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Economic Growth and U.S. Foreign Aid

How well have aid-receiving countries been doing economically and politically in recent years? Has economic growth of these countries been measurably increased by U.S. aid? How important have been their own self-help efforts in achieving economic growth?

These questions and other similar ones are under constant review by the Agency for International Development. Very often the answers cannot be precise, either because the basic data are not reliable or because other events and happenings - crop failures, loss of export markets, or other declines in foreign revenues - may be far more important than the often marginal role played by foreign aid. During recent years in Latin America, for example, dollar losses from declining private investment and falling export prices have been far greater than dollar increases under the Alliance for Progress.

Nevertheless, recent A.I.D. studies have made a number of points clear. The first of these, reported by Administrator David Bell before the House Foreign Affairs Committee in April 1963, showed that 33 of 40 countries which had received "substantial" past U.S. aid had achieved recent economic growth rates of 1.5 per cent per year or more per person[1].

A second study, undertaken later in the same year, made a number of additional points. The first was that, had it not been for additional foreign resources from all sources, public and private, there would have been

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[1] The original study included 41 countries of which 33 [illegible]

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only 17 successful economic-growth countries, even with minimum self-help success. For 16 countries, in other words, a combination of foreign resources and the countries' own self-help efforts made the difference between a growth of less than 1.5% per capita and a growth rate substantially greater. (The actual GNP growth rate for these 16 countries averaged about 2.4 percentage points above what it might have been in the absence of the foreign resources.) Of the 17 countries where recent injections of foreign resources were apparently not a critical factor in achieving a 1.5% per year growth rate, 14 of the countries (mostly Marshall Plan nations) had already had successfully completed aid programs and, except for Lebanon, had received very little foreign resources during the period reviewed.

The second study illustrated the importance not only of foreign resources but also of domestic self-help measures. For the same 40 country sample, 21 of the 33 successful countries actually did better than would have been expected if they had met only minimum self-help standards. In the case of all of the developing countries who failed to meet a per capita GNP annual growth rate of 1.5 per cent, the actual 1957-1962 rate was less than that which would have been projected, given minimal self-help efforts, even if the countries had received no additional foreign resources at all. In other words, additional foreign resources were apparently not enough to compensate for the lack of domestic savings or for the low productivity of domestic investment.

Each of these two studies is discussed below in more detail. Table 1 summarizes the results for the 40 principal aid-receiving countries analyzed[1/]. The group A-1 countries in Table 1 are those which should have achieved per capita GNP annual growth rates equal to or greater than 1.5 percent, provided only that they met the minimum self-help levels specified and even without any additional foreign resources. Of the 18 countries in this group, the vast majority did in fact exceed 1.5 per cent annual growth. Nine of these, furthermore, did even better than foreign resource availability and minimum self-help efforts would have indicated.

For the countries in group A-2, minimum self-help efforts alone would not have been sufficient during 1957-1962 to achieve a 1.5 per cent per year growth rate. For these nine countries this growth rate should have been achieved, however, given the recorded inflow of additional foreign resources. Two-thirds of these countries did in fact manage at least a 1.5 per cent growth rate.

For the 14 group B countries, neither minimum self-help levels nor actual foreign resources, alone or in combination, would have been sufficient to achieve a per capita GNP growth of 1.5 per cent per year. The fact that in spite of these handicaps, nine of the fourteen did manage growth rates of 1.5 per cent or better is a tribute to the additional domestic savings and efficiency of resource use which they must have realized.

1/ Revisions in GNP estimates made since December 1963, especially in the totals for 1961-1962, would have changed some of the per capita growth rates for individual countries. (See below.) These changes, however, would have little effect on the conclusions reported above. In Table 1, for example, only the positions of Bolivia and Mexico would have been altered by the new [illegible]

Additional details for the countries covered by these two studies are given in Tables 2 and 3.

Table 1

Comparison of Actual Growth Rates with Those Predicted on the Basis of Actual Foreign Assistance and Minimum Self-Help Levels of Domestic Savings and Capital Productivity[1], 1957-1962, Principal U.S. Aid-Receiving Countries[2]

	Actual per capita growth of GNP		
	Equal to or greater than 1.5% per year		Less than 1.5% per year;
Predicted per capita growth rate per year	Actual rate equal to or greater than predicted	Actual rate less than predicted	Actual rate less than predicted
A. Equal to or greater than 1.5%			
1. Assuming no additional net foreign resources	Austria* Denmark* France West Germany* Italy* Japan* Netherlands* Spain* Greece	Belgium-Luxemburg* Ireland* Lebanon* Norway* United Kingdom* Liberia	Iceland*[3] Argentina Chile
(number)	(9)	(6)	(3)
2. Assuming actual net receipts of foreign resources	Panama Iran Taiwan	Bolivia Israel Jordan	Guatemala[3] Paraguay Peru
(number)	(3)	(3)	(3)
B. Less than 1.5%			
1. Assuming actual receipts of net foreign resources	Brazil Colombia India Mexico Pakistan Philippines Thailand Tunisia[4] U.A.R. (Egypt)		Costa Rica Indonesia Nicaragua Turkey[3]
(number)	(9)	(0)	(4)
Grand Totals	21	9	10
of which			
completed programs:	8	5	1
continuing programs:	13	4	9

* - completed U.S. economic assistance programs

Source: Table 3.

