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John A. Edelman and Hollis B. Chenery

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# Aid and Income Distribution

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## Aid and Income Distribution

John A. Edelman and Hollis B. Chenery

Political and economic events of the past few years have greatly affected both the need for capital transfers to developing countries and the conditions under which they are supplied. The economic crisis of 1973/1974—the main features of which were the rise in oil prices, recession in the OECD countries, and worsened terms of trade for oil importers—has greatly increased the demand for capital flows to cushion the adjustment of the developing countries to new trading conditions. Although there has also been a substantial increase in the supply of official capital since 1972, that increase has been by no means adequate to offset the terms of trade losses suffered by the developing countries from 1972 to 1975.

The impact of these events has fallen particularly heavily on the poorer countries. Terms of trade losses represent a larger proportion of imports for the poorer countries than for the middle-income group.<sup>1</sup> Moreover, the substantial increase in private capital flows has gone almost exclusively to the middle-income group. Private capital (and public capital on conventional terms) will continue to be available mainly to this group because of creditworthiness considerations. As a result the middle-income countries are likely to be able to return to a sustainable growth rate of more than 6 percent for the rest of the decade. However, unless there is a substantial increase in the flow of aid to the poorer countries—as well as changes in policies that will permit more efficient use of this aid—their per capita incomes are likely to be little higher by 1985 than they were in 1970.<sup>2</sup>

Political prospects for concessional assistance are uncertain. The steady decline in aid from member countries of the OECD was reversed in 1974 and 1975, and there is reason to hope that political obstacles to increased aid will diminish as these countries recover from the recession. Nevertheless, it hardly seems prudent to count on a rapid increase, especially since an important part of the recent increases was associated with the “emergency” situation created by the oil price increases. The most that can realistically be expected over the next several years is a modest expansion in real flows from recent levels. This outlook underscores the need to make more effective use of available external resources.

In this paper, we give an empirical analysis of the factors affecting the allocation of aid in the recent past. Our analysis provides a basis for judging the possibilities for improving aid allocation in the future.

### Objectives and Criteria

Concern with the effects of development on the internal distribution of income has become an accepted part of the philosophy of most aid donors and is increasingly reflected in the criteria used for selecting projects and sectors for assistance. In applying these criteria, greater weight is often given to increases in the income of lower-income groups.<sup>3</sup> This can be done crudely by identifying a specific target group, such as poor farmers, or more systematically by using a welfare function that gives increasing weight to consumption or income in proportion to the poverty of the recipient.

In applying this principle, Ahluwalia and Chenery (1974) proposed for the evaluation of domestic poverty programs a simple welfare function that can be extended to cover international allocations as well. It replaces the income weights implicit in the use of the increase in total GNP as a measure of welfare by a more egalitarian measure such as population. As adapted to the evaluation of international programs this welfare measure would be:

$$W = \Sigma \left( \frac{n_i g_i}{N} \right) \quad (1)$$

where  $n_i$  is the population of country  $i$ ,  $g_i$  the rate of GNP growth in country  $i$  due to receipts of aid and  $N = \Sigma n_i$ . In contrast, the conventional measure of growth of total GNP is equal to:

$$G = \frac{\Sigma (y_i g_i)}{Y} = \frac{\Delta Y}{Y} \quad (2)$$

where  $y_i$  is GNP in country  $i$  and  $Y = \Sigma y_i$ . In equation (2) an allocation of aid that produces a given increase in aggregate GNP will have the same impact on total GNP growth regardless of how it is distributed among countries, while in equation (1) a 1 percent increase in an income of \$100 is weighed equally with a 1 percent increase in an income of \$1,000. If there is no change of income distribution within countries, equation (1) can also be interpreted as the average growth of income for each person in the developing world.<sup>4</sup>

To judge the existing allocation of aid, it is also necessary to make allowance for variations in its marginal productivity. Although this cannot be determined with any accuracy, it will often be higher in richer countries. However, the effects of moderate productivity differences are not likely to offset the effects of large differences in income level.<sup>5</sup>

Allowance should also be made in intercountry comparisons for the effectiveness of different countries in reaching the poorer sections of their population. In principle, this can also be done by replacing the growth of GNP in country  $i$  in equation (1) by a population-weighted average.

The actual allocation of aid among countries is made by a number of individual agencies—bilateral and multilateral with some form of consultation concerning the larger aid recipients. Although each agency has its own

mixture of motives and criteria, there are some common elements in the approaches taken to aid allocation, which combine notions of equity and efficiency with aspects of national interest. In recent years, most of these agencies have moved in the direction of criteria that are more consistent with those suggested above.

There are, of course, many practical limitations to applying such criteria systematically. For one thing, it is not possible to obtain very satisfactory measures of the overall productivity of foreign aid, or of the effectiveness of domestic programs for improving income distribution. Considerations of national economic or political interest of the donors will inevitably modify considerations of global equity in the allocation of bilateral aid. For multilateral lenders, the bulk of whose funds must be raised from capital markets, important constraints are imposed on increasing allocations to poor countries by their limited capacity to service debt. Nevertheless, we believe there is significant scope for further progress in the application of equity criteria in aid allocation, particularly if the total supply of concessional assistance can be expanded at least moderately in the future.

### Supply of External Capital

In response to the large increase in demand for external capital in the past three years, there has been a more limited increase in supply and a greater need to ration concessional public funds. The major part of this increased demand was met by expanded private flows. Of a \$19.4 billion increase in the total capital inflow to oil-importing developing countries between 1970 to 1972 and 1974, some \$12 billion was from private sources, while another \$1.3 billion was provided by the IMF. Nevertheless, the increase in official long-term capital flows to this group of countries was impressive: in nominal terms, it rose from a net flow of \$5.8 billion in 1970 to 1972 to \$11.8 billion in 1974, and about \$14.0 in 1975. The increase in net flows of official development assistance (ODA) from OECD countries in 1974 reversed—at least temporarily—the steady decline in its share of OECD GNP, from a low of .30 percent reached in 1973 to .33 percent in 1974, and .36 percent in 1975.<sup>6</sup>

Commitments of official assistance—which constitute the main focus of this paper—also doubled during the recent past from \$11.5 billion in 1970 to 1972 to \$24 billion in 1975 (see Table 1.1). At constant (1970-1972) prices, the 1975 increase over 1970 to 1972 is nearly 50 percent. More than half of this increase was provided by the OECD countries, primarily through the multilateral institutions. Nearly half was provided by OPEC member countries. While the distribution of the increase in the OECD and multilateral aid was quite wide, the distribution of OPEC commitments was much more concentrated, with over half the total going to three countries: Egypt, Pakistan, and Syria.

