

Income Distribution and
Economic Growth

Gary S. Fields

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THE RISE OF INCOME DISTRIBUTION IN DEVELOPMENT
ECONOMICS

Who benefits how much from economic growth and why? This question is fundamental to today's development economics. This chapter reviews some of the major lessons learned and major directions for future research in the study of income distribution and economic development.

First, an important note on terminology. I shall use the term "income distribution" as a statistician would and as many specialists who work in the area do, namely, to refer to the overall pattern of incomes and to various summary statistics concerning that pattern. Thus, such ambiguous expressions as a "worsened distribution of income" will be eschewed in favor of clearer ones such as "greater inequality in the distribution of income" or "increased poverty" or "a leftward shift of the frequency distribution of incomes." The term "income distribution," as used here, refers genetically to the question of who receives how much income; otherwise, the terms "relative inequality" and "absolute poverty" will be used to distinguish the different aspects of income distribution.

During the 25 years in which the Economic Growth Center has existed, income distribution has gone from being an isolated concern of a scattered few in the Third World to a central concern of all who study or aid economic development. For instance, a conference of leaders in the field was held in the mid-1960s; the proceedings were subsequently published in Adelman and Thorbecke (1966). As stated in the introduction (p. v): "The papers presented at the conference are therefore representative of the most advanced and fruitful techniques, both theoretical and applied, available for analysis of the development process in the emerging nations

today.” The studies were divided into two main categories: development theory and strategy, and development planning and programming. The index includes mention of “disguised unemployment” and related aspects of labor utilization. But no mention is made of words like “poverty,” “inequality,” and “distribution.” This reflects the state of thinking at the time: development economics as a macro phenomenon. Since that time, both Adelman and Thorbecke have written widely on distributional issues; see, for example, Adelman and Morris (1973), Adelman and Robinson (1978), Thorbecke (1973), and Pyatt and Thorbecke (1976). Another example is the widely used readings book by Meier (1984a) entitled *Leading Issues in Economic Development*. The latest edition (the fourth) leads off with a comprehensive examination of income distribution in the world and in the development experiences of particular countries and regions. To illustrate how much Meier’s thinking had changed, in the previous edition (the third, published in 1976), he had written: “As reflected in this new edition, the ‘leading issues’ now coalesce in a central theme: policies which are designed to eradicate poverty, reduce inequality, and deal with problems of employment.” (Meier, 1976, p. vii). In his first edition (1964), poverty, inequality, and income distribution were virtually absent from consideration. And the Economic Growth Center itself had undergone a substantial change, as witnessed by the regular inclusion of income distribution topics in the Center’s current research program, compared to the absence of such topics in the country study program of the Center’s early years.

What caused this change of thinking? One reason was that voices from the developing countries themselves were being heard. Particularly influential was the work coming out of India. Income distribution had figured long ago in Indian planning models (Pant, 1974) and in academic studies (e.g., Srinivasan and Bardhan, eds., 1974, and the references cited therein). Changes over time in poverty and inequality were estimated from household data and projections

of income distribution were made for the future. Indians no longer viewed development purely in macro terms. That changed perspective reached other Third World countries. Western writers also became more and more concerned about distributional matters. One widely quoted statement is that of Dudley Seers (1969), who wrote:

The questions to ask about a country's development are therefore: What has been happening to poverty? What has been happening to unemployment? What has been happening to inequality? If all three of these have declined from high levels, then beyond doubt this has been a period of development for the country concerned. If one or two of these central problems have been growing worse, especially if all three have, it would be strange to call the result 'development' even if per capita income doubled.

Shortly thereafter, Seers headed an ILO mission to Colombia aimed at studying that country's employment problem. The Colombia report (ILO, 1970) and those that followed for other countries focused both on the fact of employment (or unemployment) and on the returns to employment (including both wages and self-employment income). This concern reflected the belief that better employment opportunities were the principal means by which the poor could earn higher incomes.