1/ Assumes (a) per capita marginal savings ratio of 15% and 10% GNP saved at average per capita GNP of $100, (b) average of $1 additional GNP created annually for each $3.50 of additional capital stock, and (c) all net additional foreign resources (balance on goods and services) are channeled into productive investment.

2/ Includes all countries (a) which received $300 millions or more of U.S. economic assistance through fiscal 1962 or in which cumulative economic assistance amounted to $30 or more per 1962 inhabitant, and (b) in which a primary objective of U.S. assistance was economic development. See Table 3 for data on countries which met criterion (a) but not criterion(b).

3/ Actual GNP per capita growth was greater than 1.5% over the longer period 1952-1962, or 1950-1962. See notes to Table 2.

4/ If it had not been for the estimated effect of large net withdrawals of foreign resources over the period 1957-1960, the predicted per capita GNP growth for Tunisia would have been about 2.0% per year. This compares to an actual rate of 1.5% and a predicted rate, allowing for capital withdrawals, of 0.9%.

Economic Growth in Countries Receiving "Substantial" U.S. Aid

Table 2 summarizes data on economic growth and self-sufficiency for 40 countries receiving important U.S. developmental assistance. The 1963 A.I.D. study of these countries[1/] asked three basic questions:

1) Has there been "substantial" economic growth? (Substantial economic growth was defined as equal to or better than a per capita GNP growth rate of 1.5 per cent a year.)

2) Has the need for outside aid been diminishing? (The need for outside aid was judged by the ratio of gross domestic savings to gross investment. Countries with a ratio of over 80 per cent, a norm suggested for Latin America under the Alliance for Progress, were judged to demonstrate "high self-sufficiency". Those in which domestic savings financed 80 per cent or less of investment were judged to demonstrate "increasing self-sufficiency" if the ratio of domestic savings to investment increased significantly over the period 1957-1962.)

3) Has economic growth been accompanied by social and political progress?

1/ Countries were excluded from the sample where developmental goals had not been the primary objective of U.S. assistance or where U.S. economic aid obligated between 1945 and the end of fiscal 1962 was (a) less than $300 million or (b) less than $30 per person (in the case of countries with less than 10 million persons). Countries meeting the dollar criterion but not the developmental objective criterion included Korea, Vietnam, Laos, Cambodia, Libya, Morocco, Yugoslavia, and Poland. (For partial data on all of these last countries except Poland, see part II of Table 3.).

The study identified 14 countries in which U.S. aid programs had been substantially completed: all these countries had achieved substantial economic growth, and all of them for which data permitted judgment appeared to have achieved high self-sufficiency. The 14 countries, in addition to the Marshall Plan countries of Western Europe, included Japan, Spain and Lebanon. Per capita growth in GNP in each of them either exceeded 1.5 per cent per year over the period 1957-62 or over the longer period 1950-1962. For all countries but Lebanon, self-sufficiency appeared high. For Lebanon, national accounts data were too fragmentary to judge whether self-sufficiency has been increasing or decreasing in recent years. For all countries in this group, agriculture production during 1957-1962 had grown at least as fast as had population.

The study divided the remaining 26 countries with continuing important U.S. economic aid programs into three groups. Nine countries experienced substantial economic growth either over the period 1957-62 or over a slightly longer recent period, and capital self-sufficiency was either high (during 1960-62) or had increased by an average of two percentage points per year or better over the period 1957-1962. For another nine countries, economic growth appeared to have been substantial, but there appeared to be continuing dependence on external sources of capital. For a final group of eight countries, largely Latin American, per capita growth of GNP failed to average 1.5 percent per year over either of the two periods under review. For each of these last three country groups with continuing assistance programs (26 countries in total), agriculture growth had kept pace with population growth in two cases out of three.

It is difficult to judge the extent to which economic growth is accompanied by social and political progress. In general, the 1963 study

found that the record was encouraging. In virtually all of the countries with successfully completed programs or with both high self-sufficiency and substantial economic growth, democratic institutions had been strengthened or less democratic regimes liberalized. At the other extreme, political instability was often evident among that group of countries with less-than-substantial economic growth.

