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AID, PERFORMANCE, SELF-HELP, AND NEED

Alan M. Strout
Paul G. Clark

A.I.D. Discussion Papers are circulated for the information of the addressees and their staffs. These papers are intended to serve several functions: to improve knowledge of analytical studies, research results and assistance policies among Agency personnel; to encourage the careful recording and analysis of Agency experience and problems by persons currently engaged in them; and to share such experience and ideas with interested persons outside the Agency. These papers are designed to stimulate and serve as background for discussion. They represent the views of the authors and are not intended as statements of Agency policy.

July, 1969

Note

Mr. Strout was Chief of the Program Policy Division in the Office of Program and Policy Coordination, A.I.D., at the time this paper was prepared, and is currently on study leave under a grant from the National Science Foundation. He is the author of the following papers on related subjects:

"Savings, Imports, and Capital Productivity in Developing Countries", First World Congress of the Econometric Society, Rome, September 1965.

"Foreign Assistance and Economic Development" (with Hollis B. Chenery), American Economic Review, v. LVI, No. 4 (September 1966). An earlier version appeared as A.I.D. Discussion Paper No. 7 (Revised), June 1965.

"Korea's Use of Foreign and Domestic Resources: A Cross Country Comparison", in Practical Approaches to Development Planning: Korea's Second Five Year Plan, Irma Adelman, ed., Baltimore; Johns Hopkins Press (forthcoming).

Mr. Clark was Assistant Administrator for Program and Policy, A.I.D., at the time this paper was prepared, and is currently Chairman of the Center for Development Economics at Williams College. A related paper, written when he was a consultant, appeared in this series some years ago:

"Indicators of Self-Help", A.I.D. Discussion Paper No. 1, 1962.

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AID, PERFORMANCE, SELF-HELP, AND NEED

by Alan M. Strout and Paul G. Clark

I. Objective of This Study

Those who participate in the foreign aid process are aware of the many factors influencing aid flows to a particular recipient. Bilateral flows are affected by foreign policy considerations, expectations of foreign exchange receipts from other sources, and judgments of the country's ability to absorb and use aid effectively. Multilateral flows often depend upon project availability, considerations of "aid worthiness", and a concern for a roughly equitable distribution of available funds among the various claimants. To pretend that any simple logic applies to the flow of foreign aid is thus to ignore reality.

Reality, in short, is complicated. Aid decisions on individual countries are based on a wide range of country information, analyses, and judgments of country specialists. The decision makers pay particular attention to changes in country circumstances from year to year. Preliminary recommendations may be modified by the competing demands of other country programs, by worldwide budgetary constraints, or by other pressures external to the aid administration.

Nevertheless, the logic of the decision-making process calls for inter-country comparisons. They are needed routinely when limited aid funds are rationed among competing claimants. Explicit comparisons are

also necessary to evaluate the past effectiveness and rationality of the aid-allocation procedures. In this paper we attempt to provide a systematic although rather simple framework within which to clarify decisions based upon inter-country comparisons. More specifically, we examine and attempt to measure three inter-country standards which are frequently regarded as important to country aid decisions:

1. Growth performance, as reflected in a set of statistical indicators of recent economic expansion and allocation of resources to growth.
2. Policy performance, or self-help, as reflected in development policies actually pursued as compared with policies which might reasonably be expected.
3. Income and balance of payments need, as reflected in the level of per capita income and in the gap between "normal" imports and actual export earnings.

With respect to these three standards, we consider the following questions: (a) Can we construct useful measures of growth performance, self-help, and need for inter-country comparisons? (b) How are a sample of 40-odd less developed countries distributed according to the measures devised? In particular, where do a smaller group of countries of particular A.I.D. interest stand? (c) How much assistance are these different less developed countries receiving? (d) To what extent are aid receipts correlated with the three standards?

A fairly simple statistical methodology is used throughout most of the paper, befitting the relatively crude nature of our suggested measures of growth performance, policy performance, and income and balance of payments need. Heavy reliance is placed on ranking of indicators and on simple rank correlations in an effort to eliminate the undue weight of extreme observations. In the final section, however, we try to consider a number of these and other factors in combination, using a more complex statistical procedure.

II. Growth Performance, 1961 - 1967

The concept of a developing country's economic or development performance can cover many different phenomena. The growth process consists of a complex and convoluted series of cause and effect relationships ranging from plans and rhetoric to eventual improvements in the level and conditions of living. Performance can apply to the effectiveness of pursuing either intermediate or ultimate goals and can be observed at a wide variety of points in the development process.

Thus performance can include such diverse aspects as (a) choice of effective policies to promote desired growth and development; (b) effective implementation of policies chosen; (c) mobilization of additional resources for growth and development; (d) efficiency of use of both domestic and foreign resources; (e) structural and other changes necessary for longer-run economic, political and social growth; (f) final effects on level and distribution of income and welfare.

In this section our discussion of growth performance relates in principle to such elements as (c) through (f) above. (Our analysis of policy performance in the next section relates to elements (a) and (b).) In practice we have identified seven statistical indicators of growth performance covering a fairly wide variety of the structural change, growth and resource mobilization phenomena:

- Growth of real gross national product
- Growth of agricultural production
- Growth of investment
- Growth of exports
- Growth of government revenues (in real terms)
- Increase of cost-of-living (lower increases considered preferable to higher)
- Marginal national savings from increases in GNP

Although GNP growth is often taken as a single measure of growth performance, this is usually done for reasons of convenience, and we prefer employing a set of indicators which reflect other aspects of good growth performance. Thus if two countries have the same GNP growth but differ in other respects, our approach suggests that the better performance is then determined by more rapid export growth, smaller increases in cost of living, higher marginal savings, etc.

The rationale of these other indicators is partly that they may be forerunners of subsequent acceleration of GNP growth -- e.g., growth of investment, growth of exports, lower inflation, higher marginal

savings. It is also partly that they are desirable features of the development process even if they could be obtained only at some cost in GNP growth -- e.g., growth of agricultural production for its assumed widespread income benefits, growth of government revenues to meet rising demands for public services.

We have rejected a number of indicators (growth of non-agricultural product, growth of imports, growth of government expenditures, etc.) because they are so closely related to the measures chosen that they do not add greatly to our knowledge. Some potentially desirable indicators (for example, measures of income distribution and of social and political progress) have been omitted for lack of information or agreement upon a suitable measure. The list also excludes any explicit resource efficiency measure, largely because the most commonly used indicator, the gross incremental capital-output ratio, is dominated by its very high correlation with GNP growth rates.

The seven growth performance indicators have been computed for 43 developing countries during the period 1961/3 to 1965/7. With the exception of government revenues and cost of living, the same indicators are available for a prior period, 1957/9 to 1961/3. The countries are listed in Table A-1; they include a number of recent "aid graduates" (Libya, Greece, Taiwan, Iran) as well as some of the very poorest of the developing countries. It should be noted, however, that several important developing countries (notably Algeria, Congo(Kinshasa), Nigeria, Afghanistan, the U.A.R., Burma, and Indonesia) have been omitted for lack of recent data.

Table 1 gives the median and quartile values for the seven growth performance indicators. Over the period 1961/63 to 1965/67, the median country in this sample had a real GNP growth rate of 5.7% -- well over the 5% United Nations target for the Decade of Development. The GNP growth was exceeded by median growth rates in the order of 9% for gross investment, export earnings (in current U.S. dollars), and government revenues (deflated by changes in the cost of living). The median annual export growth rate of 9.3% was particularly notable and probably reflects some of the causal factors behind the GNP, investment, and government revenues growth. (Note that median export growth increased more dramatically than any of the other growth rates over the earlier period.) Median agricultural production growth was lower than in the earlier period, and was only equal to the median population growth rate. Median marginal savings, at 15% of GNP, was substantial and in excess of average savings, though down slightly from the earlier period. The median cost of living increase was a respectable 2.8%, and only 10 of the 43 countries had inflation rates exceeding 5.9%.

At the high performance end of the scale, one-fourth of the countries had GNP growth rates exceeding 6.4% annually. Upper quartile investment and government revenue increases were in the order of 11-12%, and the upper quartile export growth rate was a high 13%. Ten of the countries increased agricultural production at rates in excess of 4.8% per year. Marginal saving among the better performing countries were also quite commendable with an upper quartile figure of 32% of GNP.

TABLE 1

SELECTED PERFORMANCE INDICATORS, 1957-1967*
43 Developing Countries

<u>Indicator</u>	<u>Lower Quartile</u>		<u>Median</u>		<u>Upper Quartile</u>	
	<u>57/9-</u> <u>61/3</u>	<u>61/3-</u> <u>65/7</u>	<u>57/9-</u> <u>61/3</u>	<u>61/3-</u> <u>65/7</u>	<u>57/9-</u> <u>61/3</u>	<u>61/3-</u> <u>65/7</u>
Annual Compound Growth Rates (%):						
GNP	3.3	3.6	4.5	5.7	6.0	6.4
Agri. Production	2.6	1.1	3.4	2.9	5.8	4.8
Exports	2.3	4.1	5.0	9.3	8.4	13.0
Gross Investment	1.0	5.0	5.7	9.3	10.1	11.8
Govt. Revenues	(nc)	5.7	(nc)	8.6	(nc)	10.8
Cost of Living	(nc)	5.9	(nc)	2.8	(nc)	1.6
Marginal Savings	.03	.03	.17	.15	.25	.32
<u>Memorandum item:</u>						
Population growth rate (%)	2.5	2.4	2.9	2.9	3.2	3.4

nc = not calculated

*In all cases indicators are based upon three-year averages of the data for the periods shown in the column headings. "57/9" should be interpreted, for example, as a three year average of the years 1957, 1958, and 1959.