But perhaps a more important reason for the shift of development economists' attention toward distributional concerns was the fact that around 1970, those who wished to take income distribution issues seriously began to have the empirical data for doing so. One type of data was cross-sectional. Research programs at the ILO and the World Bank led to the compilation of inequality estimates for a large number of countries. These were published in Paukert (1973) and Chenery et al. (1974) respectively, and formed the basis for studies of the correlates of inequality by Chenery and Syrquin (1975), Ahluwalia (1976), and others. Around the same time, a second kind of information was being published country by country - the results of comparable household censuses and surveys. Studies continued to come in documenting and explaining the

changes in relative income inequality and/or absolute poverty around the world. And thirdly, micro data sets were becoming available for developing countries. These afforded the possibility of looking into the determinants of incomes and income inequality among individuals and households.

Certain definitional matters needed to be faced. Among them were: What is the more appropriate concept: income or consumption? Suppose income is taken as the appropriate concept. What should be included: just cash income or income-in-kind? Which recipient unit should be looked at: individuals or households? What should be emphasized: the incidence of poverty or the duration of poverty? Many times, researchers' choices on these definitional issues were dictated by purely practical considerations, such as the ready availability of certain data and the impossibility of obtaining other data. Then too, when alternatives could be examined, the resultant conclusion often was that it didn't make much practical difference, as long as one examined *either* individuals *or* households, *either* cash income *or* total income, but didn't freely mix the two, as was done in some of the earlier studies based on the Jain (1975) data.

There quickly appeared a veritable plethora of tabulations and cross-tabulations of incomes, poverty profiles, multivariate earnings functions, and decomposition studies. With the improved empirical base, the research need shifted. The next task was to synthesize the results of the very many studies that had been done and to look for patterns and explanations for them. An example of such an effort is Fields (1980b).

We have learned a great deal from the research that has been done thus far. But some very important questions remain to be answered. The balance of this paper addresses in turn the lessons learned and the priorities for future study.

LESSONS LEARNED

An important general lesson, well known to specialists on income distribution but not to development economists in general, should be stated at the outset: Few natural “economic laws” describe the path of income distribution in the course of economic development. By “law,” I mean a statistical pattern that holds in a wide variety of places in a wide variety of circumstances. Examples of such economic laws are the tendency as economic growth takes place for agriculture to represent a smaller fraction of economic activity and for more of the labor force to be employed in wage and salary jobs rather than in self-employment or unpaid family labor. At the forefront of such studies of the laws of economic development was Simon Kuznets who, although a professor at Harvard, wrote many papers bearing the imprint of the Economic Growth Center at Yale. Perhaps one of the greater ironies in the history of thought on economic development is that the economic law which today is most often associated with Kuznets and that has come to bear his name - the idea that income inequality increases in the early stages of economic development and decreases in the later stages, thus tracing out an inverted-U curve - receives remarkably little empirical support, either from the evidence presented in Kuznets’s writings or in subsequent data. If we consider two possible conclusions - one that income inequality “must” increase before it decreases, the other that income inequality may increase or decrease depending on the type of country and the policies pursued - the latter conclusion is certainly more consistent with the empirical evidence at hand.

The following sections demonstrate both the variety of ways in which economic growth affects income distribution and the paucity of general patterns. The discussion is organized

according to the type of data: first, lessons from cross-sectional studies; then lessons from data on changes in different countries over time; and then lessons from micro data.

Lessons from cross-sectional data

Cross-sectional data occupy a prominent place in the study of income distribution, the reason being that these data were widely available before other kinds. Kuznets (1955) pioneered the comparative study of income distribution in a cross section of countries. Among those who followed were Kravis (1960), Oshima (1962), Kuznets (1963), Adelman and Morris (1973), Paukert (1973), Chenery and Syrquin (1975), Ahluwalia (1974, 1976), Ahluwalia, Carter, and Chenery (1979), Saith (1983), and Anand and Kanbur (1984, 1986).