Administrator Bell, in surveying the record, concluded that "although the possibility of economic progress leading to economic or political backsliding cannot be ruled out, there is no clear case of this among the countries to which we have extended substantial amounts of economic assistance." Mr. Bell went on to affirm, in fact, that "the relationship is overwhelmingly in the other direction and strengthens our belief in the underlying premise of our economic aid programs: namely, that while there is no guarantee that improved political institutions will follow in any automatic way, it seems clear that without economic progress the chances for strengthening democratic processes in the less developed countries would be greatly diminished."

Comparison of Actual with Expected Economic Performance for Countries Receiving Substantial U. S. Aid.

An important question omitted from the April 1963 study of economic growth was what the recent economic performance of individual countries ought to have been. In an attempt to answer this question, a second study was made. This study concentrated on economic growth over the period 1957-62 and included all countries in the original study plus seven others in which economic development had not been a principal aim of U. S. assistance. The purpose of this second study was to compare actual growth rates for the period 1957-62 with the growth rates logically associated, for each income level, with specified "minimum-good-practice" rates of domestic savings and productivity of investment.

Although growth-influencing factors differ widely among countries, it is possible to measure some directly and to establish "minimum-good-practice" levels for such "self-help" measures as domestic savings and capital productivity. In the study under survey minimum good practice was assumed to prevail when a country achieved an average capital-output ratio of 3.5 and a marginal domestic savings ratio of 15 per cent. Stated differently, a country was assumed to be making a minimum acceptable self-help effort if $3.50 of new capital investment produced $1.00 per year of additional GNP, and if each $1.00 per person of additional GNP resulted in fifteen cents per person of additional gross domestic savings.[1/]

1/ The capital-output ratio of 3.5 was a weighted average for 1957-62 actual growth and investment in 30 principal U.S. aid-receiving, less developed countries. The 15 per cent marginal per capita saving rate was that rate which, when combined with a population growth rate of 2.5 per cent and a 3.5 capital-output ratio, would enable a country reaching a per capita GNP level of $500 to increase its per capita GNP by 1.5 per cent per year without additional foreign investment. Since this per capita growth would probably represent a minimum target for most less developed countries, the combination of a 3.5 capital output ratio and a 15% marginal per capita savings ratio is termed a minimum level of self-help.

Given reasonable assumptions regarding minimum self-help measures, data on actual net inflows of foreign resources over the period 1957-1960, and some further assumptions regarding relations between key aggregates,[1] projections can be made of what country GNP growth rates "ought to have been" for the period 1957 to 1962. Table 3 presents these projections for the same 40 countries included in Table 2 and for an additional seven countries omitted from Table 2.[2] If a country's actual growth rate is greater than that projected, this may be taken as evidence that minimum standards for savings

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[1] The assumption was made that all domestic savings and all net inflow of foreign resources ("balance on goods and services," as obtained from the International Monetary Fund) would be converted into increased annual gross national product at a constant ratio of output to capital and after an average gestation period of about a year and a half. (Specifically, investment made during calendar years 1957-1960 was assumed to be responsible for GNP growth over the period 1957-58 to 1961-62.) Domestic savings per person, as already noted, were assumed related to per capital GNP: higher portions of national product were assumed saved, not as total GNP increased, but as GNP per person increased. The additional assumption was made that at a per capita GNP of $100, gross domestic savings would average about 10 per cent of GNP.

[2] The country grouping, except for the additional seven countries, is the same in Table 3 as in Table 2. This grouping was maintained despite the fact that on the basis of the shorter time period two countries (Guatemala and Turkey) would have shifted from Group C to Group D. It should also be noted that after Table 3 was prepared, a number of revisions were made in the recorded per capita GNP growth rates. The most significant of these were:

	GNP per Capita Growth, 1957-1962	
Country	Column (8) January 1964	Revised Estimate as of March 1964
India	2.5	2.1
Iran	2.8	2.1
Israel	6.0	6.4
Mexico	1.7	1.4
Bolivia	2.0	1.3
Brazil	3.3	2.7
Jordan	7.0	8.6
Liberia	3.8	2.8
Panama	3.0	3.5
Tunisia	1.5	2.0
Morocco	.3	-2.6

or capital productivity (or some combination thereof) have been exceeded. If actual growth is less than projected, it suggests either that minimum self-help standards have not been met or that not all of the additional foreign resources have been used for productive capital investment (they may have been used for personal consumption, for example).

Eight of the fourteen countries with substantially completed U. S. aid programs achieved per capita GNP growth rates for the period 1957-1962, which were greater than growth rates projected for them on the basis of minimum-good-practice assumptions regarding savings and capital productivity. One country, Norway, came close to its projected rate. Only five countries experienced actual growth rates which were markedly lower than those projected for them: Belgium-Luxembourg, Iceland, Ireland, Lebanon and the United Kingdom.