Source: AID/PPC/PPD Machine Run 5 of Dec. 11, 1968, pp. 76-79

Correlations among the seven performance indicators are given in Table 2. Also shown is a measure of overall performance, which is the ranking derived from unweighted sums of the seven individual performance ranks. Population growth is included for reference. There is with one exception a positive correlation among the individual measures ranging from about .1 to about .7. Since the correlation in most cases is significantly less than 1.0, each indicator contributes at least some new information.^{1/}

In general the indicators which are less closely associated with the others and with the overall measure (and hence contribute the most new information) are the cost of living, agricultural production, and marginal savings. GNP, gross investment, exports, and government revenues, on the other hand, are more highly related to one another and in turn to the overall performance indicator.^{2/}

^{1/} The standard error of the rank-order correlation coefficient for 43 observations is about .15. Using a significance level of .05, this suggests that the coefficient must exceed about .29 to be considered "significantly different from zero," and must be less than about .58 to be considered "significantly different from one." See James V. Bradley, Distribution-Free Statistical Tests (Prentice-Hall, 1968), pp. 91-96, for a discussion of rank-order correlations when the true population coefficient is zero, and see Maurice Kendall, Rank Correlation Methods (Charles Griffin & Co., London, 1955), pp. 60-65 for tests in the non-null case.

^{2/} A further observation, which sounds a note of caution in interpreting these indicators, is the rank correlations for five of the performance indicators between the 1957/59-1961/63 period and the 1961/63-1965/67 period. The correlations over time were only moderate for GNP, agricultural production, and exports (.46, .37, and .48 respectively, and were quite low for gross investment and marginal savings (-.14 and .17 respectively). Thus the better performing countries in the latter period were not necessarily those of the earlier period, particularly in investment and savings performance. This study does not explore the reasons for this historical shift, but there is evidence that in both periods growth performance was related to export earnings and to available foreign resources.

TABLE 2

RANK CORRELATIONS AMONG PERFORMANCE INDICATORS
43 Developing Countries, 1961/63 to 1965/67

Annual Compound Growth Rates								Marginal Savings/ GNP Ratio	Overall Perfor- mance Rank
GNP	Popula- tion	Agri. Produc- tion	Ex- ports	Gross Invest.	Govt. Revenues	Cost of Living			
Annual Compound Growth Rates									
GNP	--	.25	.50	.68	.65	.73	.34	.32	.84
Population	--	.18	.19	.28	.00	.26	.26	-.18	-.16
Agricultural Production		--	.32	.14	.28	.42	.42	.12	.55
Exports			--	.62	.63	.11	.11	.46	.77
Gross Invest.				--	.58	.35	.35	.52	.78
Govt. Revenues					--	.28	.28	.40	.78
Cost of Living						--	--	-.03	.36
Marginal Savings/GNP Ratio									.61

Source: AID/PPC/PPD Machine Run 5 of Dec. 11, 1968, pp. 82-85 and Dec. 14, 1968, p. 94; and Machine Correlations of Nov. 27, 1968, p. 57.

As a summary device it is useful to have one performance measure rather than seven, and we use the overall performance rank for this purpose in the remainder of the paper. In spite of its crude derivation, the overall measure seems superior to the single measure of GNP growth, as discussed above. For roughly two out of three cases the overall ranking differed by more than five places from the GNP growth rank. (See Table 3.) The most frequent reason for the difference was higher or lower marginal savings. Other common reasons were differences in exports, investment, and prices.

Naturally any summary measure of overall growth performance must be interpreted with discretion. For example, Paraguay gets credit in Table 4 for high investment growth and marginal savings, but these changes, while hopeful, occurred from low absolute levels and after a number of years of virtual stagnation. But with this caveat, we suggest that the overall ranking, interpreted with an eye to its component indicators, is a meaningful framework for inter-country comparisons of growth performance in the 1960's.

In A.I.D.'s FY 1969 program presentation to Congress, 91% of country development assistance was proposed for 14 countries and 2 regional

TABLE 3

COUNTRIES WHERE OVERALL GROWTH PERFORMANCE RANK
DIFFERS BY MORE THAN 5 PLACES FROM GNP GROWTH
RANK, 1961/63 to 1965/67

	<u>Overall Growth Rank</u>	<u>GNP Growth Rank</u>	<u>Principal Difference</u>
<u>I. Overall Growth Performance Superior to GNP Growth</u>			
Paraguay	16	35	High investment growth and marginal savings.
Cyprus	9	27	High savings, agricultural growth; low cost-of-living increases.
Guatemala	12	26	Low cost-of-living increases; good export and investment growth.
Chile	22	31	High savings, exports and government revenue growth.
Tanzania	7	16	High investment and government revenue growth.
Morocco	32	40	Strong marginal savings; moderate price increases.
Central America	17	24	Good export growth; generally low price increases.
Philippines	23	29	Strong savings; good agricultural and export growth rates.
<u>II. Overall Growth Performance Inferior to GNP Growth</u>			
Israel	24	8	Low investment growth and savings; relatively high price increases.
Honduras	27	15	Relatively weak savings, exports and investment growth.
Pakistan	30	19	Relatively poor savings and investment growth.
Peru	28	20	Low agricultural growth; high cost-of-living increases.
Costa Rica	21	14	Low agricultural growth; poor marginal savings rates.
Brazil	39	33	Poor investment growth; low marginal savings; rapid price increases.
Venezuela	29	23	Poor export growth and marginal savings.
Ethiopia	31	25	Relatively low agricultural production, export growth and marginal savings.

Source: Table A-2.

TABLE 4

Growth Performance, Principal Recipients of U.S. Economic Assistance
(listed in descending order of overall performance rank)

Name	1961/63 to 1965/67 Growth Performance Indicators							Overall Growth Rank	Memo Item: Population Growth Rate
	Annual Growth Rates, %								
	Real GNP	Agri. Prod.	Exports (Value)	Gross Invest.	Prices (CLI)	Gov't. Rev.	Marginal Savings/ GNP		
I. Top Quarter Performers									
Jordan	8.6	8.9	13.3	9.9	0.0	10.9	.16	3	2.8
Korea	8.7	6.6	30.0	18.1	17.1	12.1	.34	4	2.7
II. Second Quarter Performers									
Turkey	6.4	3.7	10.0	11.8	5.8	6.6	.34	15	2.4
East Africa:									
(Kenya)	(5.9)	(5.0)	(6.8)	(9.3)	(2.3)	(8.2)	(.14)	(19)	(2.9)
(Tanzania) ^{a/}	(6.0)	(4.4)	(10.0)	(16.2)	(2.4)	(11.9)	(.32)	(7)	(2.9)
(Uganda)	(5.7)	(1.1)	(9.2)	(11.3)	(4.8)	(9.9)	(.08)	(25)	(2.5)
Central America:^{b/}									
(Costa Rica)	5.6	3.2	12.3 ^{c/}	10.8	1.6	8.6	.07	17	3.4
(El Salvador)	(6.0)	(0.6)	(9.9)	(9.3)	(1.5)	(11.9)	(-.02)	(21)	(3.5)
(Guatemala)	(5.9)	(0.5)	(10.0)	(12.6)	(0.8)	(3.9)	(.10)	(20)	(3.4)
(Honduras)	(5.2)	(3.7)	(13.0)	(11.8)	(0.0)	(9.2)	(.15)	(12)	(3.3)
(Nicaragua)	(4.7)	(4.0)	(15.7)	(6.5)	(2.8)	(5.0)	(.01)	(26)	(3.4)
	(6.4)	(7.0)	(13.8)	(12.0)	(2.7)	(10.8)	(.03)	(10)	(3.5)
Bolivia	5.7	0.6	18.5	10.6	5.9	9.7	.32	18	2.3
Chile	4.6	1.2	13.4	5.0	29.6	13.2	.39	22	2.4
III. Third Quarter Performers									
Peru	5.7	0.1	8.8	11.7	8.9	12.1	.21	28	3.1
Pakistan	5.7	2.7	8.7	5.0	4.4	11.8	.01	30	2.6
IV. Bottom Quarter Performers									
Tunisia	3.5	0.6	4.0	7.7	3.7	8.0	.09	34	2.3
Colombia	4.4	2.0	4.0	2.6	14.0	3.3	.15	36	3.2
Brazil	3.6	2.9	6.0	-3.4	55.9	7.4	-.08	39	3.0
Dominican Republic	2.0	-1.2	-2.4	11.8	2.9	-2.0	-.03	40	3.6
Ghana	2.3	1.7	-1.2	5.2	9.6	2.7	.08	41	2.7
India	3.0	0.0	2.1	3.1	9.7	4.8	.04	42	2.4
Indonesia ^{d/}	-	-	-1.7 ^{e/}	-	-	-	-	-	2.4

a/ Largely based on data for Tanganyika.

b/ Upon combined figures for the five countries shown below.

c/ Includes exports to other Economic Community members.

d/ Assignment based upon general observation, lacking sufficient data.

e/ Value of commodities only; IMF, International Financial Statistics, September 1968.

Source: Table A-1

groups of countries.^{3/} This list of countries and regional groups, each of which was scheduled for \$15 million or more of the FY 1969 funds, can be used to identify "principal U.S. development aid recipients." How has this group of countries performed within the growth indicator framework just described?

Table 4 provides the relevant details and reveals that two countries were among the best (top quarter) performers, five were among the good (second quarter) performers, two exhibited mediocre (third quarter) performance, and seven recorded relatively poor (bottom quarter) performance when judged by the records of the 43 countries examined. Thus the principal A.I.D. recipients were scattered across the entire range of growth performance but with more toward the bottom than the top of the range.

