in proportion to need. Clearly, most aid is allocated in large part on the basis of political considerations--it goes to client states of donors, to their political allies, to those who occupy a crucial political, military or economic position and so on. It is also allocated on the basis of humanitarian considerations. But among countries who have a claim for political (or humanitarian) reasons it tends to go disproportionately to those who need foreign resources more, and during periods of greatest need. For instance, Mexico is undoubtedly more important politically to the U.S. than is Pakistan, and Poland is more crucial to the USSR than is Cuba. Yet Pakistan and Cuba are major aid recipients because they

need foreign resources if their economies are to function and their governments to survive, while neither Mexico nor Poland are as dependent on aid. Both of the former countries also received more aid in periods of bad harvests than when the weather has been good. At least one study supports the contention that the amount of aid is clearly related to need.[1]

Some foreign inflows other than aid also increase in times of crisis and for countries of greater need. When foreign exchange is scarce, for instance, businessmen are likely to look more assiduously for foreign private investment and foreign commercial loans, and governments are likely to draw more on suppliers credit, commercial loans and their foreign exchange reserves.

There are several categories of exogenous factors which simultaneously make for higher foreign resource flows, and lower savings and growth rates, or vice versa:

(i) War, civil war or major political disturbances. Most recent analyses include South Korea, Taiwan, Philippines and Israel. All of these countries had high inflows of aid and relatively low savings rates in the early 1950's (see Table 3), when they were recovering from war or civil war (plus absorption of immigrants in the Israeli case). Some also had lower growth rates until recovery was well under way. By the 1960's savings were up and inflows were lower. It is at least as plausible to conclude that higher savings and lower inflows were both the result of recovery as to believe the alternative hypothesis that lower inflows caused higher savings. As a matter of fact, aid advocates

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[1] A. Strout and P. Clark in an extensive study of aid (Aid, Performance, Self-Help and Need, AID Discussion Paper No. 20, Agency for International Development, July, 1969) found a significant correlation of aid with per capita income (negative) and a calculated foreign exchange gap.

have cited the same data as the aid critics for their contention that aid has been highly successful. In the case of Israel, South Korea and Taiwan, the aid advocates argue, substantial aid in the 1950's resulted in a high growth rate, which produced higher savings subsequently and thus reduced the need for aid. The Dominican Republic, also included in many analyses, had quite respectable savings and growth rates in the 1950's. After its civil war and U.S. intervention, both plummeted and aid increased. Nigeria's savings rates were low in the 1960's during its civil war, when aid and foreign private investment in newly discovered oil were both high. Again, it is more plausible that lower savings rates and increased aid were the consequences of civil war, than that additional aid caused lower savings. For all of these countries, a negative correlation between savings (and sometimes growth) and foreign inflows (especially aid) will show up in both cross-section and time series analyses.

TABLE 3

SAVINGS, GROWTH AND FOREIGN INFLOWS IN SOME COUNTRIES
SUBJECT TO EXOGENOUS SHOCKS

	Growth		Savings			Inflows			Of which aid	
	50's	60's	50's	60's	64/65	50's	60's	64/65	50's	60's
Korea[1]	5.7	6.3	-2.0	5.1	9.6	12.4	9.5	4.5		
Taiwan[2]	7.0	9.4	6.3	12.0	15.6	5.0	2.5	- .2		
Israel[3]	9.1	7.5	9.4	13.9		20.3	15.3		10.3	5.8
Philippines[3]	6.6	4.4	5.3	13.8		6.5	5.5		4.3	3.2
Dom. Rep.[3]	5.5	2.9	16.1	10.8		- 0.1	2.9		1.5	3.1

Sources and notes:

1. 1953-58 and 1959-65 are the periods used. From: U.N. Yearbook of National Accounts Statistics, 1966.
2. 1953-58 and 1959-65 were used. From: U.N. Yearbook of National Accounts Statistics, 1966.
3. For Growth, 1950-1960 and 1960-1968 were used.
For Savings, 1951-1960 and 1961-1965 were used. Inflows used the averages of 1955 and 1960 for the '50s and 1960 and 1965 for the '60s.
See Statistical Appendix, available from the author, for sources.