Despite these large increases in external flows (and future commitments),

**Table 1.1** Commitments of Official Concessional Assistance (OCA) to Identified Countries, 1969-75 (billion \$)

A. Current Prices	1969	1970	1971	1972	1973	1974	1975 est.
Bilateral ODA	5.6	5.9	7.2	8.2	8.5	10.2	(10.8)
Multilateral <sup>a</sup>	3.1	3.4	4.0	5.0	6.3	8.0	(9.4)
Subtotal	8.7	9.3	11.2	13.2	14.8	18.2	(20.2)
OPEC	(0.2)	(0.2)	(0.2)	0.3	0.7	3.8	(3.8)
Total OCA	8.9	9.5	11.4	13.5	15.5	22.0	(24.0)
<b>B. 1970-72 Prices</b>							
Bilateral ODA	7.4	6.9	7.1	7.3	6.9	7.7	(7.7)
Multilateral <sup>a</sup>	4.1	4.0	3.9	4.4	5.1	6.0	(6.6)
Subtotal	11.5	10.9	11.0	11.7	12.0	13.7	(14.3)
OPEC	(0.3)	(0.2)	(0.2)	0.3	0.6	2.9	(2.7)
Total OCA	11.8	11.1	11.2	12.0	12.6	16.6	(17.0)
<b>IBRD Commitment</b>							
<b>Deflator:</b>							
(1970-72 = 100)	76.1	85.8	101.4	112.8	123.4	132.8	141.4

Source: OECD, supplemented by Bank staff estimates. The commitment deflator takes account of projected inflation rates during the disbursement period.

<sup>a</sup>Includes IBRD commitments which strictly speaking do not meet the OECD definition of concessional assistance. The latter requires a grant element of 25 percent (calculated at a 10 percent opportunity cost) where IBRD commitments on this assumption had a grant element of only 19.5 percent during the 1969-73 period and a 12 percent grant element during the 1974-75 period after the interest rate was raised. However, at a 12 percent official concessional assumption, the grant element of IBRD was 22.5 percent in this period.

many developing countries have had to reduce their growth rates because of shortages of foreign exchange. For the low-income countries as a whole, the increase in total flows between 1972 and 1975 was only two thirds of the losses they suffered from the deterioration in their terms of trade in that period. For the middle-income group, the increase in total capital flows was moderately greater than the terms of trade loss, but they also suffered a substantial reduction in export volumes during 1975 as a consequence of the recession in the developed countries. Moreover, their medium-term debt outlook has become somewhat worse as a result of heavy private borrowing. The future growth of both groups of countries, but particularly of the low-income group, will depend in substantial measure on the volume of concessional assistance made available over the next several years, and on the way in which these funds are allocated.

### Trends in Aid Allocation

Since even the most optimistic estimates of aid supplies fall substantially

short of the requirements of the poorer countries, we will concentrate our analysis on the possibilities for making more effective use of the amounts that may be available. Our starting point is an analysis of recent trends in aid allocation in which we compare the allocation patterns since the economic crisis of 1973/1974 to earlier periods. We then discuss the possibility of further reallocation to the poorer countries.

### Methodology

In order to analyze the net relationship between aid allocation and poverty, it is necessary to allow for country size and other factors that have been shown to affect the allocation of aid. This is done by means of multiple regression analysis, taking advantage of the earlier findings of Strout (1966), Henderson (1971), and Isenman (1975). In its 1974 Review (OECD, 1974), the Development Assistance Committee of the OECD also analyzed overall allocation patterns for the period from 1969 to 1974, but it did not separate the effects of individual factors. The principal innovations in the present study are:

1. the use of commitment data—which are indicative of donors' reactions to changing needs—instead of disbursements;
2. the extension of donors to include the OPEC countries, which have accounted for nearly half of the recent increase in commitments;<sup>7</sup> and
3. the use of grant equivalent, as well as nominal, values, which provides a more valid basis for comparing the value to the recipients of different forms of aid.

Our sample consists of eighty-nine aid recipients that cover 85 percent of the commitments included in the more complete OECD tabulation for 140 countries.<sup>8</sup> Separate regressions have been computed for three time periods: 1967-1969, 1970-1972, and 1973-1974.

The low absorptive capacity and limited creditworthiness of many poor countries limits the aid they receive, so that per capita aid receipts first rise and then fall as per capita income rises. To capture this effect statistically, we have used a regression equation that is nonlinear in income.<sup>9</sup> The form of the equation is adapted from the basic equation used by Chenery and Syrquin (1975) to analyze a variety of development patterns. The principal equation used is:

$$\log X = a + b \log N + c \log y + d(\log y)^2 + e(E/Y)$$

where

$X$  = average per capita commitments for the relevant time period

$N$  = population,

$Y$  = per capita income,

$E/Y$  = the ratio of exports to GNP for 1972.<sup>10</sup>

(3)

Six groups of per capita commitments were tested for each time period: bilateral, multilateral, and total, both in nominal values and grant equivalents. In addition, tests of the strength of the results were carried out by using total

rather than per capita commitments and on per capita commitments for a reduced sample, which eliminates seven countries with extremely high per capita commitments. (Regression results are available from the authors.)