^{3/} See A.I.D., "Program and Project Data, Presentation to the Congress - FY 1969." Development assistance is defined here to include only development loans and technical assistance, and to exclude Supporting Assistance and PL 480. On this basis the top recipients in terms of descending absolute A.I.D. program magnitudes were: India, Brazil, Pakistan, Colombia, Central American Economic Community (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua), Chile, Turkey, Indonesia, Korea, Peru, Dominican Republic, Bolivia, Tunisia, Ghana, Jordan, and East Africa (Kenya, Tanzania, and Uganda). If Supporting Assistance were included, Laos, Thailand, and Vietnam would be added to the list; if PL 480 were included, additions would include Morocco, Philippines, and Congo(K). In the various statistical investigations Indonesia has been dropped for lack of past performance data, East Africa has been treated as three separate countries, and Central America has been treated simultaneously both as regional groups and as five separate countries. This last procedure involves a small amount of double counting, but a fairly large fraction of A.I.D. funds are for regional use and cannot be allocated among the five countries, while on the other hand, certain other information is only available by country.

Among the best performing countries in the overall sample, Korea and Jordan were of principal A.I.D. interest in the FY 1969 program. The high performance group includes in addition Thailand, Cyprus, and Panama, as well as such "aid graduates" as Taiwan, Libya, Iran, and Greece. Both Korea and Jordan had strong export, agricultural and GNP growth during the period under consideration (before the Arab-Israeli war in the case of Jordan). Korea had the stronger savings and investment record of the two countries but also showed a rather high inflation rate.

The second ranked group of A.I.D. recipients was characterized by above average GNP growth (except for Guatemala, Honduras and Chile), and by strong export growth (except for Kenya). Chile led all countries in the 43-country sample in government revenue growth, ranked high in savings, but suffered from a high rate of inflation. Turkey did as well as Korea with respect to marginal savings but had a below average increase in government revenues and a higher-than-average rate of inflation. Bolivia's strength lay in exports, government revenues, investment growth, and savings, but both price and agricultural performance were poor. In the three East African countries taken together, the increase in government revenues and gross investment was noteworthy (possibly paralleling increases in export earnings), as was agricultural production in Kenya and Tanzania. The five Central American countries did unusually well in limiting price increases and increasing exports;

their increase in government revenues was about average, and the marginal savings rates were generally mediocre.

Only two of the major A.I.D. recipients, Peru and Pakistan, were found among the third quarter performers. Both countries still had among the best government revenue increases encountered, and both countries' export increases approached 9% per year. Peru during this period also had strong savings, but fell down with regard to agriculture and inflation. Pakistan's investment and savings records were relatively poor.

Seven of the sixteen major A.I.D. recipients fell within the poorest one-fourth of growth performers. Three of these, Ghana, Indonesia and the Dominican Republic, have only lately become established on A.I.D.'s rolls as development emphasis countries after periods of internal disorder. As will be seen below, two countries, Colombia and India, rank high with respect to recent self-help actions, and the two remaining countries, Brazil and Tunisia, showed a number of encouraging recent self-help signs. (The same was true for the two third-quarter performers, Peru and Pakistan.) The six bottom quarter performers for which data are available were generally characterized by low export growth, generally poor price performance, and rather poor records with regard to most of the other indicators.

III. Policy Performance, 1966 - 1968

Major emphasis in discussions of aid allocation is often placed on policy performance, or self-help, as distinguished from growth performance.

The rationale is partly that good policy performance presumably tends to precede good growth performance in time. Recent self-help may thus provide an indication of future growth improvement or deterioration. Statistical measures of growth performance necessarily cover a period of at least several years, and almost always reflect past rather than current policy activities. Moreover, policy performance focuses on actions largely under the control of government decision makers, whereas actual growth performance can be much affected by uncontrolled influences. In principle, self-help may be considered equally good if it is satisfactorily responsive to either unfavorable or favorable circumstances. On the other hand subsequent events beyond a country's control should not necessarily dim (or brighten) our perception of earlier self-help efforts.

Much debate has been wasted over the question of whether or not to reward good performance by providing more aid, when in most cases good performance leads to decreased need for external assistance. Most of the argument can be resolved by focusing aid increases in support of improved policy performance. By the time policy actions have led to improved growth performance, and this has been sustained long enough to give some confidence that it can be continued, it may then be time to consider tapering off and ultimately ending an aid program.

Individual country analyses of policy performance, heavily weighted by informed judgments about country policy actions and possibilities, are essential at this stage of our knowledge. The study summarized

here^{4/} has simply tried to incorporate this approach into a framework permitting some degree of inter-country comparisons. The attempt has been experimental, and the country judgments have been ultimately those of members of A.I.D.'s Office of Program and Policy Coordination.

The methodology for this experiment started by identifying for each of 22 aid recipients^{5/} a number of policy areas of particular importance to each country during the past two or three years. Three to six areas were generally selected for each country. Although fiscal, trade, and agriculture policy were common to most of the countries, other areas included monetary policy, education, population, industry, private sector, urban development, regional integration, public administration, rural development, and internal security. Areas selected were generally those where the country performance was not already fully satisfactory.

For each of the policy areas chosen in a country, the next step was to list significant policy actions (as opposed to promises) which had taken place since 1966. Next, the analyst considered the policy alternatives available to the country and attempted to describe a preferable but feasible set of policy actions. These alternatives were not supposed to allow for subsequent favorable or unfavorable external developments

^{4/} A.I.D., Office of Program and Policy Coordination, "Self-Help Analysis, 1966-1968" (edited by Barbara Herz), December 1968. Classified Confidential.

^{5/} See Table A-3 for 19 of the countries covered. Not shown in the table are three additional countries evaluated (Afghanistan, Indonesia, and Congo(K)) for which growth performance data were not available.

which could not have been foreseen by the actual policy makers.

The country analyst then assessed each of the policy areas in terms of the gap between actual and preferred policy performance. In some instances a second and more lenient assessment took into account internal political and other extenuating circumstances. The assessments were reviewed by other country analysts for content and uniformity of treatment. The primary result was thus an explicit and reasonably standardized set of judgments for each country of how it performed in the various policy areas most relevant to it.

To permit summarizing overall country policy performance for the purpose of tentative inter-country comparisons, numerical values were then assigned for the initial standardized assessments. These numerical equivalents for the various policy areas were then added up and averaged (without weighting) to provide a summary indication of average policy performance for each country.

Only a rough indication of overall policy performance (within the context of this 22-country sample) is given by the quartile assignments shown in Table A-3. (Individual country ranks derived from the unweighted country scores were of course used for the statistical correlations reported elsewhere in the paper.) Note that a country ranking high or low within this sample might fare either better or worse if the comparison were made for a larger (or different) set of countries.

Since the growth performance measures apply to the period 1961-1967 and the policy performance ratings cover the years 1966-1968, one would expect little or no correlation except to the extent that countries with

strong growth continued to undertake policy actions which approached the ideal. Reverse causality, however, (poor past growth performance leading to a determination to improve current policy performance) might equally well lead to a negative correlation between the two sets of measures. For the 19 countries which are common to both the 43-country and the 22-country samples, the simple rank correlation between overall growth and overall policy performance is, in fact, an insignificant $-.06$. Only the correlations between recent good policy performance and past high growth of government revenues and low increase in the cost of living begin to approach statistical significance.^{6/} Thus the two overall measures of performance as we have measured them provide largely independent information. It will be interesting, however, to test sometime in the future whether 1966-68 policy performance is correlated with, say, 1966/68 to 1970/72 growth performance.

Of greater interest is the fact that a number of countries of particular A.I.D. interest, which had mediocre or poor past growth performance, were judged to have had quite good recent policy performance.

^{6/} Rank correlations between overall 1966-68 policy performance and each of the individual 1961-67 growth performance indicators are: GNP growth, $-.08$; agricultural production growth, $.16$; export growth, $-.07$; investment growth, $-.17$; government revenue growth, $.30$; cost of living increase, $-.31$ (i.e., there was some association between good policy performance and larger increases in the cost of living index); and the marginal savings-to-GNP ratio, $-.04$. For a 19-country sample, a rank correlation coefficient of less than $.39$ would be rejected as not differing from zero at the $.05$ significance level, so none of these coefficients can be regarded as showing significant negative or positive correlation.

When judged by the set of growth indicators for the period 1961/63 to 1965/67, Pakistan's performance was mediocre and India's was relatively poor. In each case, however, recent policy actions place the country among the top quarter of policy performers. Similarly, the past growth records of Ghana, Tunisia, and Colombia have been rather poor, but above average assessments of recent policy performance suggest the possibility of future improvements in growth performance. In fact, of the 12 principal A.I.D. recipients identified above and for whom policy performance assessments were made, only one fell within the bottom quartile of overall policy performance. There may of course be some bias tending to identify good policies with strong A.I.D. interest. Our standard procedures were designed to minimize this bias, however, and we infer that for the majority of principal A.I.D. recipients with mediocre and poor growth records recent policy performance was better than past growth would suggest.^{7/}

IV. Need for Aid: Two Measures

Still a third inter-country standard which may be helpful in illuminating decisions about country aid flows is "need". In practice aid decisions certainly are much affected by judgments of country need. It may be possible, moreover, to define a reasonably objective standard of relative need based on two measures: per capita GNP (a measure of

^{7/} Principal A.I.D. recipients for which policy assessments were not made included Bolivia, the Dominican Republic, East Africa, and Jordan. The inclusion of these countries would not alter this generalization.

relative poverty) and the import or balance of payments "gap" (a measure of foreign exchange requirements).

Per capita GNP (GDP or national income would serve equally well) is a relatively straightforward concept and requires no further explanation aside from the usual warning about the difficulty of inter-country welfare comparisons. The presumption is that the lower the per capita income, the greater the need for external assistance to support an internationally acceptable pace of development.