Virtually all these studies examined only income inequality and did not address absolute incomes. Income inequality was found on average to be greater in the less developed countries than in the developed countries. Inequality was also found to be lower on average in the poorest of the less developed countries than in the relatively more-advanced ones. Thus, the cross-sectional evidence compiled over the last 20 years appears to support Kuznets's speculation about the inverted-U.

Or so it seems. If we understand Kuznets to have speculated about *averages* among groups of countries at different stages of economic development, then indeed the cross-sectional evidence supports the inverted-U. But most people do not understand the inverted-U hypothesis that way. They think more in terms of *laws* than of averages. Robinson (1976, p. 437) stated that the inverted-U hypothesis "has acquired the force of economic law" and Fei, Ranis, and Kuo (1978, p. 17) motivated their study of income distribution in Taiwan this way:

The key question that is raised again and again is whether or not the beginnings of rapid growth in the developing economy must necessarily be associated with a worsening distribution of income [meaning here increasing relative inequality, not absolute immiserization]...The careful examination of even one successful counter-example to any such “historical necessity”... will hopefully provide us with some policy relevant conclusions concerning the precise conditions under which “things do not have to get worse before they can get better.”

In fact, the cross-sectional data reveal no such “historical necessity.” Rather, there is a great deal of variation around the inverted-U curve. The most recent data on income shares of the poorest 40 percent of households, compiled by Anand and Kanbur (1986), appears in table 15.1.¹

Looking down the last column, one is hard-pressed to see a pronounced inverted-U (or anything else). The wide variation around the average is confirmed by regression studies. Authors such as Cline (1975), Ahluwalia (1976), Fields (1980b), and Anand and Kanbur (1984, 1986), using various inequality measures and various functional forms, have been able to explain at most half the variation in income inequality by national income level, and usually very much less than that. Thus, most of the variation is explained by factors other than level of national income; no inevitable relationship between income and inequality is found.

In retrospect, it would have been surprising if countries’ income levels *had* been found to provide a powerful explanation for their income inequality. Many leading development economists (e.g., Fei and Ranis, 1964; Kuznets, 1966; Adelman and Morris, 1973) had been saying for a long time that income inequality is determined as much or more by the *type* of economic development (taking account of such typological factors as the country’s size, natural resource base, and policies followed) as by the level of development per se. Structural and policy factors need to be considered along with income level or rate of growth.

Insert Table 1

In the next round of research, they were. Some continued with cross-sectional studies. The work of Chiswick (1971), Adelman and Morris (1973), Chenery and Syrquin (1975), Ahluwalia (1976), and others showed that the extent of inequality in different countries was associated with such factors as education, extent of direct government economic activity, population growth rate, urbanization, and importance of the agricultural sector in total production. These and kindred studies showed that income inequality is associated with a great many variables of *choice* and suggested that policies to affect inequality might make a big difference. This provided a strong motivation for looking at the changes that had taken place *within* individual countries and the reasons for them. The time-series evidence, reviewed below, supports the conclusion from cross-sectional studies that development policy is a fundamental determinant of inequality; the level of national income is not enough.

Another conclusion arose from cross-sectional studies but was later discarded. This is the idea that the poor get *absolutely poorer* in the early stages of economic development. The early claims to this effect by Adelman and Morris (1973) were first criticized by Cline (1975) on methodological grounds and were later rejected decisively by the empirical results of Ahluwalia (1976), who found that when countries at different income levels were compared, the average absolute incomes of the poorest 20, 40, or 60 percent all increased monotonically. The absolute impoverishment thesis has been laid to rest.

In recent years, interest in these cross-sectional studies has waned. This is because many of the questions addressed with cross-sectional data were really questions about changes over time, best addressed with intertemporal data within countries. We turn to these studies next.