The remaining countries with continuing important U.S. aid programs divide into several groups. Eight out of nine of those with both substantial economic growth and high or increasing self-sufficiency over 1957-62, experienced actual per capita growth rates higher than those projected for them on a minimum good-practice basis. In the ninth country, Israel, actual growth fell below that predicted because a part of the large inflow of foreign resources was apparently used for current consumption rather than capital investment. One-half of the countries with substantial economic growth but continuing external dependence experienced per capita growth rates over the period 1957-62 less than those projected for them. All of the countries with recent per capita growth rates of less than 1.5% experienced growth rates which were less than those projected. Finally, four out of seven of those countries which were omitted from the April 19[illegible] A.I.D. study (as not having development-oriented programs) experienced less-than-projected per capita growth rates.[1/]

1/ The ratio is five out of seven if Morocco's revised growth rate of -2.6% is used

The actual per capita growth rate attained by a country depends upon population growth, external resource availability, the mobilization of internal savings, and the ability to productively invest both domestic and foreign resources. A comparison of actual growth with that projected upon the basis of certain minimum assumptions about savings and capital investment can therefore be used to judge the effectiveness with which countries are mobilizing and investing their resources. The comparison made in this study shows that about half of the countries with continuing U.S. assistance programs are exceeding what might be considered minimum standards of domestic savings and of investment productivity.

Two further points may be made about this analysis of actual versus predicted growth rates. The first is that the results are moderately sensitive to the initial assumptions. Of the 26 countries with U.S. continuing assistance oriented towards economic development, 13 had lower-than-projected growth rates using the assumptions made above. If average domestic savings at $100 GNP per capita had been assumed to be 8% rather than 10% of GNP, the 13 would have been decreased by one. If, in addition, a capital output ratio of 4.0 instead of 3.5 had been used, the 13 would have been reduced to 10. If the assumptions had been made that savings at $100 GNP per capita were 8 per cent of GNP and that only two-thirds of net additional foreign resources were used for productive investment, the 13 lower-than-projected countries would have decreased to 8. The countries whose actual growth would have exceeded projected rates given these alternative assumptions were:

A: 8% instead of 10% average savings rate at $100 per capita GNP: Indonesia

B: 8% average savings rate at $100 per capita GNP plus capital-output ratio of 4.0 instead of 3.5: Israel, Guatemala, Indonesia

C: Only 2/3 of net additional foreign resources used for productive capital formation: Israel, Jordan

D: Only 2/3 net additional foreign resources used for capital formation plus 8% savings rate at $100 GNP: Bolivia, Guatemala, Indonesia, Israel, and Jordan

(The assumption of a 15% per capita marginal savings rate was maintained for all of the above cases. Increasing the assumed gestation period for net additions of foreign resources did not appear to have much effect upon the results.)

The second point is that a majority of cases where growth rate was not equal to that projected consists of Latin American countries. Of the 12 Latin American countries included in the sample, 8 had lower-than-projected growth rates. (If the sample had been extended to include countries with aid receipts above $10 per person, five additional Latin American countries would have been included and the lower-than-average figure would have been 12 out of 17.) Most of these Latin American countries were characterized by decreased export earnings over this period and hence, presumably, increased difficulties in mobilizing domestic savings and in directing net foreign resources to capital investment. This may not be the entire explanation for the lower-than-average growth rates, however, since other Latin countries such as Colombia, Brazil, Mexico and Panama did better than predicted under equally adverse conditions.

Conclusions from the Two Studies

The two studies clearly show that of the countries for which the U. S. has been a principal source of development-intended foreign resources, a substantial majority has done moderately well economically in recent years. The second study suggests, furthermore, that for the countries which did moderately well, foreign resources apparently contributed, on the average, several percentage points to their per capita growth rates. (The median contribution was about 1.5 percentage points.)

Above all else the studies stress the importance of a country's own efforts to mobilize domestic savings and to efficiently use its own resources. Over the period 1957-1962, 17 countries with continuing U. S. development-oriented assistance programs achieved GNP growth rates equal to or better than 1.5 per cent per year. Of these 17 it is doubtful if more than one-half could have achieved a rate of even 1.5 per cent if they had depended solely on foreign resources.

On the other hand, of the 9 countries which over this particular period did not grow as fast as 1.5 per cent per year, five should have so if they had been able to manage the minimum good practice levels described above. The remaining four countries (Turkey, Costa Rica, Indonesia, and Nicaragua) would have needed either greater foreign resources or a greater self-help effort for their per capita GNP to grow as fast as 1.5 per cent annually.