### Effects of Population Size

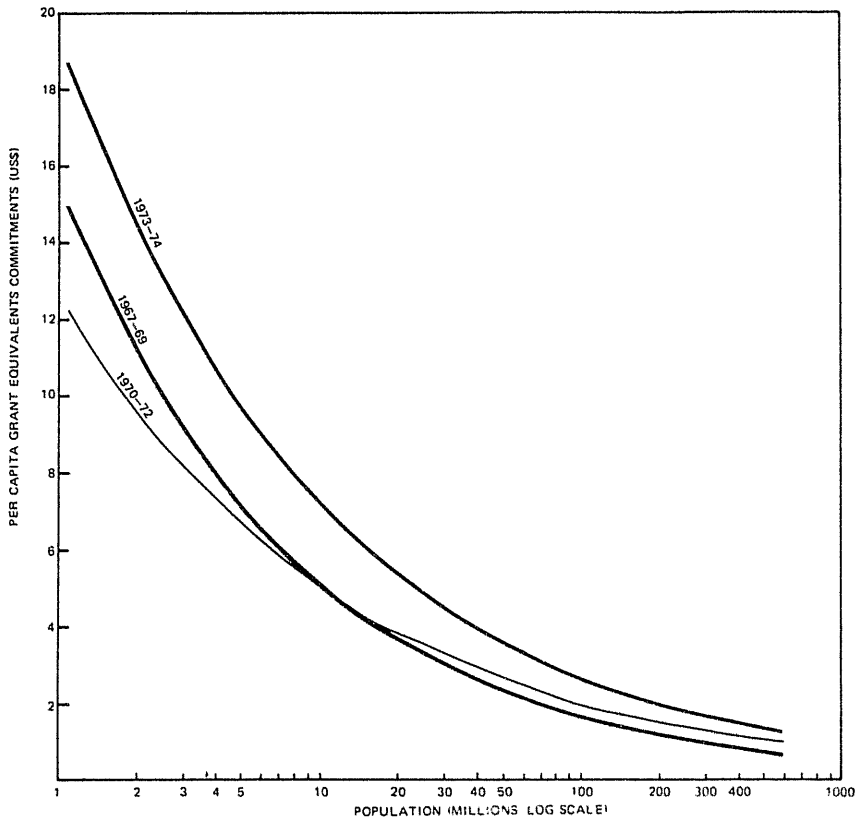
Although our main interest is in the relation between aid allocation and income levels, it is necessary to allow first for the effects of size. A number of earlier studies have remarked on the apparent bias in per capita aid allocations in favor of small countries and against large countries.<sup>11</sup> Table 1.2 shows these relationships for the three time periods we are considering.

Between 1967 to 1969 and 1973 to 1974, average commitments to countries over 10 million population increased by significantly more than those to smaller countries, thereby reducing the population bias somewhat.<sup>12</sup> Nevertheless, the differences remained striking; in 1973 to 1974, countries under 2 million population received more than twice the average for all other groups, while countries over 25 million received only one quarter to one third the average for smaller countries. The regression results for total commitments indicate that in 1973-74 a country with twice the population of another had on average a commitment level 35 percent lower in nominal terms and 44 percent lower on a grant equivalent basis.<sup>13</sup> The separate regressions on bilateral and multilateral commitments in Table 1.2 show a

**Table 1.2 Per Capita Commitments by Country Size (unweighted averages, based on 1970 population for all periods)**

1970 Population (million)	Number of Countries in Group		Nominal Values (US\$)		
	1967-69	1970-74	1967-69	1970-72	1973-74
Less than 2.1	18	21	23.7	25.1	42.3
2.1-5.0	26	26	13.8	16.1	31.0
5.1-10.0	11	11	10.2	9.3	20.1
10.1-25.0	16	16	5.3	7.4	12.8
Over 25	14	15	3.1	5.4	9.7
Total/Average	85	89	12.0	14.0	25.5
	Grant Equivalents (US\$)				
	1967-69	1970-72	1973-74		
Less than 2.1	16.7	18.2	31.6		
2.1-5.0	10.4	11.7	23.8		
5.1-10.0	7.3	6.8	16.3		
10.1-25.0	3.5	4.2	8.2		
Over 25	2.1	2.9	5.6		
Average	8.7	9.8	18.8		

RELATIONSHIP BETWEEN PER CAPITA COMMITMENTS (GRANT EQUIVALENT)  
AND COUNTRY SIZE (COMMITMENTS DEFLATED TO 1970-72 PRICES)



Notes:

1. These curves are based on the regression results given in Annex Table 1. Per Capita income and the ratio of exports to GNP have been fixed at their mean values, Vis.

Mean of Income/Capita	1967-69:	185.49 (US\$)
	1970-72:	234.39
	1973-74:	262.96
Mean of Exp/GNP	1967-69:	.271
	1970-72 & 73-74:	.267

2. Commitment Deflators in both Fig. 1 & Fig. 2 are: 1967-69: .76  
1973-74: 1.28

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Figure 1.1 Relationship between per capita commitments (grant equivalent) and country size (commitments deflated to 1970-72 prices)



very similar pattern. Figure 1.1 shows these relationships in graphic form for total grant equivalents.

There are a number of explanations for this strong negative relationship between per capita commitments and population size. The most important single determinant is probably the fact that all the nation-states included have independent foreign policies that can sometimes be influenced by foreign aid. Thus, these states tend to attract funds from a number of donors who may wish to exert such influence. In addition, relatively more of the small countries than the large tend to have close political, cultural, and economic ties with one or more donor.<sup>14</sup> These countries are also all members of one or more multilateral lending agencies. Multilateral lenders are virtually obliged to do some lending to all members, and constraints of minimum project size often lead to relatively large per capita commitments in small countries. Another important factor is the relatively large import component of GNP (and investment) in these countries. The large country extreme in this respect is India, whose imports account for only 5 percent of GNP. Thus, although concessional commitments are only some 1.7 percent of GNP, they correspond to 35 percent of imports, a relatively large share.

A substantial reduction of the small country bias could free a significant amount of resources for reallocation to larger poor countries. The forty-seven countries with populations under 5 million accounted in 1973/1974 for some \$2.6 billion in grant equivalents or 20 percent of the total but only 7 percent of the population covered by this sample. A reduction by one third in these commitments would have permitted an increase in the averages for the fifteen largest countries by nearly \$0.9 per capita which, in the case of India, would correspond to a 40 percent increase in the average 1973/1974 commitment level. Clearly, it is unrealistic to expect that such a large transfer could be achieved, although some reduction in the bias in favor of very small countries did take place between 1967 to 1969 and 1973/1974. The allocation criteria outlined above would argue for efforts to achieve at least a moderate further reduction in the future.

### Effects of Income

In recent years, some 35 to 40 percent of total concessional commitments in nominal terms has gone to oil-importing countries under \$200 per capita. As shown in Table 1.3, there was little change in this share between 1967 to 1969 and 1973/1974.<sup>15</sup> However, the grant equivalents for this group increased slightly from 44 percent in 1967 to 1969 to 46 percent in 1973/1974. This was the result of an increase in the grant element of commitments from OECD and multilateral donors from 77 percent to 80 percent. By contrast, the grant element of commitments to countries over \$300 per capita dropped from 56 to 47 percent over the period.