Lessons from intertemporal data

Researchers working on income distribution in the 1960s and early 1970s had only cross-sectional data with which to work. But as the 1970s began, a second kind of information became available; data on changes in income inequality over time within one or a small number of countries. The first such study of note was Weisskoff's (1970) documentation of changes in income inequality in three Latin American economies (Argentina, Mexico, and Puerto Rico), along with possible explanations for the observed patterns. Soon after, the results of the 1960 and 1970 censuses became available for Brazil. It was possible for Fishlow (1972) to show that the macroeconomic success of the so-called "Brazilian economic miracle" (i.e., the transformation of a stagnant economy with hyper-inflation to one with rapid economic growth and virtual price stability) was not accompanied by marked improvements in income inequality, which was very high both before the economic miracle and afterwards. Other country studies soon followed. By the end of the 1970s, enough data had been accumulated to permit empirical conclusions to be reached on income distribution changes over time.

The intertemporal evidence on less developed countries collected in Fields (1980b) is as follows:

Cases of Qualitative Agreement

Inequality and poverty both declined: Costa Rica, Pakistan, Singapore, Sri Lanka, and Taiwan

Inequality and poverty both increased: Argentina and the Philippines

Cases of Qualitative Disagreement

Inequality increased and poverty decreased: Bangladesh, Brazil, Mexico, and Puerto Rico

Inequality decreased and poverty increased: India

From these data, we may reach the following conclusions:

- Income inequality increased in about as many countries as it decreased.
- Absolute poverty decreased in most countries.
- The relative inequality and absolute poverty approaches to income distribution are found to agree qualitatively in a bare majority of cases.

These data show that it makes a great deal of difference whether one adopts a relative inequality or absolute poverty approach to measurement of income distribution change. In particular, in many countries' experiences, inequality increased while poverty decreased - a fact that sometimes led to heated debates, as in discussions in the late 1970s of Brazilian income distribution. Thus, the qualitative assessment we reach concerning a country's development experience may depend upon which aspect of income distribution we are most concerned about, relative or absolute. This leads to the issue of the welfare economics of distribution and development, a topic addressed further in the next section.

Moving from data to explanation, why did some countries do better than others?

Following all the attention paid to income level in the cross-sectional literature, a natural starting point was to ask whether economic growth *per se* has a bearing on income distribution. The answer depends on whether one's attention is directed toward poverty or toward inequality.

When the evidence is examined from the point of view of absolute poverty, a clear-cut conclusion is reached: rapid economic growth tends to reduce poverty. Of the countries for

which we have data, poverty was alleviated rapidly in nearly all of the rapidly growing economies of East Asia and Latin America. Only in the Philippines was rapid economic growth *not* accompanied by reduced poverty. On the other hand, an exception of a different kind is also recorded: Sri Lanka did well in alleviating poverty despite very slow economic growth. Both these exceptions can be explained by policy: not-so-benign neglect of the poor in the case of the Philippines; willingness to sacrifice growth in favor of distribution goals in the case of Sri Lanka. Thus, we may conclude:

- Although rapid economic growth generally reduces poverty, growth is neither necessary nor sufficient for poverty alleviation.

Turning now to the evidence on relative inequality, the intertemporal data reveal surprisingly little association between rapid economic growth and inequality change. Some countries (Brazil, the Philippines) grew rapidly while inequality increased. However, inequality decreased both in rapidly growing economies (Taiwan, Costa Rica) and in slow-growing ones (Sri Lanka). Rapid economic growth is neither necessary nor sufficient for inequality to increase (or, for that matter, to decrease). Nor do we find any evident relationship between the change in inequality and the country's *level* of economic development - certainly no evidence whatever that income inequality increases with economic growth among the poorer countries but decreases with economic growth among the richer countries, as would be predicted by adherents of the inverted-U hypothesis. Again, the differences among countries would appear to be explained by the *type* of economic growth strategy pursued rather than by the *rate* of economic growth *per se*. We have therefore found:

- Whether inequality increases or decreases with economic growth depends on the type of growth rather than on the level of GNP or the rate of GNP growth *per se*.

