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INCOME DISTRIBUTION AND GROWTH

The attached paper is a summary and discussion of the results of two studies, one under Northwestern University, Contract AID/csd-2236, the other under the 1969 PPC Summer Research Program.

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INCOME DISTRIBUTION AND GROWTH

Introduction

This paper describes the results of two studies related to income distribution and the development process. The first study An Anatomy of Patterns of Income Distribution in Developing Nations, by Irma Adelman and Cynthia Taft Morris, was done under an A.I.D. research contract with Northwestern University (AID/csd-2236), "Research Into the Implementation of Title IX Objectives." The other study, The Potential Effect of Income Redistribution on Economic Growth in Six Latin American Countries, by William R. Cline of Princeton University, was done under the 1969 PPC Summer Research Program. Both studies are available on request from AID/W, PPC/PDA/ERSS (specify ERP document numbers VII-16 and V-62, respectively).

These two studies approach income distribution and growth from different points of view and employ different methodologies. The Adelman-Morris study employs the statistical technique of "factor analysis" to analyze the relationship between income distribution and 31 economic, socio-cultural and political indicators among 44 LDCs. (There are 18 economic, 5 socio-cultural, and 8 political indicators.) The study repeats the analysis for 7 different indicators of income distribution, including the Gini coefficient and income share of various income brackets of the population. The Cline study assesses the impact of income redistribution on economic growth in four Latin American countries. (He looks at income distributions for 6 countries but rejects the data of two countries as being unsuitable for his analysis.) The conclusions of the two studies have some interesting elements in common. Both suggest that the relationship between income distribution and economic growth, as measured by increase in GNP per capita, is neither strong nor simple. Both suggest that government action to expand employment and decrease unemployment (including use of more labor intensive production methods) could make major contributions to increasing the equality of income distribution.

Adelman-Morris Study

The Adelman-Morris study finds that such socio-economic indicators as the rate of improvement of human resources, (a weighted average of secondary and higher school enrollment ratios), extent of direct government activity (share of government investment in total investment), and extent of political participation are directly associated with degree of equality of income distribution. Other socio-economic indicators, such as per capita GNP level, change in degree of industrialization, level of effectiveness of the tax system, size of traditional agricultural sector, level of adequacy of physical overhead capital, size of population, extent of urbanization, nationality of colonial power, and recentness of self-government are either not clearly or not significantly associated with the degree of equality of income distribution.

One of the main findings of the Adelman-Morris study is that the relationship between income distribution and level of economic development (GNP per

capita) is "U-shaped": i.e., middle income level LDCs have less equal income distributions than either the poorest (except for sharply dualistic or mineral resource-based poor LDCs, which have even less equal distributions), or the richest LDCs (Japan, Israel). In fact, the relative share of the poorest 20% of income recipients in the poorest countries (including Chad, Burma, Dahomey, Kenya, Madagascar, Niger, Nigeria, and Tanzania) is often greater than the share of the poorest 20% in the richest LDCs. Distribution appears not only to get worse with development before it gets better, but to become more equitable again only as a country reaches very advanced states of modernization.

The same study finds, however, that faster growth (as opposed to level of GNP) accompanied by "improvements in economic institutions" (this is a composite variable called "extent of potential for economic development") tends to be associated with higher income shares for families in the middle, i.e., from 40-95%, income brackets. Unfortunately, this relative gain of middle income groups tends to come at the expense of the poorest 20% of income groups as well as at the expense of the richest 5%.

The study also concludes that greater political participation is positively associated with a more equal income distribution.

Caution should be exercised in attempting to draw policy implications from the Adelman-Morris findings. They indicate association between income distribution and other factors among 44 countries; they do not show causality. The authors, however, suggest that a development strategy based on human rather than natural resource development (i.e., on a "mutually balanced expansion of education and employment opportunities") and on such institutions as mixed government-private ventures, worker cooperatives, smaller-scale firms, and small owner-operated farms should be pursued to produce a more equal income distribution. These would appear to be reasonable conclusions, given the strong association between the relevant variables, but the findings do not in fact indicate whether education "causes" more equal income distribution or whether a more equal income distribution "causes" more resources to flow into education. Similarly, a more equal income distribution may be more conducive to a political environment permitting widespread government or cooperative enterprise rather than the other way around.

In a seminar discussion of these conclusions, Professor Adelman agreed that efforts to encourage more labor-intensive production through correcting factor price distortions such as result from unrealistically low interest rates, overvalued currencies, and tax incentives for investment (which collectively lower the price of capital equipment relative to labor, encourage the use of imported rather than domestic equipment, and favor large rather than small firms) constitute a valid policy approach to achieve the increased employment opportunities defined as part of human resource development programs.

Cline Study

The Cline study deliberately focuses on the causality relationship between income distribution and growth by using the simulation technique to analyze the effect of a hypothetical change in income distribution on

growth. Cline first describes income distribution data from all available sources for six Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela). He finds income equality greater in countries with relatively higher per capita incomes (Argentina, Chile, and Venezuela) and less in countries with lower per capita incomes (Mexico, Brazil, and Colombia). This is consistent with the Adelman-Morris finding cited above that middle income LDCs have less equal income distributions than the poorest and the richest LDCs. The results are shown below. Note that "G" refers to the Gini coefficient of income concentration, where 1.0 = perfect inequality and 0.0 = perfect equality.

Country	Income Recipients	Year	G
Argentina	Active Workers	1961	.49
	Families	1961	.43
Brazil	Active Workers	1960	.59
Chile	Families	1968	.45
Colombia	Active Workers	1964	.64
Mexico	Families	1963	.53
Venezuela	Families	1962	.44
United States	(Nature and date of data not given)		.40
United Kingdom	(Nature and date of data not given)		.34

In an appendix, Cline presents data on both rural and urban income distributions for the 6 countries. They reveal little difference between rural and urban inequality except in the case of Colombia where rural inequality appears to be greater than urban inequality.