The major beneficiaries of recent increases in commitments were in the \$200-300 group (mainly Egypt and Syria). Between 1967 to 1969 and

1973/1974 the share of this group rose from 16 percent to 24 percent of the grant equivalents. The share of all oil-importing countries under \$300 in total grant equivalents had risen in 1973/1974 to 72 percent, compared with 61 percent in 1967 to 1969.

Table 1.4 shows the grant equivalents of commitments on a per capita basis and as a percentage of GNP for the main income groups. During the period from 1967 to 1973 the average for the poorest countries (under \$200) was consistently below that for all the other income groups except the highest.

The main reason for the low average of the poorest group is, of course, the great weight of India, which in 1973/1974 received only \$2.2 per capita of grant equivalent commitments, compared to an average for all other countries of \$9.5 per capita. Between 1967 to 1969 and 1974, commitments to India rose only moderately at current prices, and declined in real terms. Commitments to all other countries in this group showed a rise in real terms of over 80 percent between 1970 to 1972 and 1974, partly in response to the oil crisis. The ratio of grant equivalent commitments to GNP rose from 2.6 to 4.0 percent for the poorest group of countries between 1970 to 1972 and 1973/1974. However, ratios for India were only 1.5 and 1.7 percent, respectively, while for the other poorest countries, the average ratio went up from 4.0 percent to 7.0 percent.

In the regression analysis, the observations are unweighted, so that the Gambia has the same weight as India. The unweighted commitment average for all countries in 1973/1974 was \$19 per capita for grant equivalents, compared with the weighted average of \$6.4 shown in Table 1.4. This difference, of course, reflects the fact that so many small countries receive relatively high per capita commitments. Even correcting for this small country effect, the allocation pattern shows a rise with income up to the \$200-400 range and then a decline, albeit a rather erratic one.

The quadratic term for income used in the regression analysis is designed to capture this tendency for per capita allocations to rise and then fall. The curves reflecting the shape of the regression results for total grant equivalent commitments in the three time periods are given in Figure 1.2.<sup>16</sup> The relationship between per capita allocation and income is significantly different as between bilateral and multilateral commitments. The regression curves for multilateral peak at a substantially higher income level than for bilateral, reflecting the fact that the largest component of multilateral lending consists of relatively hard funds from the IBRD, the IDB, and the ADB, which have to take account of creditworthiness considerations.

The peak income levels for per capita commitments implied by the separate regressions on bilateral and multilateral commitments, together with those for the totals, are shown on p. 38.

The main reason that per capita lending in nominal terms tends to rise with income is that creditworthiness and absorptive capacity also rise with income. These considerations affect the pattern of grant equivalent commitments with

Table 1.3 Distribution of Official Concessional Assistance by Income Group, 1967-74

	No. of Countries (70-74)	1970 Population (Million)	A. Concessional Commitments (\$ billions)			
			1967-69	1970-72	1973	1974
<b>A. Non-Oil Exporters<sup>a</sup></b>						
Under \$200	38	932	2.82	3.30	4.99	7.80
India	1	538	1.10	1.10	1.46	1.77
Other	37	394	1.72	2.20	3.53	6.03
\$201-\$300	14	148	1.13	1.61	2.72	4.78
Over \$300	28	367	2.25	3.01	3.80	4.47
\$300-\$500	13	204	1.40	1.79	2.60	2.27
Over \$500	15	163	0.85	1.22	1.20	2.20
Total of A	80	1448	6.20	7.92	11.51	17.05
<b>B. Oil Exporters<sup>a</sup></b>						
	9	232	0.96	1.51	1.69	2.07
Indonesia	1	116	0.43	0.82	0.96	1.01
Other	8	116	0.53	0.69	0.73	1.06
Total of A + B <sup>a</sup>	89	1630	7.16	9.42	13.20	19.12
Total of A + B in 1970-72 Prices			9.40	9.42	10.70	14.40
			<b>B. Percent of Total Commitments</b>			
			1967-69	1970-72	1973	1974
<b>A. Non-Oil Exporters</b>						
Under \$200			39.4	35.0	37.8	40.8
India			15.4	11.7	11.1	9.3
Other			24.0	23.4	26.7	31.5
\$201-\$300			15.8	17.1	20.6	25.0
Over \$300			31.4	32.0	28.8	23.4
\$300-\$500			19.6	19.0	19.7	11.9
Over \$500			11.7	13.0	9.1	11.5
Total of A			86.6	84.1	87.2	89.2
<b>B. Oil Exporters</b>						
			13.4	16.0	12.8	10.8
Indonesia			6.0	8.7	7.3	5.3
Others			7.4	7.3	5.5	5.5
Total of A + B			100.0	100.0	100.0	100.0

<sup>a</sup>Current prices.

Table 1.3 (continued)

C. Grant Equivalent  
(\$ billions)

1967-69	1970-72	1973	1974
2.17	2.54	3.98	5.93
0.86	.84	1.12	1.27
1.31	1.70	2.86	4.66
0.85	1.08	1.90	3.34
1.27	1.27	1.72	2.19
0.87	0.83	1.23	1.06
0.40	0.44	0.49	1.13
4.29	4.89	7.60	11.46
0.62	0.95	1.14	1.39
0.27	0.58	0.73	0.77
0.35	0.37	0.41	0.62
4.91	5.84	8.74	12.85
6.46	5.83	7.08	9.68

## D. Percent of Grant Equivalents

1967-69	1970-72	1973	1974
44.2	43.5	45.5	46.2
17.5	14.4	12.8	9.9
26.7	29.1	32.7	36.3
17.3	18.5	21.7	26.0
25.9	21.8	19.7	17.0
17.7	14.2	14.1	8.3
8.1	7.5	5.6	8.8
87.4	83.7	87.0	89.2
12.6	16.3	13.0	10.8
5.5	9.9	8.3	6.0
7.1	6.3	4.7	4.8
100.0	100.0	100.0	100.0

Table 1.4 Commitments of Official Concessional Assistance: Grant Equivalent per Capita and as Ratio to GNP by Income Group, 1967-74

	Per Capita Grant Equivalents <sup>a</sup> (US\$, current prices)				Ratio to GNP (percent)	
	1967-69	1970-72				
	Average	Average	1973	1974	1970-72 Av. <sup>b</sup>	1973/74 Av. <sup>c</sup>
<b>A. Oil Importers</b>						
Under \$200	2.3	2.7	4.3	6.4	2.6	4.0
India	1.6	1.6	2.1	2.4	1.5	1.7
Other	3.3	4.3	7.3	11.8	4.0	7.0
\$201-\$300	5.7	7.3	12.8	22.6	3.2	5.2
Over \$300	3.5	3.5	4.7	6.0	0.6	0.5
\$300-500	4.3	4.1	6.0	5.2	1.1	0.8
Over 500	2.5	2.7	3.0	6.9	0.3	0.4
Total of A	3.0	3.4	5.2	7.9	1.4	1.8
<b>B. Oil Exporters</b>						
Exporters	2.7	4.1	4.9	6.0	2.1	1.5
Indonesia	2.3	5.0	6.3	6.6	6.5	4.7
Other	3.0	3.2	3.5	5.3	1.0	0.7
Total of A + B	2.9	3.5	5.2	7.6	1.5	1.7

<sup>a</sup>All based on 1970 population; this, of course, overstates the upward trend—by about 2.5 percent a year.