Having learned that income distribution does not need to change in any inevitable way with economic growth, and having learned that development strategy has an important bearing on who benefits from economic growth, development economists now face a new task. We must look *within countries* to understand what they did and why some fared better in distributional terms than others. In my view, the payoff to further statistical or econometric refinements of “patterns of growth” studies is small relative to the returns to more in-depth country studies. In the section “Where do we go from here?” I offer some suggestions on the kinds of things to look for.

Lessons from micro data

In the late 1960s and early 1970s, for the first time, household sample surveys and public use samples from censuses became available for large numbers of developing countries. A rich and varied literature pertaining to various aspects of income distribution has emerged from micro data analysis.

A first question necessarily preceded all others: How reliable are micro data for less developed countries? Some analysts worried that poor people could not provide sensible answers to questions or that the statistical offices in poor countries could not produce usable data tapes. Both these worries were allayed by actual experience. Inability to answer survey questions would yield noisy data, which would result in low explanatory power of economic models fit to such

data sets. Yet, when models comparable to those used in developed country contexts were fit to LDC data, the explanatory power was found to be *better*, not worse. As for developing countries' ability to generate workable data sets, while there have been some frustrating problems, there have also been some remarkable successes. Colombia, for instance, produced a 4 percent sample of census returns within one year, containing computer- readable data on more than three-quarters of a million persons. The U.S. Census Bureau should do as well!

Micro data sets have been used to analyze various aspects of income distribution. Concerning absolute incomes, micro data sets yielded profiles of the poor by various characteristics, as in the work of Fishlow (1972) on Brazil, Srinivasan and Bardhan (1974) on India, and Anand (1977) on Malaysia. High incidences of poverty were found among the poorly educated, rural residents, agricultural workers, women, and so on. The poverty profile literature produced few surprises, though - the poor were found to be those we thought they were.

Where micro data sets proved insightful was in the decomposition of inequality. Much of the early work on income distribution and economic development emphasized the functional distribution of income, i.e., the division of income between capital, labor, land, transfers, and other sources. This concern with functional income distribution, and the corresponding neglect of size distribution, flew in the face of two facts. One is that most families derive little income from non-labor sources; they rely primarily if not exclusively on the labor incomes of family members. The other fact is that some workers receive a great deal more for their labor than do others. These truisms led some researchers to investigate the causes of inequality in the size distribution of income. Fei, Ranis, and Kuo (1978) devised a procedure - later elaborated upon by Pyatt, Chen, and Fei (1980)-for decomposing inequality into "factor inequality weights" indicating the proportion of total inequality due to inequality of capital incomes, inequality of

labor incomes, and so on. (Their methodology differs from other decomposition procedures such as the Theil decomposition, both in the decomposition itself and in the type of question to which it is addressed; see Fields (1980b) for a comparison of the different decomposition methods.) Fei, Ranis, and Kuo's findings for Taiwan, and the findings using their decomposition procedure for Pakistan (Ayub, 1977) and Colombia (Fields, 1979), demonstrated that *labor* income inequality is the most important source of total income inequality, accounting for more than two-thirds of the total. This finding, coming as a surprise to some and confirming what others had thought all along, directed development economists' attention toward labor markets and the determinants of labor incomes. This is an area that merits considerable attention in the research program of development economics in the coming years, and to which I return in the next section.

Another aspect of income distribution where micro data yielded valuable insight was in the examination of inequality within and between groupings, be they geographical, industrial, racial, or gender. Development models with a small number of economic sectors, perhaps as few as two, are used by many of us. In so doing, we abstract from differences within sectors in order to emphasize the qualitative differences between sectors and the linkages among them. While this has proven very useful in certain contexts—for example, in understanding how industrial development in the urban areas will have a bearing on agriculture through rural-urban migration—thinking in terms of the differences *across* sectors runs the risk of obscuring or even ignoring the importance of differences *within* sectors. Studies analyzing micro data using Analysis of Variance, Theil decomposition, or other similar methods have found that income differences *within* sectors are much more important than income differences *between* sectors, with intrasectoral inequality typically accounting for 80-90 percent of the total (Fields, 1980b, table 4.9).