Office of Program Coordination
Agency for International Development
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Table 2

Selected Characteristics of Countries[a] Receiving More Than $300 Million or More Than $30 Per Capita of U.S. Economic Assistance, FY 1946 through 1962

Country (1)	1962 Population (2)	1961 GNP per Capita[g] ($mil.) (3)	U.S. Economic Assistance Obligations FY 1946-1962 Total ($mil.) (4)	U.S. Economic Assistance Obligations FY 1946-1962 Per Cap. ($) (5)	Annual Per Capita Growth Rates (%) 1957-1962 GNP (6)	Annual Per Capita Growth Rates (%) 1957-1962 Agriculture (7)	Domestic Savings as % of Gross Investment 1960-1962 (8)
A. Successfully Completed Programs (14)							
Austria	7.1	879	1176	166	4.7	2.7	102
Belgium-Luxem.	9.6	1381	741	77	2.8	1.6	106
Denmark	4.7	1397	302	64	4.9	0	89
France	46.7	1362	5182	111	3.2	3.1	104
Germany	54.8	1436	4050	74	4.7	1.1	108
Iceland	0.2	838	71	355	0.4[d]	n.a.	88[c]
Ireland	2.8	693	146	52	3.9	1.1	91[c]
Italy	49.8	706	3462	70	6.3	.9	102
Japan	94.9	502	2660	28	11.0	3.8	101
Lebanon	1.7	411	80	47	3.0	3.0	13[c]
Netherlands	11.8	1053	1230	104	3.4	4.6	107
Norway	3.6	1336	352	98	3.9	.5	87
Spain	30.8	375	1173	38	3.6	.7	95
United Kingdom	53.2	1417	7674	144	2.0	2.5	100
	371.7	964	28299	76			
B. Substantial Economic Growth and High or Increasing Self-Sufficiency (9)							
Colombia	15.6	283	360	24	1.8	.2	91
Greece	8.5	431	1785	210	4.7	1.7	68[h]
India	452.0	80	3867	9	2.5	1.6	86
Iran	21.6	211	732	34	2.8	-1.1	91
Israel	2.3	814	879	382	6.0	6.4	22[i]
Mexico	37.1	313	761	21	1.7	-2.0	96
Philippines	29.6	117	1334	45	2.0	.9	83
Taiwan	11.9	145	2045	172	4.2	-.6	67[j]
Thailand	28.7	97	338	12	2.3[b]	7.2	91
	607.3	116	12101	20			

Table 3

Actual Per Capita GNP Growth Rates, 1957-1962, and Rates Predicted on Basis of Actual Net Additional Foreign Resources and Minimum Levels of Domestic Saving and Capital Productivity, Principal Aid-Receiving Countries[1]

Country	Average for 1957-58 GNP ($m-'61 prices)	Population : GNP	Foreign Resources 1957-60 (Cumulative, $ millions) Net U.S. Economic Aid	Balance on Goods & Services	Compound Annual Growth Rates, 1957 - 1962 (%) Population	Per Capita GNP Estimated Incl. Foreign Resources	Excl. Foreign Resources	Actual
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I Major U.S. Aid Recipients - Principal Objective: Economic Development								
A. Successfully Completed Programs (14)								
Austria	5,177	.0014	54	-19.0	.3	3.8	3.8	4.7
Belgium-Luxemburg	11,785	.0008	-16	-642.	.5	3.3	3.7	2.8
Denmark	5,364	.0008	-9	-122.5	.7	3.3	3.5	4.9
France	54,485	.0008	-189	-183.	1.0	3.1	3.2	3.2
West Germany	62,704	.0008	-267	-7160.	1.2	2.2	3.0	4.7
Iceland	138	.0014	26	40.3	2.1	3.9	2.0	0.4
Ireland	1,728	.0016	-4	260.5	-.4	5.6	4.4	3.9
Italy	27,439	.0018	138	-786.8	.7	3.1	3.3	6.3
Japan	30,705	.0030	107	-429.	1.0	2.8	2.8	11.0
Lebanon	568	.0026	52	298 (?)	2.3	5.0	1.6	3.0
Netherlands	10,423	.0011	-59	-567.	1.3	2.4	2.8	3.4
Norway	4,091	.0009	-39	395.	.8	4.0	3.3	3.9
Spain	9,915	.0030	397	280.3	.8	3.3	3.1	3.6
United Kingdom	67,875	.0008	-222	-2039.	.7	3.3	3.5	2.0
B. Substantial Economic Growth and High or Increasing Self-Sufficiency (9)								
Colombia	3,706	.0038	188	-112.3	2.9	.8	.9	1.8
Greece	2,970	.0027	118	685.0	.9	4.5	3.0	4.7
India	30,132	.0137	1272	3362.	2.1	.3	.2	2.5
Iran	3,722	.0052	221	501.	2.4	2.0	1.1	2.8
Israel	1,302	.0015	183	1310.1	3.4	6.9	.7	6.0
Mexico	9,653	.0033	116	648.	3.1	1.4	.9	1.7
Philippines	2,822	.0091	128	627.	3.3	1.2	-.3	2.0
Taiwan	1,294	.0077	377	469	3.3	2.3	-.1	4.2
Thailand	2,030	.0117	152	225.0	3.1	.3	-.4	~~2.3~~[2]
C. Substantial Economic Growth with Continuing External Dependence (10)								
Bolivia	380	.0087	82	134.3	2.2	3.6	1.3	2.0
Brazil	10,689	.0058	237	1437.	3.2	1.2	.3	3.3
Guatemala	582	.0060	60	160.5	3.0	2.3	.4	1.4
Jordan	216	.0069	199	334.9	2.7	9.7	.3	7.0
Liberia	138	.0072	30	86	1.5	5.9	1.9	3.8