<sup>b</sup>Based on 1970 GNP.

<sup>c</sup>Based on 1973 GNP.

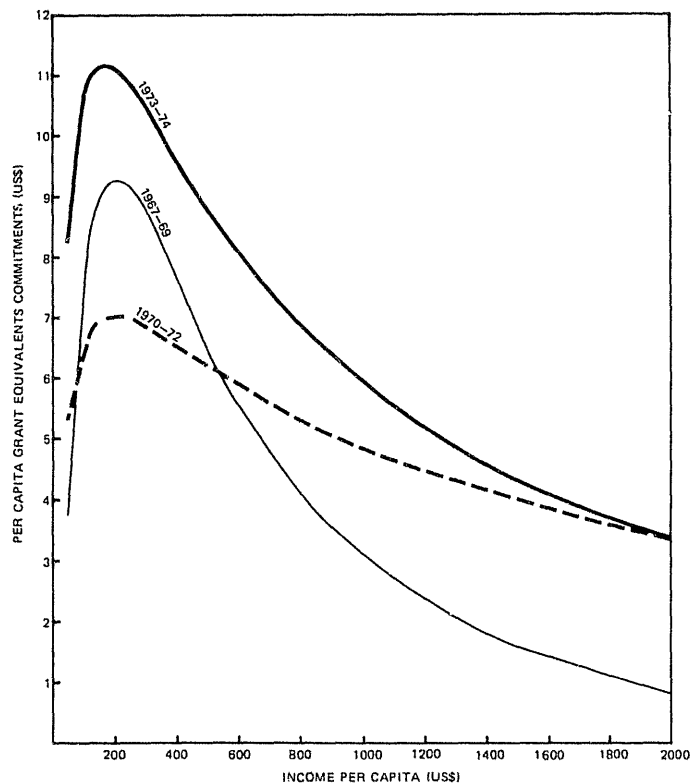
Income Turning Points for Per Capita Commitments (per capita income, 1970 prices)<sup>a</sup>

	For Nominal Commitments			For Grant Equivalents		
	Bilateral	Multilateral	Total	Bilateral	Multilateral	Total
1967-69	259	675	396	225	439	275
1970-72	*	*	(392)	*	*	(193)
1973-74	153	406	278	*	174	154

<sup>a</sup>The underlying income data used in the regressions are at current prices, converted into U.S. dollars at average exchange rates. The estimates given here have been deflated to 1970 dollars using the GNP deflator for the United States.

\*The income coefficients for these time periods are not statistically significant. 1970-72 data in brackets are derived from regressions for the reduced sample. For 1973/74, the reduced sample gives turning points of 262 (total nominal) and 169 (total grant equivalent).

RELATIONSHIP BETWEEN PER CAPITA COMMITMENTS (GRANT EQUIVALENTS)  
AND PER CAPITA INCOME  
(COMMITMENTS DEFLATED TO 1970-72 PRICES)



## Notes:

1. These results are derived from the regression results given in Annex Table 1. Population and the Ratio of exports to GNP are fixed at their mean values. vis.

Pop.	1967-69:	5.18 m.
	1970-72:	5.47 m.
	1973-74:	5.69 m.
Exports: GNP	1967-69:	.271
	1970-72:	.267
	1973-74:	

2. The dotted line for 1970-72 indicates the co-efficients underlying this curve are not statistically significant.

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Figure 1.2 Relationship between per capita commitments (grant equivalents) and per capita income (commitments deflated to 1970-72 prices)

less force, since grants and grant-like commitments tend to dominate in that pattern. However, an awareness of the greater needs of middle- and lower-income countries has led both multilateral and bilateral donors to reduce lending to a number of higher-income countries in recent years, despite their high creditworthiness. The grant equivalent of multilateral commitments to countries over \$300 per capita income declined from 40 percent to 26 percent of the multilateral total between 1967 to 1969 and 1973/1974. At the same time, the share going to countries under \$200 (including Indonesia and Nigeria) rose from 44 to 56 percent. A third of the latter increase was accounted for by Indonesia, whose share rose from 2 to 6 percent of the multilateral total. Countries in the \$200-300 income range had an increase in their share of the multilateral grant equivalent from 16 to 18 percent.

The share of the bilateral ODA grant equivalent commitments allocated by OECD countries to countries over \$300 per capita dropped from 24 percent to 17 percent between 1967 to 1969 and 1973/1974; while that going to the group under \$200 per capita increased from 53 percent to 57 percent, despite a drop in bilateral allocations to India from 20 percent to 10 percent of the total. Bilateral ODA allocations to the \$200-300 group rose from 23 percent to 26 percent over this period. OPEC assistance is also heavily concentrated in the latter category because Egypt, Syria, and Jordan are all in this group.

Undoubtedly, something of a bandwagon effect has developed in lending to a number of countries in the \$200-300 group. While some of these were hard hit by losses from the terms of trade in 1973-74, others are net oil-exporters and have benefited substantially from the recent increase in oil prices: e.g., Algeria, Congo, Syria, and Tunisia. In spite of a decline in the share of total concessional assistance going to countries over the \$300 level, a number of these were also still receiving relatively large per capita commitments in 1973-74. However, most of these were countries under 5 million population.<sup>17</sup>

### Conclusions: The Potential for Reallocation

The total welfare of developing countries can be increased by allocating a larger share of aid to poorer countries so long as the productivity of aid at the margin is not so low as to offset differences in income levels. Other things being equal, there is also a presumption that the marginal productivity of aid will be higher in countries receiving relatively low levels than in those receiving very high levels. However, "other things" seldom are equal. Table 1.5 identifies fifteen oil-importing countries with per capita incomes under \$201 in 1970 that received less than \$10 per capita per annum in concessional aid (grant equivalents) during 1973 and 1974. Ten of these had receipts below \$6.5 per capita--the weighted average for all countries covered by our sample in this period.