The predominance of intrasectoral inequality has important policy implications. The finding that inequality within rural and urban areas is much greater than inequality between them means that a policy aimed at channeling development resources toward rural areas because they are poorer might benefit disproportionately the well-to-do rural residents while failing to assist poor city-dwellers. This has evidently happened in Kenya, as in much of Africa (Leys, 1975). Similar leakages would have resulted in Colombia, had the government followed its plan to allocate all its development resources to the poorer one-digit industries, ignoring the much greater inequality within one-digit industries than between them (Fields, 1979). And similar leakages are occurring in Malaysia today, as the government moves ahead with programs to aid the Malays while excluding the Chinese, ignoring the findings of Anand (1983) showing that the two racial groups' income distributions overlap greatly.

A final lesson from micro data to be noted is the work on earnings functions. Psacharopoulos (1973, 1981, 1985), Fields (1980a), and others have shown that in developing countries around the world, multivariate earnings functions exhibit substantial explanatory power, and that much more variation in income is accounted for by education than by regional variables, firm characteristics, or family background variables.² These findings direct the attention of income distribution analysts toward understanding the effect of education on income. Here, though, controversy arises. As Blaug (1973), among others, has pointed out, those with more education could be found to be earning higher incomes for a variety of reasons: economic, sociological, or psychological. In a study of Kenya and Tanzania, Boissiere, Knight, and Sabot (1985, pp. 1028-9) examined the various possible explanations and reached the following conclusions:

Our survey data from East Africa have permitted a sharper test than hitherto of the competing explanations—credentialism, ability, screening, or human capital—of why

workers with secondary education earn more. The direct returns to reasoning ability in the labor market are small, those to years of education are moderate, and those to literacy and numeracy - dimensions of human capital - are large...Our analysis provides strong support for the human capital interpretation of the educational structure of wages. Whether these conclusions should be generalized beyond East Africa to the many other countries in which rates of returns (sic) have been estimated is, however, open to question.

Similar studies elsewhere would be informative.

In all these areas, the findings of micro data sets have told us where to turn and, probably equally importantly, where not to turn to understand better the links between income distribution and economic development. No single approach can give all the answers. However, micro data analysis can help, and indeed has helped, us ask the right questions.

WHERE DO WE GO FROM HERE?

Looking ahead, I would call attention to three lines of research, all interrelated, which would help elucidate some important aspects of income distribution and economic growth:

Understanding constraints on choices

We have learned that people in developing countries respond to the constraint sets they face and will alter what they do if their constraint sets change. More farmers will plant a given crop the higher is its relative price. More workers will locate in a particular area the better are that area's job conditions. More parents will seek education for their children the greater is the relative income of those with education compared to those without. More consumers will buy domestically-made goods in preference to foreign-made goods the lower is the cost of

domestically-made goods and the better their other characteristics (product quality, reliability, etc.). Thus, the *rates* at which various economic activities take place depend on the economic returns to various courses of action given the available opportunities and constraints. Incomes are determined accordingly.

Having learned that purposeful behavior is as good a description of choices in developing countries as it is in developed countries, the next task is to understand how the constraints are determined. Here, unfortunately, we know much less than we need to.

The essence of economic underdevelopment is the existence of severe constraints on people's behavior. Take, for example, the situation confronting a poor farmer. He may wish to send his sons and daughters to school, knowing that if they were to acquire an education, their incomes (and hence standards of living) would be very much higher. Yet, because he lives in a poor country, schooling is not free; the farmer must pay school fees which are a substantial part of his income. And being poor, he faces a double bind: he lacks the money to pay the school fees, and he needs the children to work on the farm during planting and harvesting seasons, since he cannot afford hired labor or mechanized inputs. Suppose, though, that he could somehow overcome all of these difficulties and could scrimp and save in order to send his children to school. Even then, there might not be enough spaces in the schools for all who wish to attend. For all these reasons, the constraints on choices are such that the poor farmer may be unable to send his sons and daughters to school. The children of the poor are apt to be poor.