(ii) Terms of trade. A very substantial change in the terms of trade, especially for countries heavily dependent on exports, generally has a substantial impact on savings rates. Export earnings from minerals or plantation crops often produce more concentrated earnings than production for the domestic market and savings are therefore derived disproportionately from the export sector.

Colombia, for instance, experienced a drop of 47 percent in the price of its coffee between 1954 and 1963. Coffee provided 70-80 percent of export earnings, so it is not surprising that savings and growth were affected. During the period of high coffee prices in the early 1950's Colombia substantially increased its foreign exchange reserves (its domestic savings exceeded investment) and growth exceeded 5 percent per annum. Following the coffee price crisis, foreign inflows reached 2 percent of GDP but the growth rate fell to 3 percent, while domestic savings declined somewhat.[1]

Ghana, as dependent on cocoa as Colombia is on coffee, experienced a drop in its terms of trade index from 112 to 57 between 1959 and 1965. As a result, savings fell from the rather high rate of 16.5 percent of GNP which had been reached in 1960. In an attempt to maintain imports and investment, foreign exchange reserves were drawn down and resort to suppliers credits was expanded, both steps increasing foreign inflows.

Over time, foreign inflows were negatively correlated with both growth and savings for these two countries. In cross-country analysis,

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[1]Papanek, Schydlowsky and Stern, Decision-Making for Economic Development, Houghton Mifflin, 1971

Ghana in the 1960's was an example of a country with relatively low savings and high inflows. This was partly the result of the deterioration in the terms of trade.

(iii) Weather and other exogenous variables. Several years of good or of unfavorable weather sometimes occur in sequence, especially in monsoon agriculture. In countries where agriculture directly provides around 50 percent of GDP and of exports, and affects the income generated in agriculture-based industry, trade and government revenues, two years of bad harvests can substantially reduce savings and growth rates for three or four years. During the same years, foreign exchange reserves are likely to be drawn down, while foreign borrowing and foreign aid are likely to be increased. Since the U.S. has made surplus agricultural commodities available under P.L. 480, high aid inflows and poor harvests have been especially closely related.

For instance, in India the good harvest of 1964 produced high savings, high growth and high export rates accompanied by low inflows of surplus agricultural commodities. The poor harvests of 1965 and 1966 resulted in a reversal: reduced savings, growth and exports, accompanied by increased aid in the form of wheat, rice and so on (Table 4). Forty percent of the borrowing examined by Areskoug was for the import of U.S. surplus agricultural commodities. The vagaries of weather obviously have a substantial influence on this important category of foreign inflows.

Table 4

Agricultural Production, Savings, Growth and Food Aid in India

	1964	Average for 1965 and 1966
Index of agricultural production	119	108
Growth rate -- percent	7.8	-2.1
Savings (Rupees billion)	6	5
Aid in surplus agricultural commodities (million $)	268	480
Exports (billion $)	1.7	1.6

Note: All data in this paper, unless otherwise specified, are from a Statistical Appendix, available from the author. Agricultural production from Indian Abstract of Statistics, exports from IMF, Balance of Payments Yearbook.

There are other exogenous shocks to an economy which reduce economic performance and sometimes increase inflows. With the phasing out of its Malta naval base, Britain substituted a subsidy ("aid") for payments ("exports") which had made higher savings possible. With the nationalization of foreign enterprises and some other steps, savings dropped sharply in several countries, but increased aid from the Soviet Union became available. Earthquakes in Morocco, floods in Tunisia and similar catastrophes meant lower savings and higher aid were correlated over time, but not directly causally related. The opposite case is the discovery of oil or other natural resources, with development paid for by revenues from their export, not by the same foreign resources coming as investment. Savings, growth and exports all rise, while foreign aid drops, foreign investment can remain negligible and "other" foreign inflows can turn negative, as Swiss bank accounts are fattened. Again a negative correlation between savings and inflows would be shown, without direct causality.

The above three sets of factors generally make for a negative correlation of foreign inflows with savings and often growth, in time series and in most cross-country analyses. The length and severity of the swings accounts for the fact that cross-country analyses are also affected, although the correlation is temporal. Cross-country analysis is usually based on five-to-ten year averages. Swings in the terms of trade, weather, wars and civil wars can substantially affect savings rates, growth, aid and other inflows for two to five years. As a result, even eight-year averages used in cross-country analysis are likely to be influenced by these events. Cross-country analysis is affected not only by these exogenous temporal factors, but also by long-term differences in societies.