On grounds of per capita income and aid levels alone, it would appear that

these ten would be the prime candidates for receiving higher allocations if aid were to be redistributed more equitably. However, one of the largest of these—Thailand—did not in fact have a pressing need for resource transfers in this period because of rising export earnings and comfortable foreign exchange reserves. Most of the others share two common characteristics—low absorptive capacity (a low marginal productivity of aid), and relatively weak political and economic ties with the major aid donors. The second factor is undoubtedly at least as important as the first in accounting for the large differences between the level of per capita aid for this group and that of the twenty-three small countries, grouped under “all other” in Table 1.5, that obtained average per capita commitments of \$17.2 in this period.<sup>18</sup> In the latter group, there are a number of countries where the productivity of aid appears to be quite high; however, there are some in which it seems to be as low as in those receiving low per capita aid allocations. The relatively high allocations made to these countries may be explained in part by an expectation that productivity will rise because of a willingness on the part of the recipients to make changes in domestic economic policies and adminis-

Table 1.5 Grant Equivalent of Commitments of Concessional Assistance to Oil-Importing Countries Under \$201 Per Capita Income, 1973/74

A. Commitments under \$10 Per Capita	1970 Per Capita (US\$)	1970 Population (million)	Average 1973/74 Grant Equivalent Commitments		
			Per Capita (US\$)	Total (\$ million)	Percent of 1973 GNP
India	110	538.1	2.2	1,193.4	1.7
Guinea	120	3.9	3.1	12.0	2.1
Burma	80	27.6	3.1	86.1	3.6
Sierra Leone	190	2.6	4.0	10.3	2.2
Nepal	80	11.1	4.3	47.9	4.4
Afghanistan	80	14.3	5.2	74.7	5.3
Thailand	200	36.2	5.2	186.9	1.8
Ethiopia	80	24.6	6.4	156.4	6.8
Sri Lanka	110	12.5	6.4	80.2	5.1
Haiti	110	4.5	6.4	29.0	5.1
Sudan	120	15.7	8.1	127.1	5.6
Bangladesh	70	67.8	8.5	574.0	9.7
Pakistan	100	62.4	8.9	556.8	7.2
Madagascar	130	7.3	9.1	66.6	5.3
Burundi	60	3.5	9.4	32.9	12.2
Subtotal	110	832.1	3.9	3,234.3	2.9
B. All Other Under \$201	100	100.2	17.2	1,720.3	11.3
C. All Countries Under \$201	110	932.3	5.3	4,954.6	3.7



trative practices perceived by the donors to be important requirements for ensuring efficient use of aid. Even if it takes a long time for such changes to produce tangible results, donors are more likely to maintain relatively high commitments in countries where they see such a willingness than in countries they believe to be unwilling or unable to make changes of this type. In these terms, a high degree of receptivity to aid may be said to "explain" relatively high commitments even if measured productivity remains low.

In principle, of course, a reallocation in favor of the poor countries with low aid receipts could be made by the donors without evidence of greater receptivity or of increases in marginal productivity. In practice, however, it is unlikely that this will be done, if only because donor agencies need to justify their aid allocations to their legislatures or boards of directors in terms of some sort of positive response (actual or expected) to the allocations they provide.

India is, of course, overwhelmingly the most important of the countries in this group. It is the lowest recipient of aid on a per capita basis, and the share of concessional aid going to India has declined steadily over the past decade. To some extent this is a reflection of competition from other countries for the available resources, resulting from the creation of newly independent states in Africa and Asia and increased receptivity to aid in some countries (for instance, Indonesia). However, the decline in India's share is also a function of India's own policies directed at reducing dependence on imports and on foreign assistance over the past decade. Although plausible at the start—given the size of the Indian economy—these policies have proved to be a disappointment in that in recent years they have produced very slow growth of real income (about 1 percent per capita since the early 1960s), food shortages, low productivity of capital, and severe foreign exchange constraints. Moreover, receptivity to policy changes recommended by donors has generally been low.

Recently, there have been signs of change. In addition to an excellent harvest in 1975, encouraging progress has been made in long-term agricultural development programs. Efforts to increase Indian exports have started to produce results, and some major import substitution investments in energy, steel, and fertilizers are finally becoming productive. This has been accompanied by significant increases in foreign aid commitments and flows in 1975 and 1976. If the recent improvements in India's economic performance can be sustained over the next five to ten years, it seems likely that aid agencies will be able to justify a further increase in India's share in the total of available aid resources.

If there is to be a reallocation of aid in favor of the poorer countries with very low per capita aid receipts, the most obvious candidates for reduced shares would be higher-income countries with relatively high per capita aid receipts. Table 1.6 lists by three income groups the countries over \$200 per capita with commitments that are substantially above the average for

countries under \$200 per capita. It will be seen that a rough notion of progressivity is introduced by selecting lower commitment cutoff points to represent "substantial," as incomes rise, that is, for the \$200-300 groups, fourteen dollars is used, while for the over \$500 group, a level of seven dollars is used. The small country bias is clearly evident in this table. Of the thirty countries identified (in Group A) as being substantially above average, only six have populations over 5 million, and only two are over 20 million. Their total 1970 population was only 136 million, while commitments to them averaged \$3.2 billion or twenty-three dollars per capita in the two years from 1973 to 1974. The remaining nineteen countries in our sample with incomes over \$200 per capita had a total population of 441 million and received average per capita commitments of only \$4.2 in this period.

Special political and economic relationships with major donors undoubtedly played an important role in determining the high levels of assistance to many of these countries. There is no reason to believe that these considerations will diminish greatly in importance for the main donors over the next few years. However, if the total supply of aid can be held at least constant in real terms, a gradual reallocation in favor of poorer countries might be achieved without unduly disturbing these special relationships. For example, if nominal commitments to these favored countries were, on average, maintained approximately constant, while inflation continued at about 6 percent a year, the result after six years would be to free about \$1 billion in grant equivalents (at 1973/1974 prices) for transfer to the poorer countries. If this were devoted entirely to the fifteen poorer countries identified separately in Table 1.5, it would correspond to a 30 percent increase in their total commitment levels, raising per capita receipts from \$3.9 to \$5.0 in 1973/1974 prices. The corresponding reduction in real per capita allocations implied for the thirty countries identified in Table 1.6 (under group A) would be from \$23 to \$16.3.