An import gap, on the other hand, is a more difficult concept to define. Because of the stern discipline of foreign exchange availability, the actual observed difference between imports and exports cannot diverge very far or very long from the availability of foreign aid and other capital inflows. To the extent that the actual gap is determined by aid, gap and aid flow become the same thing, and the actual gap is of no help in assessing aid distribution. For the present purpose, therefore, we have specified a country's import needs not in terms of its own historical behavior but in terms of an estimated norm for a country of that size and income. The country's estimated import gap is then defined as the difference between its estimated import norm and its actual export earnings. If it has relatively low export earnings for a country of that size and income, and aid has not permitted imports as high as the norm, the estimated import gap will be larger than the actual import gap, and vice versa.

The method of estimating import norms is based upon independent studies by Chenery and by Strout (see notes to Table 5) which suggest that a logarithmic relationship between per capita imports and country population and GNP has been applicable for a variety of different country samples (even including developed countries) and has remained approximately constant during the 1950's and early 1960's. A similar logarithmic relationship was calculated for our 43-country LDC sample, and the results (shown in Table 5) conform to those of the earlier periods. Table 5 also shows an alternative formulation by Strout in which the explanatory variable is non-agricultural product rather than GNP. Using this relationship, the population elasticity does not differ significantly from zero, and non-agricultural product becomes essentially the sole determinant of inter-country differences in imports. This alternative formulation also gives a slightly better statistical fit and shows less variability of the income elasticity over time. It has been used in estimating normal imports for this study.^{8/}

The calculated 1965/67 import gaps are shown for each of our 43 countries in Table A-5. The table also shows 1965/67 per capita GNP, and it is of interest that the rank correlation with the import gap is low: If the import gap is measured per capita, the correlation is .03; if it is measured as a share of actual imports, the correlation is .02.

^{8/} In most cases country import gap rankings obtained from the two formulations do not differ greatly. The principal exceptions are Bolivia, Chile and Tunisia, which show a larger import gap on the basis of non-agricultural product, and Nicaragua, which shows a smaller gap.

TABLE 5

RELATION OF IMPORTS TO COUNTRY POPULATION AND
GROSS NATIONAL PRODUCT, VARIOUS INVESTIGATORS
(Linear, Logarithmic Functions)

<u>Source</u>	<u>Time Period</u>	<u>Number of Countries in Sample</u>	<u>Coefficient of multiple determination (\bar{R}^2)</u>	<u>Coefficients with Standard Errors *</u>			
				<u>Intercept</u>	<u>Log Pop.</u>	<u>Log GNP</u>	<u>Log Non-agri. GNP</u>
Chenery	1952-54	63	(n.a.)	-.385 (n.a.)	-.268 (n.a.)	.987 (.069)	
Strout	1957	35	.840	-.233 (.301)	-.171 (.097)	.921 (.117)	
Strout	1962	35	.883	-.370 (.251)	-.240 (.080)	.981 (.096)	
This Study	1961/63	43	.870	-.246 (.219)	-.185 (.074)	.917 (.083)	
This Study	1965/67	43	.865	-.029 (.233)	-.177 (.076)	.871 (.086)	
<u>Alternative Formulation</u>							
Strout	1957	35	.876	.347 (.142)			.734 (.047)
Strout	1962	35	.900	.364 (.129)			.727 (.041)
This Study	1961/63	43	.883	.363 (.127)			.720 (.040)
This Study	1965/67	43	.854	.544 (.142)			.685 (.044)

Source:

Chenery: Estimates derived from Hollis B. Chenery, "Patterns of Industrial Growth", American Economic Review, Sept. 1960, p. 634. Sample included both developed and less developed countries. Original Chenery regression was based on per capita income rather than GNP, and on per capita imports. The use of per capita imports does not affect the value of the regression coefficients (and will not greatly affect the coefficient of multiple determination), but the use of per capita income renders invalid the intercept and population standard errors of estimate as originally computed.

Strout: Alan M. Strout, "Savings, Imports, and Capital Productivity in Developing Countries", paper presented to the First World Congress of the Econometric Society, Rome, Sept. 14, 1965; Table 2 and underlying machine runs.

This Study: A.I.D./PPC/PPD Machine Run 5 of Dec. 20, 1968, pp. 9-12. Note that when log population is included as an explanatory variable along with log non-agricultural GNP, the resulting coefficient for log population is not statistically significant, and for this reason the variable has been dropped from the equation shown. (For similar equations in which log population appeared, the t-ratio of its coefficient for 1961/63 was 0.4 and for 1965/67, 0.1.)

Thus, if we accept the notion that need is a function of both low income and balance of payments gap, these two measures are substantially independent dimensions of need.

These two measures of country need have been combined in column 7 of Table A-5 by simply adding the rank of per capita GNP to the rank of the import gap (expressed as share of actual imports) and then assigning new ranks to the total.^{9/} This combined rank is taken as our overall measure of need: aid needs are presumed to be greatest for countries with large gaps between import norms and actual export earnings and with low per capita incomes.

V. Relative Aid Flows

Foreign aid decisions are typically made in terms of absolute flows, particularly increases or decreases from previous years in view of changes in circumstances. Meaningful inter-country comparisons, however, must consider aid flows in relation to some measure of country size.

The most common deflator is population, and the result of comparing aid flows per capita is that Israel, a small country, is described as a high aid recipient, while India is near the bottom of the list of aid recipients.

^{9/} This procedure of combining the two need measures does not sacrifice a great deal of information. If the two measures were kept as two independent variables affecting relative aid flows, for example, the simple (multiple) correlation coefficient would be .76. In the combined form described here, however, the simple correlation does not change, indicating that the statistical association is as strong with the unweighted, combined measure as with the most favorable weighting of the two separate need measures.

However, small countries tend to have more imports on a per capita basis than do countries whose large internal markets and diverse resources make it profitable for them to manufacture or produce a wider variety of goods. Aid flows, in turn, are generally used to help a country purchase needed imports. As a consequence, when other considerations are equal, small countries with high per capita import needs also tend to be high per capita aid recipients. Israel has historically been a high per capita aid recipient at least partly because it has a small population. India, on the other hand, has historically received relatively low amounts of per capita aid, but India's per capita foreign exchange needs are also lower, and the use of the aid-per-capita measure may thus give a misleading picture of the adequacy of aid flows to India in contrast to some smaller country.

Because the aid per capita measure is heavily influenced by country size, and carries an implication that aid ought to be distributed on a per person basis, we prefer an aid deflator such as imports or investment. Both of these deflators permit meaningful comparisons among different sized countries, and both are measures of the critical and scarce resources which aid flows are supplementing. Between aid as a share of investment and aid as a share of imports, we prefer the import measure since import shortages are probably a more common growth constraint worldwide than are capital shortages.

While preferring the aid/import measure, for the purposes of this paper we have measured aid flow in all three ways: in relation to population,

in relation to imports, and in relation to a country's gross investment. Under these alternative measures, Israel ranks first as a per capita recipient of 1965/67 aid from all DAC countries plus multilateral agencies, but 22nd in terms of gross investment and 23rd in terms of imports. India, on the other hand, ranks 35th with respect to per capita aid, but 12th in terms of aid as a share of investment and first in terms of the share of imports financed by foreign assistance. We conclude, therefore, that in a meaningful way India is receiving relatively more aid than Israel. (See Table A-4 for further country details.)

There are also a number of possible definitions of absolute aid flows. We have focused on total official flows from all DAC countries plus multilateral agencies, as reported in DAC statistics. These are disbursements net of repayments, and do not include private capital flows. As a more direct measure of U.S. interest, we have also considered A.I.D. country program levels as published in the FY 1969 Congressional presentation. These are proposed commitments rather than actual disbursements, and reflect judgments made in the autumn of 1967, but not the additional constraints later imposed by the Congress. Table A-4 also shows 1965/67 results for disbursements arising from all U.S. economic aid programs -- part of the DAC-plus-multilateral total. This U.S. portion, however, was rather closely correlated with the total DAC-plus-multilateral flows (rank correlations ranged from .85 to .89), so we have not considered this measure further in this paper.

Table 6 shows the rank correlations among these selected measures of aid flows. Looking only at total aid from all DAC members plus multilateral organizations, it is apparent that the correlation between the import measure and the per capita measure is comparatively low (.37), while the correlation between the import measure and the investment measure is high (.86). Looking only at proposed A.I.D. FY 1969 programs, again the import measure is less correlated with the per capita measure than with the investment measure. The A.I.D. FY 1969 programs, in turn, are only moderately correlated with total aid from all sources.

During 1965-67, DAC-plus-multilateral aid disbursements to the median aid recipient (in the 43-country sample) averaged 9 percent of imports, but a quarter of the countries received more than 15 percent, and a quarter less than 5 percent. (See Table 7.) Thus there was a quite wide variation in aid receipts by individual countries. The ratio of the upper to lower quartile aid receipts was about the same for all three aid measures, however, suggesting that aside from a few extreme values there was roughly equal variability in country aid receipts regardless of how measured. The country distribution pattern of the FY 1969 A.I.D. request was similar to that for total aid with respect to the import and investment ratios, but showed even more variation on a per capita basis. It is important to reemphasize that the aid ratios chosen for inter-country analysis reflect different phenomena and result in different assessments of high and low aid recipients. This is shown in Table 8 where countries are listed which in 1965/67 had aid/import

TABLE 6

RANK CORRELATIONS AMONG VARIOUS AID MEASURES
43-COUNTRY SAMPLE

	DAC & Multilateral Disbursements, 1965/7, as ratio to:			A.I.D. Program Requests, FY 1969, as ratio to avg. 1965/67 values of:		
	<u>Pop.</u>	<u>Invest.</u>	<u>Imports</u>	<u>Pop.</u>	<u>Invest.</u>	<u>Imports</u>
<u>DAC plus Multilateral as ratio to:</u>						
Population	--	.52	.37	.50		
Investment		--	.86		.59	
Imports			--			.70
<u>1969 A.I.D. Program Request as ratio to:</u>						
Population				--	.83*	.62*
Investment					--	.83*

Source: AID/PPC/PPD Machine Correlations of 11/27/68, p. 40:
Machine Run 5, 12/11/68, p. 82.