(iv) Low or high savings societies. Some countries are low savers and, ceteris paribus, have low growth rates, while others are high savers and have high growth rates for a number of social, economic and historical reasons. Religious, ideological or cultural factors can result in thrifty or extravagant societies. A history of inflation and political upheavals may discourage savings, while a history of secure and profitable property ownership may encourage it. Concentrated rental income, for instance from mineral wealth, combined with futher opportunities to invest in mineral development may produce high savings rates while stagnant economies, with a large subsistence sector and no concentrated income, may generate little savings. If the low savers receive more aid because of greater need, low savings and high inflows would again be correlated in cross-country analysis. If then the inflows are inadequate to compensate for low domestic savings in providing the resources for growth, high inflows will also be associated with low growth rates.

Savings, Inflows and Exports

An examination of countries with high and low savings rates confirm the significance of exogenous factors--political and military disturbances, terms of trade, weather and other shocks, and historically low on high saving propensities--in explaining the negative correlation between savings and foreign inflows. Table 5 includes all indices of less developed countries with especially high or low savings rates for which data could be obtained: a universe of 34 countries for the 1950's and 51 countries for the 1960's.

TABLE 5

COUNTRIES WITH EXCEPTIONALLY HIGH OR LOW SAVINGS RATES
(All figures as percentage of GDP)

Low Savers -- 9% of GDP or less.

	Growth	Savings	Aid	Foreign Private Investment	Primary Exports	Other Exports
1950's						
Indonesia	3.6	7.4	.4	.6	11.5	.4
Pakistan	2.6	6.9	1.0	.0	4.1	.6
Panama	4.4	5.8	1.3	3.1	10.9	.2
Philippines	6.6	5.3	4.3	3.3	9.5	.3
S. Korea	7.3	4.8	8.0	0.0	1.5	.3
1960's						
Bolivia	5.6	8.2	7.0	1.6	17.4	0.0
Guatemala	5.0	8.3	2.4	1.8	13.4	.5
Jordan	9.3	-2.5	18.6	1.0	14.5	.9
Liberia	6.0	-1.9	10.8	15.0	45.6	0
Nigeria	5.1	8.0	1.2	3.0	14.5	.4
S. Korea	7.6	5.4	7.0	.9	4.4	1.2
Average	5.7	5.1	5.6	2.8	14.3	.4

High Savers -- 18% of GDP or greater.

1950's						
Burma	5.6	19.1	2.3	.2	19.8	.7
Iraq	5.8	27.2	1.7	-4.5	56.2	.2
Peru	4.6	19.4	.7	2.7	18.3	.8
Venezuela	7.8	28.0	.2	3.1	32.1	.3
Japan	10.5	28.4	- .1	.1	1.4	9.8

Table 5--Continued

High Savers -- 18% of GDP or greater.

	1960's					
	Growth	Savings	Aid	Investment	Primary Exports	Other Exports
Argentina	2.9	19.6	.1	.5	9.4	.4
Iraq	4.7	18.8	.8	.9	33.3	.3
Ivory Coast	8.1	18.5	3.3	2.2	31.2	.4
Malaysia	5.0	20.4	.7	1.3	39.0	1.9
Peru	5.5	19.8	.6	1.3	20.2	1.5
Thailand	7.7	18.7	1.2	1.3	17.1	.4
Trinidad-Tobago	5.2	20.0	1.4	6.8	50.8	1.3
Venezuela	4.5	27.7	0.0	- .2	31.0	.4
Zambia	8.2	32.0	-4.4	1.6	66.7	.5
Japan	9.4	36.0	- .1	+ .1	1.0	9.0
Average	6.3	24.0	.4	1.2	31.7	2.2