One important qualification to the potential for reallocation needs to be noted here—namely, the limited scope for multilateral agencies that raise their funds on the capital markets to increase lending to poorer countries with very limited creditworthiness. About one quarter of the receipts of the countries shown separately in Table 1.6 are from multilateral agencies, and the great part of these derive from funds raised on capital markets. As this implies, not all the commitments we have lumped together as "grant equivalents" are in fact fungible as among countries. At present, none of the poor countries listed separately in Table 1.5, except Thailand, can afford any substantial increase in their borrowings on conventional terms because of prospective debt servicing problems. Of course, this outlook could change for some of them if recent improvements in economic policies can be reinforced and sustained over the next several years. But, in the meantime, this consideration means that any substantial reallocation to countries under \$200 per capita will have to take place through shifts in the pattern of bilateral aid or in

**Table 1.6 Grant Equivalent of Concessional Commitments to Countries Over \$200 Per Capita by Income Group and Level of Commitment, 1973/74**

1970 Income Group	1970 Population (million)	1970 Per Capita GNP (US\$)	Grant Equivalent		
			Per Capita (US\$)	Total (\$ million)	Percent of 1973 GNP
<b>\$200-300 Per Capita Income</b>					
<b>A. Over \$14 Per Capita</b>					
Papua and New Guinea	2.4	300	113.7	272.9	26.0
Jordan	2.3	250	81.2	186.8	21.5
Syria	6.1	290	50.6	309.0	11.0
Mauritius	.8	240	39.0	32.8	9.1
Congo	.9	300	35.7	32.1	7.8
Senegal	3.9	230	32.5	126.7	10.9
Tunisia	5.1	250	32.5	165.7	6.5
Paraguay	2.4	260	24.6	59.0	5.9
Egypt	33.3	210	20.3	677.4	7.7
Honduras	2.5	280	18.8	47.0	5.3
Liberia	1.5	240	16.2	24.3	5.4
Algeria	14.3	300	14.1	201.9	2.4
Subtotal A	75.5	230	28.3	2,135.6	7.4
B. All Other in \$200-300 Range	93.8	240	8.4	788.0	2.4
C. Group Total	169.3	240	17.3	2,923.6	4.7
<b>\$301-500 Per Capita</b>					
<b>A. Over \$10 Per Capita</b>					
Nicaragua	2.0	430	28.5	56.8	5.4
Fiji	.5	430	27.5	13.8	3.8
Ivory Coast	4.9	310	27.1	132.9	5.9
Zambia	4.1	400	26.3	107.9	5.3
Guyana	.8	370	17.6	13.2	4.1
Dominican Republic	4.1	350	14.7	60.4	2.6
Subtotal A	16.4	360	23.5	385.0	4.6
B. All Other in \$301-500 Range	216.6	380	3.8	818.2	0.5
C. Group Total	233.0	380	5.2	1,203.2	0.7
<b>Over \$500</b>					
<b>A. Over \$7 Per Capita</b>					
Gabon	.5	630	54.4	27.2	4.0
Barbados	.3	610	41.5	10.8	4.5
Israel	2.9	1,960	39.6	114.8	1.2
Costa Rica	1.7	560	27.0	45.9	3.5

Table 1.6 (continued)

1970 Income Group	1970 Population (million)	1970 Per Capita GNP (US\$)	Grant Equivalent		
			Per Capita (US\$)	Total (\$ million)	Percent of 1973 GNP
Lebanon	2.7	590	26.8	72.3	2.6
Cyprus	.6	950	23.0	13.8	1.5
Panama	1.5	730	21.9	32.9	2.3
Jamaica	1.9	670	14.4	27.3	1.4
Singapore	2.1	920	11.9	25.0	0.6
Chile	9.8	720	10.4	102.3	1.4
Trinidad and Tobago	1.0	860	9.5	9.5	0.7
Yugoslavia	20.5	650	7.5	153.4	0.7
Subtotal A	45.6	760	13.9	635.2	1.2
B. All Other over \$500	129.0	900	1.8	237.5	0.1
C. Group Total	175.2	870	5.0	872.7	0.4
Total of Groups A	136.5	430	23.1	3,155.8	3.5
Total All Other	440.0	770	4.2	1,843.7	0.5
All countries over \$200 Per Capita	576.5	690	8.7	4,999.5	1.1

decisions by those donors to channel more concessional funds through multilateral institutions.

There may, however, be a case for some reallocation of conventional official capital to countries with relatively low receipts in the \$200-500 income groups—especially to those where productivity of aid appears relatively high. Countries in this income group with per capita commitments of less than \$7 on a grant equivalent basis in 1973/1974 include Brazil, Colombia, Peru, Philippines, and Turkey. For this group of countries, of course, another relevant consideration in any aid reallocation would be the extent of their access to private capital markets on reasonable terms.

It is of interest to see what the impact on growth and welfare might be from the potential shift in aid to the poorest countries discussed.

On the assumption that the illustrative \$1 billion reallocation by 1980 were reached gradually, it would produce a cumulative shift of \$4.4 billion during the six-year period, within an aggregate aid total of \$38.4 billion for the fifteen oil importers identified in Table 1.5 plus the thirty high aid recipients listed in Table 1.6. The average incremental capital output ratios (ICORs) for the past decade produce a handy (if limited) proxy of the productivity of aid for purposes of this illustration. For the poorest group, the average was about 5.5 for 1965 to 1973, while for the thirty high aid recipients, the ICOR averaged about 4.0 (For the three largest countries in this group—Algeria,

Egypt, and Yugoslavia—the ICORS were 3.9, 4.6, and 4.2, respectively, while in most of the other countries, the ICOR was under 4.0.)

Using these two sets of assumptions, the total growth in GNP attributable to aid in this period for these forty-five countries works out at 4.2 percent with constant shares and 3.8 percent after the assumed reallocation in favor of the poorest. However, as shown in Table 1.7, using population weights to aggregate country growth, the annual increase in  $W$  would be 3.5 percent on constant shares and 3.9 percent after the assumed reallocation.