* Adjusted to exclude ten zero entries.

TABLE 7

DISTRIBUTION OF AID FLOWS WITHIN 43-COUNTRY SAMPLE:
DAC & MULTILATERAL DISBURSEMENTS, 1965/67, and FY 1969 A.I.D. REQUEST

	Multilateral and DAC as Ratio to:			FY 69 A.I.D. Program Request as Ratio to Avg. 1965/67 values of:*		
	<u>Imports</u>	<u>Invest.</u>	<u>Pop.</u>	<u>Imports</u>	<u>Invest.</u>	<u>Pop.</u>
	(\$/\$)	(\$/\$)	(\$/Person)	(\$/\$)	(\$/\$)	(\$/Person)
Upper Quartile	.15	.24	8.49	.09	.09	5.10
Median	.09	.14	5.36	.05	.06	2.51
Lower Quartile	.05	.07	2.76	.02	.03	.66

Source: AID/PPC/PPD Machine Run 5, 12/9/68, pp. 75-76. See also Table A-4.

* Quartiles are based upon that subsample of 34 countries to which A.I.D. proposed economic assistance in FY 1969.

TABLE 8

COUNTRIES IN WHICH PER CAPITA AID RANK
DIFFERS SUBSTANTIALLY FROM AID/IMPORT RANK,
DAC & MULTILATERAL DISBURSEMENTS, 1965/67

I. Aid/Import Rank Exceeds Per Capita Rank by 10 or more				II. Aid/Import Rank is less than Per Capita Aid Rank by 10 or more			
<u>Country</u>	<u>1966 Pop. (mil)</u>	<u>Rank of Aid as a ratio to:</u>		<u>Country</u>	<u>1966 Pop. (mil.)</u>	<u>Rank of Aid as a ratio to:</u>	
<u>Name</u>		<u>Imports</u>	<u>Pop.</u>	<u>Name</u>		<u>Imports</u>	<u>Pop.</u>
India	502	1	35	Cyprus	1	35	8
Ethiopia	23	10	40	Israel	3	23	1
Pakistan	119	2	27	Nicaragua	2	31	10
Brazil	83	16	33	Panama	1	22	4
Tanzania	11	14	29	Venezuela	9	39	11
Sudan	14	25	39	Honduras	2	37	12
Uganda	8	19	31	Costa Rica	2	21	7
Turkey	32	6	18	Greece	9	40	28
Korea	29	3	13	Malaysia	10	38	26
				Peru	12	32	21

Source: AID/PPC/PPD Machine Run 5, 12/9/68, pp. 75 and 87.

ranks differing by 10 or more places (1 quartile) from their per capita aid ranks. Nineteen of the 43 sample countries fall within this category. Country population size is the most important factor associated with the differences in rankings: the countries in which the per capita aid rank exceeded the aid/import rank were generally small, while the opposite was true for countries in which the aid/import rank exceeded the per capita aid rank.

VI. Relation of Aid Flows to the Three Inter-country Standards

The question remains as to whether actual aid flows bear any discernible relationship to our measures of past growth performance, more recent policy performance, or a country's need for aid. In keeping with the simple statistical methodology used above, we examine this question by first looking at rank correlation coefficients and then by focusing on the 16 recipients of principal A.I.D. developmental interest. As a final step, we will also analyze the three standards taken in combination.

Table 9 summarizes the rank correlations between our two principal aid measures and our three performance and need standards. Per capita aid, whether in terms of DAC-plus-multilateral disbursements or A.I.D. program requests, bears almost no significant relationship to any of the three standards. Aid as a share of imports, on the other hand, is rather strongly and positively related to need as we have measured it. The correlation for total DAC-plus-multilateral aid is .76, and that for A.I.D. assistance is .67. High relative aid is fairly strongly

Table 9

Rank Correlation between Aid Flows and Recipient
Growth Performance, Policy Performance, and Need,
1965/67 and FY 1969

	Overall Growth Performance, 1961/3 to 1965/7		Policy (Self-help) Performance 1966-68		Average of per capita GNP & import gap 1965/67	
	19 obs	43 obs	19 obs	43 obs	19 obs	43 obs

1965/69 DAC & Multilateral Aid Disbursements

as ratio to:

Imports	-.43	-.18	.56	- *	.61	.76
Investment	-.27	-.14	.38	- *	.26	.56
Population	.08	.09	-.06	- *	-.38	-.10

FY 1969 A.I.D. Request as ratio to average

1965/67:

Imports	-.14	-.20	.56	- *	.53	.67
Investment	.07	-.11	.32	- *	.14	.53
Population	.15	-.12	-.27	- *	-.48	.36

Source: AID/PPC/PPD Machine Run 5, 1/2/69, pp. 39, 40, 64, 65.

*Self-help rankings available for 19 countries only and therefore this correlation cannot be calculated.

associated with good policy performance, as indicated by a rank correlation of .56 for both DAC-plus-multilateral and A.I.D. assistance. Aid as a share of imports has a barely significant negative correlation with past growth performance, on the basis of all four cases in the table. Thus, aid flows (as we prefer to measure them) appear to have little relationship to past growth performance, a significant positive relationship to recent policy performance, and a clear positive relationship to our combined measure of country need.

Note in this last connection that the correlation between aid and the combined need measure is higher than for either of the two components of need taken independently. Thus the rank correlation between aid as a share of imports and the combined need measure is .76. The rank correlation with per capita GNP alone, however, is .61, while that for the import gap taken by itself is .45. This result is reassuring since there is unavoidably some degree of tautology between our aid measure and our measure of the import gap. The fact that the simple correlation between these latter two measures is not high, and that the correlation improves when per capita GNP is also considered, increases our confidence that the final correlation reflects more than a mere tautology.

Turning to the 16 countries or country groups of principal A.I.D. interest, we find that the same conclusions hold. These principal recipients are listed in Table 10 in descending order of their 1965/67 DAC-plus-multilateral aid receipts as a share of imports. If the

Table 10

Performance, Need and Aid: Countries
of Principal A.I.D. Developmental Interest in FY 1969
(Listed in descending order of 1965/67 DAC & multilateral
aid as a share of Imports)

	1965/67 DAC + Mult. Aid as Share of 1965/67 Imports ^{1/} (\$/\$) (Rank)	FY 1969 A.I.D. Requested as Share of 1965/67 imports ^{1/} (Rank)	Overall Growth Perf. ^{1/} (Rank)	Policy Performance Rank ^{2/} (Quartile)	Avg. of Per Capita GNP & Import Gap Ranks ^{1/}
India	.38	1	4	I	4
Pakistan	.34	2	3	I	2
Korea	.31	3	7	I	7
Dominican Republic	.29	4	1	(n.a.)	6
Jordan	.27	5	9	(n.a.)	10 $\frac{1}{2}$
Turkey	.24	6	11	III	9
Tunisia	.24	7	14	III	12 $\frac{1}{2}$
Bolivia	.19	8	2	(n.a.)	5
Kenya	.15	11	30	(n.a.)	14
Ghana	.15	13	21	II	20
Tanzania	.14	14	29	(n.a.)	22 $\frac{1}{2}$
Chile	.13	15	10	II	33
Brazil	.12	16	6	III	15 $\frac{1}{2}$
Colombia	.12	17	5	II	17
Uganda	.10	19	25	(n.a.)	18 $\frac{1}{2}$
(Costa Rica)	(.09)	(21)	(24)	(III)	(27)
(Honduras)	(.07)	(26)	(16)	(III)	(22 $\frac{1}{2}$)
(El Salvador)	(.07)	(27)	(20)	(IV)	(25)
Cent.Am.Ec.Comm.*	.07	28	12	Approx. III	37
(Nicaragua)	(.06)	(31)	(15)	(I)	(31)
(Guatemala)	(.05)	(33)	(19)	(III)	(15 $\frac{1}{2}$)
Peru	.06	32	23	(IV)	34

* - Five Central American countries combined; includes aid allocations to region as a whole and not shown under individual country totals.

^{1/} 43-country sample
^{2/} 19-country sample

countries are divided into four groups (using country detail in the case of the two regional groups), we find the following average ranks:

	<u>Number of Countries</u>	<u>Average Overall Growth Performance Rank</u>	<u>Average Policy Performance Quarter (where avail.)</u>	<u>Average Combined Need Rank</u>
Top Quarter Recipients	5	23.8	1.0 ^a	5.9
Second Quarter	5	25.4	2.7 ^b	12.1
Third Quarter	5	25.8	2.3 ^c	18.2
Bottom Quarter	6	19.5	3.0	25.8

a/ Three countries: India, Korea, Pakistan

b/ Three countries: Ghana, Tunisia, Turkey

c/ Three countries: Brazil, Chile, Colombia

This suggests that for this sub-group of recipients, there has been little or no relationship between aid and past growth performance but a fairly pronounced positive association between aid and combined need and a somewhat less strong association between aid and recent policy performance.

If instead of DAC-plus-multilateral aid, the FY 1969 A.I.D. request has been used for grouping the countries (see Table 10), the results would have been very similar.

Interestingly enough, there appear to be few notable exceptions to these general patterns among the principal A.I.D. recipients. For our general purpose let us focus on discrepancies between the aid flow rank in Table 10 and the two ranks for need and policy performance. The three countries where aid flows may be somewhat higher than is suggested by need and policy performance are Turkey, Tunisia (both largely on the basis of mediocre policy performance), and Chile (largely on the basis of income and balance of payments need). The two countries where aid may be somewhat lower than is suggested by need and policy performance are Nicaragua (good policy performance) and Guatemala (comparatively high need). Given all the uncertainties in our approach, we would not claim more for this kind of result than that it raises questions about particular countries which should be considered further with fuller information and judgments.