Table 3 (Continued)

Country	Avg. 1957-58 GNP (1)	Avg. 1957-58 Pop/GNP (2)	Foreign Resources, '57-60 U.S.Ec. Aid (3)	Foreign Resources, '57-60 Foreign Bal. (4)	Annual Growth, 1957-62 (%) Pop. (5)	Per Capita GNP Estimates Inc.(4) (6)	Per Capita GNP Estimates Ex.(4) (7)	Per Capita GNP Actual (8)
C. Substantial Economic Growth with Continuing External Dependence (10) (Continued)								
Pakistan	6,501	.0135	616	723.	2.2	.8	.0	1.7
Panama	373	.0027	30	113.9	3.1	2.8	.8	3.0
Tunisia	616	.0065	117	-95.2	1.4	.9	2.0	1.5
Turkey	5,018	.0051	474	353.5	2.8	1.2	.8	0
UAR	2,700	.0091	201	386.0	2.5	1.1	.1	2.1
D. Growth of Less than 1.5% per Capita (7)								
Argentina	7,230	.0027	162	740.8	1.9	2.7	2.0	-.9
Chile	3,150	.0023	120	437.5	2.3	2.6	1.7	.8
Costa Rica	371	.0027	31	74.4	3.9	1.3	.0	-.3
Indonesia	7,443	.0120	137	209	2.3	.5	.3	-.1
Nicaragua	300	.0043	20	30.1	3.5	.9	.2	-.8
Paraguay	256	.0066	25	48.1	2.4	2.2	1.0	-4.0
Peru	1,910	.0053	149	290.2	2.4	2.2	1.1	.3
II. Other Principal U.S. Aid Recipients (7)								
Cambodia	509	.0104	115	n.a.	2.2	3.3[3]	.8	1.1
Korea	1,617	.0144	1171	1188.	2.6	4.5	-.4	1.2
Laos	137	.0153	136	n.a.	2.0	5.9[3]	-.5	(neg.)
Libya	146	.0075	102	73.1	1.8	4.7	1.4	19.0
Morocco	1,651	.0065	150	-317	3.0	-.8	.6	.3
Vietnam	1,230	.0106	816	654.5	2.7	3.6	.0	-.8
Yugoslavia	3,670	.0049	393	775.9	1.0	4.0	2.6	7.7

Footnotes:

n.a. = not available

[1]Sample includes all countries except Poland from which U.S. economic aid obligated from Fiscal 1945 through Fiscal 1962 exceeded (a) $300 millions or (6) $30 per 1962 inhabitant. See notes to columns (6) and (7) for method used in predicting GNP growth rates. All growth rates have been derived from two year averages of data at beginning and end of the period in question, usually 1957-58 and 1961-62.

[2]1956-1962. Per Capita income in 1958 was abnormaly high, giving too high an implicit GNP growth for the period 1957-1962.

[3]Predicted rate based on net U.S. economic assistance only. Data on other net additional foreign resources not available.

Table 2 - cont'd.

Notes and Sources:

a/ Excluded are Korea, Laos, Vietnam and Cambodia, Libya, Morocco, Poland and Yugoslavia. Revisions in the national accounts data have led to the shift of one country, Tunisia, from the original classification made in April 1963, and the omission of one country, Venezuela, as no longer meeting the criteria for inclusion. Tunisia's revised per capita growth rate between 1957-58 and 1961-62 appears now to have been equal to 1.5% per year instead of 1.1% as originally estimated. (Growth rates for other countries were also revised but did not affect the country grouping.) Venezuela was dropped from the sample because an upward revision of estimated population led to a downward revision of aid obligated below the $30 per capita cut-off point.

b/ Approximate 1956-62 data.

c/ Average of 1959-1961.

d/ 2.6% per year over period 1952-53 to 1961-62.

e/ 1.9% per year over period 1952-53 to 1961-62.

f/ 1.8% per year over period 1950-51 to 1961-62.

g/ GNP unadjusted for inequalities of purchasing power among countries.

h/ Increased by 14 percentage points between 1957 and 1962.

i/ Increased by 12 percentage points between 1957 and 1962.

j/ Increased by 13 percentage points between 1957 and 1962.