Even more substantial increases in total welfare than these could be achieved by an increase in the real level of aid, and/or increased productivity. For example, if total aid could be increased in real terms by 5 percent annually over the 1973/1974 level for the total of the forty-five countries considered in this illustration, their 1979/1980 level would rise to \$9.1 billion, compared with \$6.4 in 1973/1974, and the cumulative difference for the six years would be \$7.3 billion. If this increment were allocated entirely to the poorest group, it would represent a 38 percent increase in the cumulative total for 1975 to 1980 projected on the assumption of a constant real level. The annual growth in welfare (based on population weights) would be 4.4 percent. The impact of a reduction in the ICOR for aid for the poorest

Table 1.7 Illustrative Impact of Aid Reallocation on Growth and Welfare for 45 Countries

	15 Poorest <sup>a</sup>	30 Upper and Middle Income <sup>b</sup>	Totals
Base Period GNP (billion \$)	110	90	200.0
Base Period Population (million)	899	148	1047
Assumed ICOR (for aid)	5.5	4.0	
Assumed Aid 1975-80 (US\$ million, 1973-74 prices)			
A (constant shares)	19.2	19.2	38.4
B (reallocated)	23.6	14.8	38.4
Percentage Growth in GNP, 1974-80			
A (constant shares)	3.17	5.33	4.15
B (reallocated)	3.90	3.73	3.82
Percentage Growth in $W$ , 1974-80 (population weighted) <sup>c</sup>			
A (constant shares)	3.17	5.33	3.47
B (reallocated)	3.90	3.73	3.87

<sup>a</sup>From Table 1.5.

<sup>b</sup>From Table 1.6 (group A countries).

<sup>c</sup>As the identity between the GNP and population weighted growth rates for each group indicates, population weighting is applied here only to the totals for the two groups and not within each group.

group from 5.5 to 4.0 would be almost exactly the same.

Productivity of aid measured in terms of its contribution to GNP growth is only one element in determining the welfare impact of aid. Another important element is the allocation of aid in relation to per capita income levels. Substantial progress has been made during recent years in reallocating aid in favor of countries with (1970) income levels below \$300 per capita. However, the major beneficiaries have been in the \$200 to \$300 range. There remains a significant potential for further reallocation to the group under \$200 per capita. The main "target" countries consist of a limited number (ten to fifteen) now receiving a comparatively low per capita level of assistance. The role of concessional aid is particularly important for these countries, which typically have very limited creditworthiness for private borrowing.

The objective of increasing welfare in the developing countries as a whole will be best served by simultaneous efforts on the part of the donors to increase both the real level of total concessional assistance and the share of the total going to this limited group of poor countries. As a practical matter, however, achievement of the latter objective will also require that the poorest countries improve their ability to make productive use of this aid. In determining the outcome for the poorest group as a whole, the performance of India, which comprises about two thirds the population of all countries in this category, will be crucial.

## Notes

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1 Measured on a 1967-1969 price base, the terms of trade loss between 1970 to 1972 and 1975 amounted to 14 percent of 1975 imports for oil importing countries with incomes under \$200 per capita. The loss for middle-income oil importers in the same period correspond to 10 percent of 1975 imports.

2 Analyses of the factors leading to this conclusion are given in Chenery (1975), Tims (1975), McNamara (1975), and Holsen and Waelbroeck (1976).

3 See, for example, Little and Mirrlees (1968) and Squire and van der Tak (1975).

4 This function has also been used by Kuznets (1972), who showed that for the 1960s the value of  $W$  was about 1 percent lower than the value of  $G$  because of the higher growth rates of the richer countries.

5 For example, assume that Mexico has a level of per capita income (in purchasing power terms) four times that of India and that a loan of \$10 million will yield a net increase in Mexican GNP twice as large as that in India. On these assumptions, the allocation of a loan to India would produce twice as large an increase in  $W$  even though the allocation to Mexico would yield twice as great an increase in  $G$ . It should also be noted that application of the same criteria would lead to a reallocation away from low-income countries where marginal productivity of aid is very low to countries with moderately higher income, but with substantially higher marginal productivity of capital.

6 OECD (1975) and OECD (1976).

7 Inclusion of concessional assistance from OPEC countries yields a commitment total that we have labeled official concessional assistance (OCA), as shown in Table 1.1.

8 The latter tabulation is shown in Table 1.1. Our smaller sample is limited to countries that are active borrowers from the World Bank. The bulk of the difference between the two is accounted for by the countries of Indochina and the dependent overseas territories of France, Netherlands, the United Kingdom and the United States.

9 Failure to use this quadratic form may account for the findings of Cline and Sargen (1975) that per capita income had no influence on the allocation of World Bank commitments in grant equivalent term for a sample of nineteen countries from 1969 to 1972. Separate regressions using the quadratic form prepared by the bank staff for a larger sample of World Bank commitments from 1970 to 1974 show per capita income was significantly correlated with per capita commitments measured on both a nominal and grant equivalent basis. However, it is possible that even with the use of the quadratic form, per capita income may not have been significant for the time period chosen by Cline and Sargen.

10 Preliminary tests were also made on a number of other variables: losses or gains from terms of trade, savings rates, GNP growth rates, and several subjective measures of performance in equity and economic management. Results of these tests have so far proved inconclusive and are not discussed here.

11 Little and Clifford (1965), Strout (1966), OECD (1969), Henderson (1971), Iseman (1975).

12 This decline is reflected in a fall in the negative elasticities given by the population coefficients for these two time periods in the regression results.

13 The population coefficients have high T ratios (ranging from 6 to 8) indicating that these results are quite stable and would not be much affected by the elimination of a few extreme country cases.

14 Dudley and Montmarquette (1976) argue that the entire small country bias in bilateral commitments can be explained by factors such as these.

15 Comprehensive commitment data on a comparable basis are not available prior to 1967. However, flow data for net official assistance compiled by OECD indicate that the share of countries with incomes under \$200 per capita income in 1970 declined from 43 percent in 1960 to 1966, to 42 percent of the total in 1968 to 1970. However, there were major shifts within this group during the period, with the share of India and Pakistan dropping from 26 to 21 percent and that for Nigeria and Indonesia increasing from 2.5 to 7.5 percent.

16 As indicated in Figure 1.1, the coefficients for the income variables in the regressions on the full sample for 1970 to 1972 are not statistically significant at the 10 percent level. However, they are marginally significant for the other two time periods, and for the reduced sample they are highly significant in all three periods.

17 The supporting statistical evidence regarding the statements in the text is available from the authors.

18 The list of these countries is available from the authors.

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