Cline then examines the impact on savings and growth of moving to two alternative hypothetical income distributions: (1) to a distribution where enough income has been taken from upper brackets to insure a minimum income of one-half the total average family income to all lower brackets and (2) to a distribution equal to that currently existing in England. He begins by estimating consumption functions from family budget studies in 4 countries (Argentina, Brazil, Mexico, and Venezuela) and from these he calculates consumption and savings in each of 12 income brackets in the 4 countries. Using coefficients from the consumption functions, he assesses the impact of the two hypothetical income redistributions on savings in each income bracket and then aggregates to obtain the implied change in savings for the economy as a whole. He then converts these "savings effects" of income redistribution into "growth effects" by employing the definitional relationship between growth, savings rate, and incremental capital-output ratio. Cline finds that these income redistributions would, at most, cost a sacrifice of about 1% annual growth in GNP in Brazil and Mexico, less in Argentina, and little or none in Venezuela. He argues that these are maximum effects since he has

employed curvilinear Keynsian consumption functions (where the average and marginal propensities to consume (save) decline (increase) with income).

Cline next examines the effect of income redistribution on growth via changes in the composition of demand through redistribution-induced changes in the demand for imports and in opportunities for the exploitation of economies of scale. This analysis is limited for reasons of data availability to Brazil and Mexico. The technique of analysis is similar to that described above for the "savings effect." He calculates consumption by industry and income bracket and then, using an input-output table, calculates the direct and indirect effects on total imports of the two hypothetical income redistributions. He finds that these redistributions would result in "negligible" declines in the total import bill (less than 2%). Cline has no direct evidence on economies of large scale production, but based on informed knowledge of industries likely to have such economies, he reasons that income redistribution might produce a slight but not significant decline in direct and indirect demand for industries which show economies of scale.

Cline does suggest, however, that income redistribution would result in a more efficient allocation of the factors of production, an increase in the employment of labor, and an increase in output valued in terms of scarcity or shadow prices for the factors of production. This conclusion is based on the finding that income redistribution would shift demand from presumably capital-intensive sectors (e.g., automobiles, rubber, electrical materials) to labor-intensive sectors (agriculture, food products, textiles). Unfortunately, Cline was not able in this study to investigate empirically factor intensities by industry.

The major empirical conclusion of Cline's study is that the cost of income redistribution for growth is about one percent at a maximum. He rejects (on the basis of a priori reasoning) the view that income redistribution would have a positive effect on growth via the stimulus to investment via increased consumption. He argues that this "under-consumptionist" thesis rests on the existence of generalized excess capacity, but that, in fact, excess capacity in an LDC typically exists only in certain sectors of the economy or is the result of a foreign exchange scarcity. But Cline does contend that even if the cost of redistribution is as high as one percent in growth rates, the sacrifice "would be worth the improved equity, especially in countries where unequal distribution is the basic source of political instability."

Cline also observes that some specific policies designed to bring about income redistribution will be both more effective and efficient than others. While he briefly mentions such possibilities as increasing the progressivity of excise taxes, improving tax collection, and increasing investment in education (providing it has a high rate of return and is not limited to the upper classes), he stresses policies to stimulate expansion of investment and output in labor-intensive sectors and techniques and suggests specifically an "appropriate" land reform (based on his forthcoming book on land reform in Brazil) and a corporate tax rebate for employment, to be financed by

an increase in the general corporate profits tax rate. The corporate tax would thus become a burden on capital intensive firms rather than labor intensive ones. On the other hand, he finds high minimum wages and subsidized urban services to be detrimental to production and employment and even to income equalization because in practice in LDCs such measures tend to benefit disproportionately those in the upper (although not highest) income brackets.

Evaluation

Various limitations and deficiencies can be found in both the Cline and Adelman-Morris studies. Both studies draw from a wide variety of sources and have employed various assumptions and approximations to overcome definitional differences and data limitations.

The hazards of drawing policy implications from the Adelman-Morris study have already been noted. It moreover employs statistical techniques which are still relatively new to economics and constructs a number of new variables especially designed for purposes of the study. Both of these aspects have attracted considerable interest as well as some criticism in the professional literature.

The comparative statics methodology of the Cline study does not consider problems raised by the path or means employed to go from one income distribution to another. Specifically, it assumes that the same consumption coefficients apply within income brackets as among brackets and furthermore assumes that the various coefficients do not change as a result of income distribution. It does, although briefly, look at possible negative side effects of specific income redistribution policies.

But both studies are significant first attempts to do systematic, empirical research in a field which has been hitherto largely a subject of speculation and a priori reasoning. And both are valuable sources of hypotheses and ideas for further research on the interactions between economic growth and income distribution.

An important result of the income redistribution-induced shift in demand from capital-intensive to labor-intensive sectors suggested by Cline (p. 4, third paragraph) could be a net increase rather than decrease in growth rates if the resultant decline in the incremental capital-output ratio were sufficiently great. This would reflect greater output per unit value of investment because of the more labor intensive nature of the investment. This creates the possibility of higher total output as well as social and political benefits (including increased employment) from income redistribution. Further research on the effect of income distribution on economic efficiency and total output is being planned.

The Adelman-Morris study also includes a sub-study on A Conceptualization and Analysis of Political Participation in Underdeveloped Countries. In their summary, the authors discuss the inter-relationships of political participation, income distribution, and economic growth. These topics will be dealt with in a subsequent airgram.