Col. 2 & 3	AID, Statistics and Reports Division, "Estimates of Gross National Product, Calendar Year 1961 in Current Market Prices (Dollar Equivalents)," April 30, 1963. "Selected Economic Data for the Less Developed Countries," May 1963; and Economic Data Books.
Col. 4	AID, Statistics and Reports Division, "U.S. Foreign Assistance and Assistance from International Organizations, Obligations and Loan Authorizations, July 1, 1945 - June 30, 1962 (Revised), "April 24, 1963. Data refer to obligations and loan authorizations and include PL-480, Export-Import Bank medium and long-term loans, Social Progress Trust Fund, AID and predecessor agency economic assistance.
Col. 5	Expressed in terms of 1962 population. Equals column (4) divided by column (2).
Col. 6, 7, 8	AID Statistics and Reports Division, Economic Data Book. Growth rates are based upon two year averages at ends of period.

Agency for International Development
Program Coordination Staff
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Sources

Columns 1,2,5: AID, Statistics and Report Division, Economic Data Books.

3: U.S. Department of Commerce, Statistical Abstract of the U.S., 1963, Table No. 1199, pp 861-863. Includes AID and predecessor agency funds, farm product disposals, Export-Import Bank loans, etc.

4: International Monetary Fund, International Financial Statistics, June 1963.

6,7: Based on following model:

Let
Y = GNP, in millions of U.S. dollars, 1961 prices
N = Population, in millions of persons
F = Net additional foreign resources, millions of U.S. dollars
I = Gross investment, millions of dollars
S = Gross domestic savings, millions of dollars
k = Marginal capital-output ratio
b = Marginal percapita savings ratio
p = Rate of growth of population
r = rate of growth of GNP
y = rate of growth of per capita GNP
a = a constant
Subscript o = average data for first two years
t = average data for final two years
where $t = o,1,2.....,n$

Assume:

(1) $$Y_t = Y_o + \frac{1}{k}\sum_{t=o}^{n-1} I_t$$

or $$\frac{Y_t}{Y_o} = 1 + \frac{1}{k\,Y_o}\sum I_t$$

(2) $$\frac{S_t}{N_t} = a + b\,\frac{Y_t}{N_t}$$

or $$S_t = aN_t + b\,Y_t$$

but

(3) $$\sum_{t=o}^{n-1} I_t = \sum_{t=o}^{n-1} S_t + \sum_{t=o}^{n-1} F_t,$$ by definition

Substituting (2) into (3) we have

(4) $$\sum I_t = \sum F_t + a\sum N_t + b\sum Y_t$$

and substituting (4) in (1), gives

$$\frac{Y_t}{Y_o} = 1 + \frac{1}{k\,Y_o}\left(\sum F_t + a\sum N_t + b\sum Y_t\right)$$

$$(5)\quad \frac{Y_t}{Y_o} = 1 + \frac{\sum F_t}{k\,Y_o} + \frac{a\sum N_t + b\sum Y_t}{k\,Y_o}$$

but,

$$(6)\quad \sum_{t=o}^{n-1} N_t = N_o + N_o(1+p) + N_o(1+p) + \ldots\ldots + N_o(1+p)^{n-1}$$

$$= \frac{N_o\,(1-(1+p)^n)}{1-(1+p)} = \frac{N_o\,(1-(1+p)^n)}{-p}$$

$$(7)\quad \text{and} \sum_{t=o}^{n-1} Y_t = \frac{Y_o\,(1-(1+r)^n)}{-r}$$

A solution is simplest at this point by approximating $\sum Y_t$ through assuming a linear growth rate for Y_t; thus:

$$(7')\quad \sum_{t=o}^{n-1} Y_t \cong nY_o + \frac{(n-1)}{2}(Y_t - Y_o)$$

where $t = o,1,2,\ldots\ldots n$

Over a 5 year period ($n = 4$) with a 5 percent per year geometric growth rate ($r = .05$), the error involved in this approximation would be $\left(\frac{4.3233}{4.3101} - 1\right) 100 = 0.31\%$.