As a final step we have investigated the strength of the correlation between relative aid flows and each of the three inter-country standards when these latter measures are taken in combination rather than individually. This has been done using multiple regression analysis in which aid was the dependent variable, and the three independent variables were the combined need measure, the overall policy performance measure, and the overall growth performance measure. The technical results are summarized

in Table A-6, but the conclusions may be simply stated as confirming the earlier analysis. Our overall need measure "explains" more of the variation in relative aid flows than either of the other factors. The overall policy performance measure, judging by the 19 country sub-sample, is of secondary but significant importance. The past growth performance record does not prove to be significant in the 43-country multiple regressions and has a significant negative correlation with aid for the 19-country sample.

However, even taken in combination, the three factors do not "explain" a large fraction of country-to-country aid flow differences. The coefficient of multiple determination (R^2) is at most .57 for the 43-country sample and .48 for the 19-country sample. (See Table A-6, equations 1 and 9.) This suggests that factors not considered in the above analysis (whether systematic or random) have been important in determining actual aid flows.

If we examine the deviations from the 19-country multiple regression containing all three inter-country standards (Table A-6, equation 9), the two countries with aid flows notably above the regression norm appear to be Panama and Turkey. Those with aid flows notably below the regression norm appear to be Guatemala and Nicaragua. These are the countries where the multiple regression suggests that other factors have had greatest effect.

In conclusion, the general policy question raised by our analysis is whether this pattern of aid allocation, which emerges from all aid

donors' decisions, is reasonably close to what they collectively intend. The evidence here is that current aid is not associated with past growth performance, is moderately associated with recent policy performance, and is most associated with income and balance of payments need. Is this a desirable pattern?

APPENDIX 1: General Notes on Sources

GNP, gross investment, and national savings are from A.I.D., Statistics and Reports Division, as of the latter part of 1968. All data have been converted to 1966 prices. National savings is generally measured as gross investment plus exports of goods and services (including factor services) minus imports of goods and services (including factor services).

Population, agricultural production indexes, government revenue estimates, and exports of goods and services were also provided by A.I.D.'s Statistics and Reports Division. Population figures are generally those of the United Nations while agricultural production indexes come from the U.S. Department of Agriculture. Government revenues are estimated in current prices and local currencies by A.I.D.'s overseas missions. For the present study they have been deflated through division by cost of living indexes published by the International Monetary Fund (see its monthly International Financial Statistics). Exports of goods and services are also taken from IMF sources (particularly the annual Balance of Payments Yearbook) and thus represent current dollar values as measured for balance of payments rather than national accounting purposes. We have not tried to distinguish export volumes, because of the statistical difficulties, from these export values, so this indicator is affected by price changes.

DAC plus multilateral aid flows include bilateral aid from OECD and

DAC members but not from Finland, Israel, the Soviet Bloc, Mainland China, Kuwait, Spain, etc. Both these and the multilateral flows are net of amortization but not of interest payments. In addition, the multilateral flows are net of the recipient country's own payments or subscriptions to the donor agencies. Flows through 1965 are from published sources (see for example, O.E.C.D., The Flow of Financial Resources to Less Developed Countries, Paris, 1967, p. 155) and 1966 and 1967 data are preliminary estimates compiled by A.I.D. from country submissions to the O.E.C.D.'s Development Assistance Committee.

U.S. economic aid disbursements (Table A-4) conform to the D.A.C.

definitions and include A.I.D., PL 480, Export-Import Bank, and Peace Corps expenditures. Source is the U.S. annual aid report to the D.A.C.

FY 1969 A.I.D. request represents A.I.D.'s estimates of desirable obligation levels (as opposed to actual obligations or disbursements). The figures are from A.I.D., "Program and Project Data, Presentation to the Congress - FY 1969" summary tables.

APPENDIX 2

TABLE A-1

BASIC ECONOMIC AND PERFORMANCE DATA, 1957-1967, 43 COUNTRY SAMPLE

No.	Country Name	Annual Average 1965/67			Average Annual Compound Growth Rates (%)								Gross Inv.		Population		Marginal Saving to GNP Ratio	
		GNP (1966 \$ mil)	Pop. (mil)	GNP/Capita (1966 \$)	GNP 57/9- 61/3	61/3- 65/7	Agri. 57/9- 61/3	Prodn. 61/3- 65/7	Deflated Gov. Revs. 61/3-65/7	Cost of Living 61/3-65/7	Exp. (G&S) 57/9- 61/3	61/3- 65/7	57/9- 61/3	61/3- 65/7	57/9- 61/3	61/3- 65/7	1958-62	1962-6
1.	Argentina	16,390	22.7	722	2.5	3.3	1.5	1.2	-3.2	28.3	5.0	5.3	22	32	1.7	1.5	.56	.24
2.	Bolivia	659	4.2	155	3.5	5.7	2.0	0.6	9.7	5.9	2.9	18.5	30	4	2.2	2.3	.18	.32
3.	Brazil	25,863	83.2	311	6.2	3.6	3.8	2.9	7.4	25.9	-0.7	6.0	39	31	3.0	3.0	.19	-.08
4.	Chile	4,828	8.8	551	4.5	4.6	1.6	1.2	13.2	29.6	5.3	13.4	21	9	2.4	2.2	.10	.39
5.	Colombia	5,438	18.7	292	4.7	4.4	2.7	2.0	3.3	14.0	-2.2	4.0	41	34	3.2	3.2	-.06	.15
6.	Costa Rica	631	1.5	409	3.9	6.0	4.2	0.6	11.9	1.5	2.3	9.9	33	19	3.9	3.5	-.15	-.02
7.	Dominican Rep.	970	3.8	259	4.2	5.1	5.2	2.9	-2.0	2.9	3.1	-2.4	29	43	3.6	3.6	-.36	-.03
8.	Ecuador	1,247	5.3	237	5.8	5.9	6.8	0.5	7.3	4.3	1.1	7.5	36	28	3.1	3.4	.05	-.10
9.	El Salvador	842	3.0	283	4.2	5.2	7.3	3.7	3.9	0.8	3.4	10.0	27	17	3.0	3.4	.03	.10
10.	Guatemala	1,384	4.8	291	3.3	4.7	3.3	4.0	9.2	0.0	4.6	13.0	25	11	3.4	3.3	-.04	.15
11.	Honduras	536	2.4	227	3.6	6.0	2.6	2.2	8.6	2.2	11.6	6.9	8	29	1.6	2.4	.17	.01
12.	Jamaica	940	1.8	513	5.1	7.1	4.3	5.2	10.4	3.0	5.0	7.5	23	27	3.4	3.5	.15	.24
13.	Mexico	21,723	44.2	492	4.6	6.4	8.6	7.0	10.8	2.8	4.7	13.8	24	7	3.0	3.5	.16	.03
14.	Nicaragua	602	1.7	351	3.3	3.4	2.6	0.9	9.2	1.0	11.6	9.7	7	20	3.0	3.3	.29	.21
15.	Panama	696	1.3	541	7.0	5.7	5.8	0.1	8.9	12.1	14.1	8.8	5	25	2.6	3.1	.03	.51
16.	Paraguay	462	2.1	221	0.4	1.1	2.6	-0.4	8.9	55.5	7.0	4.0	18	36	1.5	1.3	1.54	.13
17.	Peru	3,536	12.0	294	4.2	5.6	4.7	6.1	-7.1	0.6	-0.7	-0.2	40	41	3.6	3.5	.23	-.02
18.	Uruguay	1,538	2.8	559	4.4	5.6	6.3	3.2	8.6	1.6	3.7	12.3	26	12	3.0	3.6	.02	.07
19.	Venezuela	8,000	9.0	885	4.4	5.4	3.7	1.7	8.2	4.0	7.8	9.7	13	21	1.6	1.8	.37	.07
20.	Cent. Am. Com. Mkt.	3,996	13.4	299	1.8	5.9	6.1	5.0	2.7	9.6	2.1	-1.2	34	42	2.7	2.7	-.14	.08
21.	Ethiopia	1,497	23.0	65	31.0	20.9	2.4	-2.0	8.2	2.3	7.7	6.8	14	30	3.0	2.9	.17	.14
22.	Ghana	1,753	7.9	221	2.3	2.6	0.2	2.5	6.7	5.8	38.7	49.7	1	1	3.7	3.7	.21	.47
23.	Kenya	1,101	9.7	114	6.0	2.8	5.4	3.4	7.7	2.8	-4.3	3.7	42	37	2.9	2.7	-.64	.32
24.	Libya	1,353	1.7	807	1.6	6.0	2.8	4.5	11.9	2.4	7.6	10.0	15	16	2.9	2.9	-1.16	.32
25.	Morocco	2,592	13.7	189	2.6	3.5	-3.5	0.6	8.0	3.7	-6.9	4.0	43	35	2.3	2.3	-.61	.09
26.	Sudan	1,459	13.8	106	2.1	5.7	3.7	1.1	9.9	4.8	0.6	9.2	37	24	2.5	2.5	-.38	.08
27.	Tanzania	815	11.5	71	4.7	3.4	4.8	1.4	2.9	1.7	0.0	-0.1	38	40	2.7	2.5	.12	-.07
28.	Tunisia	934	4.5	209	5.2	3.0	3.3	0.0	4.8	9.7	2.7	2.1	31	38	2.3	2.4	.24	.04
29.	Uganda	705	7.7	91	9.6	7.4	8.1	7.2	7.6	1.6	7.2	11.6	16	14	2.7	2.8	.25	.24
30.	Ceylon	1,679	11.5	146	9.4	8.6	9.2	8.9	10.9	6.0	19.7	13.5	2	8	3.4	3.5	.15	-.01
31.	India	37,858	501.8	75	5.1	5.7	3.9	2.7	11.8	0.0	15.5	13.3	3	10	2.8	2.8	.10	.16
32.	Iran	6,445	25.4	254	5.1	5.7	3.9	2.7	11.8	4.4	8.6	8.7	10	26	2.5	2.6	.34	.01
33.	Israel	3,833	2.6	1463	3.5	5.1	6.0	7.5	9.5	0.5	2.0	9.2	35	23	1.0	0.9	.32	.55
34.	Jordan	513	2.0	262	6.0	7.6	2.7	3.7	13.0	2.8	7.2	11.5	17	15	0.8	0.5	.28	.20
35.	Pakistan	13,469	118.5	114	7.4	11.0	2.4	5.5	6.6	5.8	5.4	10.0	20	18	2.7	2.4	.09	.34
36.	Cyprus	440	.6	729	4.2	8.7	2.7	6.6	20.4	1.3	13.0	22.4	6	3	3.2	2.9	.34	.33
37.	Greece	6,510	8.6	755	4.2	4.8	3.4	4.2	12.1	17.1	15.2	30.0	4	2	2.9	2.7	.24	.34
38.	Turkey	9,330	31.9	292	7.2	8.0	8.4	4.8	3.0	5.8	6.3	12.1	19	13	3.2	3.4	.41	.35
39.	Taiwan	3,141	13.3	235	7.2	8.0	8.4	4.8	10.5	1.4	9.4	14.5	11	6	3.2	3.3	.29	.44
40.	Korea	3,779	29.1	130	6.7	6.3	4.3	4.8	10.4	0.7	10.9	4.1	9	33	3.2	3.0	.05	.18
41.	Philippines	5,758	33.5	172														
42.	Thailand	4,575	32.9	139														
43.	Malaysia	3,021	9.7	310														