Most of the high savers are rich in oil, metals or other natural resources. Their primary exports are, on the average, more than twice those of the low savers. As one might expect they receive little aid. Curiously this resource-rich group also received little foreign private investment on the average. For many of these countries foreign private investment was considerable before the mid-1950's and quite low thereafter either because they discouraged foreign investment for political and social reasons or because foreign investment had declined for economic reasons. Therefore most analyses which begin about 1953 would not show high foreign private investment in these resource-rich, high savings countries. In some cases, capital flight,[1] or repayment on foreign investment and borrowing, produces an outflow in the "other" category, so that even if substantial foreign private investment took place, the analyses using only net foreign flow figures will show low total inflows, as "other" outflows offset foreign

[1] As pointed out by Raymond Vernon, capital flight by citizens of a country, like other transactions of theirs, represents "foreign resources" only in a definitional sense. Usually subtracted from foreign private investment, capital flight by citizens can lead to an understatement of actual foreign private investment, calculated on a net basis.

private investment. The only high savings/low inflows society which is not resource-rich is Japan,[1] where high savings rates were not due to natural resource wealth, but historically high savings propensities.

The low savers include the war or civil-war devastated countries, and those like Jordan with a very underdeveloped economy, that received a high level of aid. They also include countries with high foreign investment: the Philippines where the savings rate was affected by recovery from war, while foreign private investment reflected a return by U.S. capital after the Japanese occupation; Nigeria in the 1960's, where a low savings rate in part resulted from the civil war, and high foreign investment followed the discovery of oil; and Liberia, essentially a subsistence economy with an expected low savings rate, but with an enclave of foreign investment attracted by her iron ore and other natural resources.

The argument is not that all natural resource rich countries or those with high per capita incomes are high savers and vice versa. Nor is it that aid is allocated on the basis of need. It is simply that all cross-country analyses include a substantial number of countries that have a very high propensity to save for a variety of reasons mentioned earlier. These countries generally receive foreign inflows that are low. There are also a few countries in all samples which have a low propensity to save and which receive substantial aid. It is almost self-evident that the resulting correlation between high inflows and low savings does not demonstrate that high inflows <u>cause</u> low savings.

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[1]In the 1960's Argentina also falls into this category in Table 5. However, for peculiar structural reasons, the high savings rates of Argentina are almost certainly spurious. If both capital goods and agricultural exports were valued at world market prices in the national accounts, Argentina would not appear among the high savers.

There is some evidence that many less developed countries fall into three groups with respect to savings, foreign inflows and growth: (Table 6).

(a) Countries which are well endowed with natural resources: Often these were developed by foreign investors during an earlier period, in which case later foreign private investment is low or negative (Iraq, Ceylon, Venezuela in the 1960's). In other cases, heavy foreign private investment in mining, oil, or plantations was still taking place during the period under review (Liberia, Trinidad, Venezuela in the 1950's). These countries have a high level of primary exports, and consequently high savings rates and no severe balance of payments constraint. They have little need for foreign aid and receive little. In terms of total population none of these countries is large.

These then are countries with high savings, low aid, above average foreign private investment and above average growth rates.

(b) Countries that are rather poor in known natural resources and that have not yet developed much of an industrial sector: They often suffer from other economic, as well as political, difficulties. Both primary and other exports are naturally low. Low exports and other problems mean low savings rates and little foreign private investment. Many of these countries are major aid receivers and the growth rate of individual countries depends very much on their level of aid. On the average, aid levels are inadequate to loosen the constraints imposed by low savings and low exports and growth is only average.

In sum, these are countries with low savings and average foreign private investment compensated by above average aid resulting in average growth rates.

(c) Countries which have become semi-industrialized (or industrialized in the case of Japan) and which export manufactures. However, only in the case of Japan is the level of manufactured exports comparable to the level of primary exports for countries rich in natural resources. The rate of savings of these countries then depends in part on their primary exports. Their rate of growth is a function of savings, aid and foreign private investment which vary greatly among these countries. Some are major aid recipients because they are politically important, and because they suffer from more serious savings and balance of payments constraints than the resource-rich. Since they already have a substantial industrial base they are countries which grow rapidly if they receive substantial foreign inflows.

This group includes countries with variable savings. aid, foreign private investment and growth rates, but since all have above average exports of manufactures and several have above average primary exports or foreign inflows, they show the highest average growth rate of all three groups.