Substituting (6) and (7') in (5) gives

$$\frac{Y_t}{Y_o} = 1 + \frac{\sum F_t}{k\,Y_o} + \frac{a}{k\,p}\left((1+p)^n - 1\right)\frac{N_o}{Y_o} + \frac{bn}{k} + \frac{b}{2kY_o}(n-1)(Y_t - Y_o)$$

$$= 1 + \frac{bn}{k} + \frac{\sum F_t}{k\,Y_o} + \frac{a}{kp}\left((1+p)^n - 1\right)\frac{N_o}{Y_o} + \frac{b(n-1)}{2k}\frac{Y_t}{Y_o} - \frac{b(n-1))}{2k}$$

$$\frac{Y_t}{Y_o} - \frac{b(n-1)}{2k}\frac{Y_t}{Y_o} = 1 + \frac{bn}{k} + \frac{\sum F_t}{k\,Y_o} + \frac{a}{kp}\left[(1+p)^n - 1\right]\frac{N_o}{Y_o} - \frac{b\,(n-1)}{2k}$$

$$\frac{Y_t}{Y_o} = \frac{1}{1 - \frac{b(n-1)}{k}}\left[1 + \frac{bn}{k} - \frac{b(n-1)}{2k} + \frac{\sum F_t}{k\,Y_o} + \frac{a}{k\,p}\left([1+p]^n - 1\right)\frac{N_o}{Y_o}\right]$$

$$(8)\quad \frac{Y_t}{Y_o} = \frac{2k}{(n-1)2k-b}\left[\frac{(2k + 2bn + b(n-1)}{2k} + \frac{\sum F_t}{k\,Y_o} + \frac{a}{kp}\left([1+p]^n - 1\right)\frac{N_o}{Y_o}\right]$$

This, in turn, can be expressed as

$$(8') \quad \frac{Y_t}{Y_o} = a' + b' \frac{\sum F_t}{Y_o} + c' \frac{N_o}{Y_o}$$

Where $a' = 1 + \frac{2bn}{2k-b(n-1)}$

$b' = \frac{2}{2k-b(n-1)}$

$c' = 2a \frac{[(1+p)^n-1]}{p[2k-b(n-1)]}$

"p" or the rate of growth of population is not constant, but c' is relatively insensative to the valve of p. When, for example, we set

$a = -5 \qquad b = .15$
$k = 3.5$
$n = 4$

as has been done in this study, we find the following valves for c':

p =	.01	.02	.03	.04
c' =	-6.20	-6.30	-6.39	-6.49

Since valves of $\frac{N_o}{Y_o}$ will normally lie between .01 and .0005

and since a' will equal 1.183, the use of c' = -6.20 or c' = - 6.49, assuming $\frac{N_o}{Y_o}$ =.01, will give a range in calculated $\frac{Y_t}{Y_o}$ of 1.1183 to 1.1212.

This implies an annual growth rate from 2.84% to 2.90%. At the risk of a very slight error, therefore, an average valve of .03 has been chosen for p. Thus, for the parameter valves chosen,

$a' = 1.183$
$b' = .305$
$c' = -6.49$

These valves have been used with equation (8') in calculating annual growth rates.

The rates for column (6) have been calculated using equation (8') and $\sum F_t$ from column (4) and then subtracting population growth (column 5) to give per capita GNP growth. The rates for column (7) have been calculated assuming $\sum F_t$=o and then substracting population growth.

Table 2 - cont'd.

Country (1)	1962 Population (2)	1961 GNP per Capita g/ ($ mil.) (3)	U. S. Economic Assistance Obligations FY 1946-1962 Total ($mil.) (4)	Per Cap. ($) (5)	Annual Per Capita Growth Rates (%) 1957-1962 GNP (6)	Agriculture (7)	Domestic Savings as % of Gross Investment 1960-1962 (8)
C. Substantial Economic Growth with Continuing External Dependence (10)							
Bolivia	4.0	113	258	65	2.0	5.3	47
Brazil	75.0	186	1737	23	3.3	1.8	79
Guatemala	4.0	175	158	40	1.4[e]	4.1	59
Jordan	1.7	184	325	191	7.0	3.3	-117
Liberia	1.0	159	125	125	3.8	-2.5	9
Pakistan	96.6	79	1854	19	1.6	1.0	73
Panama	1.1	416	100	91	3.0	-1.2	60
Tunisia	4.3	161	293	68	1.5	6.6	41
Turkey	29.2	193	1580	54	0.[f]	-1.3	80
UAR	27.3	120	608	22	2.1	.9	63
	244.2	136	7038	29			
D. Growth of Less than 1.5% Per Capita (7)							
Argentina	20.6	379	572	28	0.9	.2	77
Chile	7.9	453	675	85	0.8	-.7	53
Costa Rica	1.3	344	89	68	-0.3	.3	71
Indonesia	98.6	83	682	7	-0.1	0	59
Nicaragua	1.6	213	66	41	-0.8	2.2	59
Paraguay	1.9	130	58	31	-4.0	-2.6	60
Peru	11.6	181	388	33	0.3	1.7	100
	143.5	159	2530	18			