Source: AID/PPC/PPD Machine Run 5 of Dec. 11, 1968, pp. 76-79.

TABLE A-2

SELECTED PERFORMANCE RANKS, 43 DEVELOPING COUNTRIES, 1957-1967
(Countries Listed in Descending Order of Overall 1961/63-1965/67 Performance Rank)

Overall 1961/67 Rank	Country No. Name	Annual Compound Growth:								Annual Compound Growth				Marginal Savings/ to GNP Ratio		
		GNP		Population		Agri. Prod.		Exports		Gross Inv.		Govt. Revs.	Cost of Liv.	57/9-	61/3-	
		57/9- 61/3	61/3- 65/7	57/9- 61/3	61/3- 65/7	57/9- 61/3	61/3- 65/7	57/9- 61/3	61/3- 65/7	57/9- 61/3	61/3- 65/7	61/3- 65/7	61/3- 65/7	57/9- 61/3	61/3- 65/7	
1	39	China(Taiwan)	5	2	9	23	34	8	6	3	7	3	2	8	5	9
2	42	Thailand	6	5	13	14	3	12	11	6	9	5	12	10	8	4
3	34	Jordan	3	4	25	24	1	1	3	10	6	18	10	2	27	20
4	40	Korea	28	3	24	27	28	6	4	2	20	2	6	39	12	8
5	24	Libya	1	1	3	1	35	43	1	1	1	1	1	30	15	3
6	32	Iran	14	9	30	25	37	23	16	14	25	7	3	12	11	14
7	27	Tanzania	42	16	22	22	26	13	15	16	43	4	7	18	43	12
8	15	Panama	4	6	18	13	41	5	7	20	13	20	19	7	9	16
9	14	Nicaragua	21	11	17	7	2	4	24	7	22	9	11	19	23	33
10	36	Cyprus	31	27	42	42	10	2	35	23	32	21	17	3	7	1
11	37	Greece	11	7	43	43	29	17	17	15	10	15	5	20	10	18
12	10	Guatemala	26	26	7	15	6	16	25	11	39	10	20	1	35	22
13	13	Mexico	17	10	8	8	16	9	23	27	29	19	14	19	24	13
14	43	Malaysia	8	13	14	19	17	11	9	33	5	29	13	5	30	19
15	38	Turkey	35	12	27	33	36	10	20	18	23	12	32	32	29	7
16	16	Paraguay	34	35	31	18	32	34	32	22	33	6	32	17	33	2
17	20	Cent. Am. Com. Mkt.	23	24	19	3	8	20	26	12	35	16	23	11	34	29
18	2	Bolivia	32	21	37	36	38	35	30	4	15	17	16	33	20	11
19	23	Kenya	41	10	21	21	9	10	14	30	41	22	24	15	37	23
20	9	El Salvador	12	17	20	12	7	38	27	17	26	8	36	6	32	25
21	6	Costa Rica	29	14	2	6	10	37	33	19	36	23	8	9	38	38
22	4	Chile	22	31	34	30	39	32	21	9	12	32	4	41	28	5
23	41	Philippines	20	29	10	9	22	14	19	13	21	24	38	31	3	6
24	33	Israel	15	8	6	5	4	3	2	8	11	38	28	34	25	37
25	29	Uganda	40	22	33	32	21	33	37	24	38	14	15	29	40	27
26	11	Honduras	33	30	10	11	23	15	28	5	28	27	34	21	18	34
27	12	Jamaica	30	15	40	35	33	26	8	29	37	28	22	14	22	35
28	17	Peru	7	20	24	17	11	39	5	25	27	13	21	37	16	17
29	19	Venezuela	27	23	4	4	15	7	40	41	42	26	33	4	14	39
30	35	Pakistan	16	19	32	30	19	24	10	26	4	33	9	28	6	36
31	21	Ethiopia	24	25	39	39	30	29	13	21	3	30	25	26	4	30
32	25	Morocco	39	40	22	23	42	25	42	37	17	34	31	22	42	10
33	8	Ecuador	25	28	15	10	13	21	36	28	31	35	30	27	31	32
34	28	Tunisia	37	34	36	37	43	36	43	35	2	25	26	25	41	26
35	26	Sudan	10	39	26	25	12	19	12	29	6	42	27	16	17	43
36	5	Colombia	19	32	11	16	27	27	41	34	24	37	37	38	36	21
37	1	Argentina	38	37	38	40	40	31	22	42	16	39	42	40	2	15
38	30	Ceylon	18	36	29	31	14	30	38	40	30	40	39	13	26	41
39	3	Brazil	9	33	16	20	20	22	39	31	19	41	29	43	19	42
40	7	Dominican Rep.	36	42	5	2	25	42	29	43	40	11	41	23	39	40
41	22	Ghana	13	41	28	29	5	28	34	42	18	31	40	35	37	28
42	31	India	15	38	35	34	24	40	31	38	14	36	35	36	13	31
43	18	Uruguay	43	43	41	41	31	41	18	36	34	43	43	42	1	24

Source: AID/FPC/PPD Machine Run 5 of December 11, 1968, pp. 76-79

TABLE A-3

POLICY VS. GROWTH PERFORMANCE RANKS
19 SELECTED LDC'S

<u>1966/68 Policy Performance Rank</u> <u>(Experimental)^{1/}</u>	<u>1961/63 to 1965/67 Growth Performance Rank</u> <u>(Quarter)^{2/}</u>	
	<u>In terms of these</u> <u>19 Countries Only</u>	<u>In terms of larger,</u> <u>43-Country Sample</u>
<u>I. Upper Quarter</u>		
India	IV	IV
Korea	I	I
Morocco	III	III
Nicaragua	I	I
Pakistan	III	III
<u>II. Second Quarter</u>		
Chile	II	II
Colombia	IV	IV
Ghana	IV	IV
Thailand	I	I
Tunisia	III	IV
<u>III. Third Quarter</u>		
Brazil	IV	IV
Costa Rica	II	II
Guatemala	I	II
Honduras	III	III
Turkey	II	II
<u>IV. Bottom of Fourth Quarter</u>		
El Salvador	II	II
Panama	I	I
Peru	III	III
Philippines	II	III

Source: AID/PPC/PPD Machine Run 5, Dec. 9, 1968; pp. 79, 89, 99.

^{1/} Experimental ranking based upon staff evaluation of 1966-68 policy actions and potentials in each of 3 to 6 fields of importance to that particular country. Rankings represent tentative PPC judgments and should not be construed as representing either an A.I.D. Washington consensus or an official A.I.D. evaluation. Listing within quarters is alphabetical.

(Footnotes continued on next page)

TABLE A-3 Footnotes Continued

2/ Based on the algebraic sum of 19- or 43-country ranks for the following seven indicators:

GNP growth
Agriculture Production growth
Export growth
Investment growth
Deflated government revenue growth
Cost of living growth
Marginal savings-to-GNP ratio

All but the cost of living growth indicator have been ranked in descending order. Thus the highest growth rate has been assigned rank No. 1, etc.