TABLE 6

SUMMARY OF PATTERNS OF EXPORTS, SAVINGS AND FOREIGN INFLOWS

	Growth	Savings	Aid	Foreign Investment	Primary Exports	Other Exports
Average for 34 countries in 50's	5.0	13.4	1.7	0.9	15.9	1.0
Average for 51 countries in 60's	5.6	14.1	2.6	1.9	19.7	1.5
Average for 85 observations	5.3	13.8	2.3	1.3	18.1	1.3
(a) High primary exports,* low aid pattern	5.7	19.2	1.5	2.2	39.0	0.8
(b) Low primary exports,** high aid pattern	5.3	10.2	2.8	1.2	7.3	0.5
(c) High manufactured exports,*** variable aid pattern	6.6	15.7	3.6	0.8	12.5	4.7

*Primary exports of 29 percent or more of GDP. (n=14)

**Primary exports below 10 percent and manufactured (other) exports below 1.5 percent of GDP. (n=13)

***Manufactured (or "other") exports 1.7 percent of GDP or higher. (n=14)

Conclusions Concerning the Negative Impact of Inflows on Savings

An examination of the methodology of those who argue for a negative causal relationship between foreign inflows and savings, and of individual countries on which their cases are based, supports the conclusion that their quantitative analyses provide little evidence for their hypotheses. In many instances causality is more complex than they assume. In both time series and cross-country analysis there are countries where it is plausible to conclude that exogenous factors caused both high inflows and low savings rates and generally low growth rates as well. Even the rather superficial examination discussed earlier provided a substantial number of examples. For time series analyses, if one takes account of the six countries where wars or similar disturbances affected the economy, the two countries where terms of trade changed sharply and the two or more countries where weather and other exogenous shocks played a role, very little is left of the critics' evidence. For cross-country analyses another dozen countries need to be added, most of them with historically high savings propensities and with low inflows, without any necessary causal relationship between them.

But while a negative causal relationship between inflows and savings is not supported by the quantitative evidence it almost certainly exists in some cases. It would be surprising if there were not some countries where the availability of foreign resources resulted in savings lower than they would have been in the absence of such resources. A careful study of Korea, for instance, concludes that in the mid-1950's the government followed policies "for maximizing the inflow of foreign aid," by "an overvalued exchange rate, relatively low tariffs on imports, no efforts to encourage exports, a deficit budget...and low interest rates."[1] The after-effects of the war plus conscious

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[1] D. E. Cole and P. Lyman, Korean Development--The Interplay of Politics and Economics, Cambridge: Harvard University Press, 1970, p. 170.

policy seem to have combined to produce low savings and high aid flows. Other analysts have suggested that India and Pakistan neglected agricultural development, and therefore the savings a rapidly growing agriculture could have provided, because they knew that shortfalls would be made good by U.S. surplus commodities; that opportunities for Cuban, Mexican and Central American investors were preempted by U.S. capital, and that negative savings rates in Liberia and extravagant expenditures leading to lower savings in Ghana were due to the ready availability of suppliers credits.

But only careful analysis of individual countries can really shed any light on the impact of foreign inflows on savings, exports, or growth, and even such analyses are invariably subject to disagreement and dispute. For instance, what if Korea had received less aid? Would it have devalued, raised tariffs, encouraged exports, raised taxes and interest rates, or would it simply have imposed stricter quantitative restrictions on imports, nationalized the export industry, further repressed agricultural income and nationalized the banks, and what consequence would either set of policies have had on savings just after the civil war? In the Pakistan case, the argument that surplus commodities weakened the agricultural development effort has been countered by the contention that their availability made possible a policy of price stabilization and the termination of the allocation system, both crucial to increased agricultural output.

There are no good answers to the question "what would have happened with less or more foreign resource inflows."[1] Under some circumstances, foreign inflows undoubtedly stimulated savings, so that each dollar of

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[1]For cross-country regression analyses of the relationship of growth with savings, aid, foreign private investment and other resource inflows and of savings with exports, inflows and other factors, see my "Aid, Foreign Private Investment, Savings and Growth in Less Developed Countries," submitted to the Journal of Political Economy.

inflows led to more than a dollar of investment, while in other cases they discouraged savings and a dollar of inflows may have led to much less than a dollar of investment. However, as long as both savings and inflows are substantially affected by third factors, the negative correlation between the two found in many studies sheds little or no light on their causal relationship.