TABLE A-4

ALTERNATIVE MEASURES OF AID FLOWS, 43-COUNTRY SAMPLE

(Countries listed in decreasing order of 1965/67 Multilateral and DAC aid disbursements as a share of 1965/67 imports of goods and services)

No.	Country Name	1965/67 Multilateral & DAC Disb. as ratio to:			1965/67 U.S. Ec. Aid Disbursements as ratio to:			FY 1969 A.I.D. Request as ratio to 1965/67 Average:		
		Pop. (\$)	Investment	Imports	Pop. (\$)	Investment	Imports	Pop. (\$)	Investment	Imports
31	India	2.6	.22	.35	1.5	.14	.24	.8	.07	.12
35	Pakistan	4.2	.26	.34	2.5	.15	.20	1.6	.10	.13
40	Korea	8.0	.31	.31	5.0	.24	.23	2.4	.10	.09
7	Dom. Rep.	17.3	.51	.29	17.0	.50	.29	14.8	.43	.25
34	Jordan	26.4	.64	.27	17.4	.42	.15	8.6	.21	.09
38	Turkey	6.4	.13	.25	3.6	.07	.14	2.0	.04	.03
28	Tunisia	19.8	.35	.24	10.4	.19	.12	5.2	.09	.06
2	Bolivia	7.9	.32	.19	6.1	.25	.14	7.8	.32	.18
16	Paraguay	6.6	.15	.17	1.9	.05	.05	3.5	.09	.09
21	Ethiopia	1.4	.17	.15	.6	.03	.03	.5	.06	.05
23	Kenya	6.5	.35	.15	1.1	.06	.03	.2	.01	*
25	Morocco	6.7	.30	.15	3.1	.14	.07	.7	.03	.02
22	Ghana	8.8	.25	.15	5.4	.16	.09	2.2	.06	.04
27	Tanzania	3.4	.29	.14	0.9	.05	.04	.2	.01	.01
4	Chile	14.5	.14	.13	8.9	.09	.08	9.5	.09	.08
3	Brazil	2.8	.07	.12	2.0	.05	.09	2.6	.06	.11
5	Colombia	5.2	.09	.12	3.1	.06	.07	5.1	.09	.12
8	Ecuador	4.8	.15	.11	4.0	.12	.09	.9	.03	.02
29	Uganda	2.9	.24	.10	0.6	.05	.02	.7	.05	.02
39	China (Taiwan)	5.4	.10	.10	3.3	.06	.06	--	--	--
6	Costa Rica	13.6	.19	.09	7.4	.10	.05	4.3	.06	.03
15	Panama	19.2	.17	.09	15.3	.13	.07	10.3	.09	.05
33	Israel	43.5	.14	.09	14.6	.05	.03	--	--	--
41	Philippines	2.9	.05	.08	1.0	.03	.03	.4	.01	.01
26	Sudan	1.7	.14	.05	0.4	.03	.02	--	--	--
11	Honduras	5.3	.16	.07	3.7	.11	.05	4.4	.13	.06
9	El Salvador	5.9	.14	.07	4.3	.10	.05	3.4	.05	.04
20	CAEC	6.0	.13	.07	4.0	.09	.05	6.2	.13	.07
30	Ceylon	2.6	.13	.07	0.6	.03	.02	--	--	--
42	Thailand	1.9	.05	.07	0.9	.03	.03	1.9	.05	.06
14	Nicaragua	6.7	.12	.06	5.5	.07	.04	8.3	.11	.06
17	Peru	5.6	.09	.06	2.4	.04	.03	3.0	.05	.03
10	Guatemala	2.5	.07	.05	2.4	.06	.04	2.7	.07	.04
13	Mexico	2.5	.02	.05	1.1	.01	.02	*	*	*
36	Cyprus	10.8	.07	.04	0.7	*	*	--	--	--
18	Uruguay	2.6	.04	.03	1.3	.02	.02	2.6	.04	.04
12	Jamaica	8.0	.08	.03	3.4	.03	.01	.5	.01	*
43	Malaysia	4.4	.05	.03	0.4	.01	*	--	--	--
19	Venezuela	8.5	.04	.03	4.4	.02	.02	.1	*	*
37	Greece	4.2	.02	.03	1.5	.01	.01	--	--	--
32	Iran	1.3	.03	.02	0.2	.01	*	--	--	--
24	Libya	1.4	.01	*	0.3	*	*	--	--	--
1	Argentina	-1.2	-.01	-.02	-0.4	*	-.01	--	--	--

* = less than .005

Source: AID/PPC/PPD Machine Correlations, 11/27/68, pp. 23-24; and Machine Run 5, 12/9/68, pp. 75-76.

TABLE A-5

ALTERNATIVE ESTIMATES OF NEED FOR FOREIGN ASSISTANCE:
 PER CAPITA INCOME AND BALANCE OF PAYMENTS
 (Countries Listed in Descending Order of Combined "Need" Measures*)

No.	Country Name (1)	B/P Gap, 1965/1967			1965/67 Per Capita GNP		Combined Rank (7)	1965/67 DAC & Mult. Aid/Import Rank (8)
		Per Capita (\$) (2)	Per Actual Imports Ratio (3)	Imports Rank (4)	(dollars) (5)	Rank (6)		
21	Ethiopia	\$5.7	.66	5	\$ 65	1	1	10
35	Pakistan	7.0	.57	8	114	6	2	2
16	Paraguay	53.1	1.37	1	221	15	3	9
31	India	2.5	.37	14	75	3	4	1
2	Bolivia	25.4	.60	7	155	11	5	8
7	Dominican Rep.	43.1	.73	3	259	21	6	4
40	Korea	7.6	.29	18	130	8	7	3
8	Ecuador	24.7	.54	9	237	19	8	18
38	Turkey	18.3	.70	4	292	26	9	6
30	Ceylon	-1.5	-.04	22	146	10	10 $\frac{1}{2}$	29
34	Jordan	52.0	.53	10	262	22	10 $\frac{1}{2}$	5
26	Sudan	1.6	.08	28	106	5	12 $\frac{1}{2}$	25
28	Tunisia	24.4	.29	19	209	14	12 $\frac{1}{2}$	7
23	Kenya	-9.2	-.22	38	114	7	14	11
3	Brazil	13.9	.61	6	311	30	15 $\frac{1}{2}$	16
10	Guatemala	31.7	.51	12	291	24	15 $\frac{1}{2}$	33
5	Colombia	16.9	.39	13	292	25	17	17
18	Uruguay	86.3	1.17	2	559	37	18 $\frac{1}{2}$	36
29	Uganda	-3.6	-.12	35	91	4	18 $\frac{1}{2}$	19
22	Ghana	6.4	.11	24	221	16	20	13
11	Honduras	7.6	.10	25	227	17	22 $\frac{1}{2}$	26
25	Morocco	2.1	.05	29	189	13	22 $\frac{1}{2}$	12
27	Tanzania	-6.9	-.28	40	71	2	22 $\frac{1}{2}$	14
42	Thailand	-1.8	-.06	33	139	9	22 $\frac{1}{2}$	30
9	El Salvador	22.8	.27	20	283	23	25	27
39	China (Taiwan)	4.9	.09	26	236	18	26	20
6	Costa Rica	45.7	.32	15	409	32	27	21
1	Argentina	33.0	.52	11	722	38	28 $\frac{1}{2}$	43
41	Philippines	-5.8	-.16	37	172	12	28 $\frac{1}{2}$	24
13	Mexico	17.1	.31	17	492	33	30	34
14	Nicaragua	18.6	.14	23	351	31	31	31
37	Greece	45.7	.31	16	754	40	32	40
4	Chile	21.0	.18	21	551	36	33	15
17	Peru	-2.1	-.02	31	294	27	34	32
32	Iran	-16.5	-.25	39	254	20	35	41
36	Cyprus	46.3	.16	22	729	39	36	35
20	Gen. America	-11.7	-.13	36	299	28	37	28
15	Panama	8.6	.04	30	541	35	38	22
12	Jamaica	-19.0	-.08	34	513	34	39	37
33	Israel	43.2	.09	27	1463	43	40	23
43	Malaysia	-74.9	-.53	42	310	29	41	38
19	Venezuela	-110.7	-.40	41	885	42	42	39
24	Libya	-353.8	-.63	43	807	41	43	42

* See column (7)

Source: AID/PPC Machine Run 5, Dec. 20, 1968, pp. 16, 17, 19, 22

Cols. (2), (3): Balance of payments gap equals normal imports (M*) minus actual exports of goods and services where, for 1965/67:

$$\log M^* = .54355 + .6845 \log YNA$$

and YNA = GNP in 1966 U.S. dollars times (1 - AS), where AS is the agricultural share of GDP, NNP, etc., reported by the UN in its National Accounts Yearbook and extrapolated using agricultural production indexes.

Col. (7): Equals ranking obtained when columns (4) and (6) are added together without weights.

TABLE A-6

Multiple Correlations between Ranked Aid Flows (Relative to Imports),
Countries Ranked by Need, Overall Policy Performance, and Overall Growth
Performance and Regional Location

Eq. No.	Coefficient Values (and t-ratios)							Overall Policy Perf. ^{a/} (Rank ^{a/})	Overall Growth Perf. ^{a/} (Rank ^{a/})
	$\overline{R^2}$ (R^2)	\overline{SEE}	Dependent Variable (Rank)	Intercept	Combined Need (Rank ^{a/})	GNP/Capita (Rank ^{b/})	Import Gap (Rank ^{b/})		
<u>43 observations</u>									
1	.572 (.582)	8.2	DAC & Mult. Imports	5.2 (2.0)	.76 (7.5)				
3	.551 (.572)	8.4	"	-1.0 (.3)		.60 (5.8)	.44 (4.3)		
5	.567 (.587)	8.3	"	3.0 (0.7)	.79 (7.3)				.08 (.7)
<u>19 observations</u>									
1	.340 (.377)	4.6	"	3.9 (1.8)	.61 (3.2)				
3	.323 (.398)	4.6	"	.9 (.3)		.44 (2.3)	.47 (2.4)		
5	.398 (.465)	4.4	"	7.6 (2.4)	.55 (2.9)				-.30 (1.6)
9	.480 (.566)	4.1	"	5.9 (1.9)	.37 (1.9)			.37 (1.9)	-.32 (1.8)

a/ Largest numerical value (or highest country rating in case of policy and growth performance) is ranked number 1.

b/ Smallest numerical value is ranked number 1.

Source: A.I.D./PFC/PPD Machine Runs, Jan. 4, 1969, pp. 25-37, 54-61

Symbols used:

$\overline{R^2}$ = Coefficient of multiple determination, corrected for degrees of freedom.

R^2 = Same but not corrected for degrees of freedom.

\overline{SEE} = Standard error of estimate, corrected for degrees of freedom. Note that the mean value of the dependent variable was:

43 obs: 22
19 obs: 10

$\frac{\text{DAC \& Mult.}}{\text{Imports}}$ = 1965/67 D.A.C. and multilateral aid disbursements divided by 1965/67 imports of goods and services.