The essence of economic development is the relaxation of such constraints. As countries get richer, they typically provide more schools and make them free. Furthermore, with economic development, capital markets become more widespread, enabling the poor farmer to borrow at more favorable rates of interest for such worthwhile purposes as purchasing a small tractor with

which to complement his labor while freeing his children to attend school during peak periods on the farm. The sons and daughters of the poor farmer therefore face better educational opportunities. Economic development may even enable the poor farmer to cease to be a farmer, for example, by being offered more remunerative work in a factory; or if he is unable to get such employment, his sons and daughters might.

At present, we know much more about the choice aspect of constrained choices than we do about the constraints. High on the agenda of development economics is the need to learn how the constraints on individuals' choices are related to the nature and extent of government involvement in the economy, trade orientation, education and human resource policy, and other aspects of development strategy and performance. We have a good idea of the proximate explanations for behavior. These proximate explanations should be linked more closely than they now are to underlying causes, especially those that might be changed by public policy.

Understanding the labor market mechanisms linking growth and income distribution

We have learned from decomposition studies that labor income inequality is the predominant determinant of total income inequality. Most households receive no significant capital income, unless the imputed value of owner-occupied housing is counted as capital income. Hence, among the majority of households, the major factor determining who is high-income and who is low is whether labor earnings are high or low. Accordingly, the attention of income distribution analysts is directed toward the labor market.

Three kinds of labor market studies would contribute to our understanding of the mechanisms linking growth and income distribution. The first is descriptive-analytic. Labor

economics offers many paradigms of labor market functioning, including the competitive model, dual labor market models, labor market segmentation approaches, radical theories, and many others; see, for instance, Gordon (1973) for a summary of these different paradigms. We need empirical evidence that would help us choose among these various analytical approaches in various country contexts. How dispersed are wages for apparently identical workers? With what are these wage differentials correlated? Why? Which persons are employed in which industries, locations, or activities? What explains who is hired and who is promoted? Who are the unemployed? By what mechanisms do they become employed? What is the role of the urban informal sector in job-getting? How important is on-the-job search? To what extent is discrimination practiced? Are there significant impediments to the smooth functioning of supply and demand? What are they? Surveys by such authors as Cain (1976), Berry and Sabot (1978), Squire (1981), and Binswanger and Rosenzweig (1984), provide a good starting point, but more behavioral- institutional labor market studies are needed.

The second need is for more comprehensive and realistic models of labor markets in developing countries. Perhaps the most famous such model is that of Harris and Todaro (1970), devised to fit the labor market circumstances prevailing in East Africa in the late 1960s. It helped explain why job aspirants were flocking to the cities, despite urban unemployment, and why attempts at creating jobs for the urban unemployed made things worse, not better. These insights demonstrate the value of blending behavioral-institutional description with theoretical modeling. Of course, all models are limited, and the Harris-Todaro model is no exception. It did not allow for a number of important aspects of labor markets, among them, heterogeneous labor, the existence of an urban informal sector, a dualistic agricultural sector, on-the- job search, and extended family decision-making. Extensions along these lines have been introduced by quite a

number of authors; see Todaro (1976, 1985) for references to this line of literature. Nor can a general model fit in all times and all places. Labor markets in such small economies as Singapore and Hong Kong are best modeled without migration of the Harris-Todaro type. Labor markets in economies as diverse as Puerto Rico, Botswana, Sri Lanka, and Egypt, in which emigration is a viable option, must be modeled differently from closed labor markets. In some countries, preferential hiring may be much more important than probabilistic hiring. And so on. Here again, the insistence on typologically relevant analysis, which was repeatedly impressed upon all who passed through the Economic Growth Center, comes to the fore.

The third need is for dynamic analyses of how labor market conditions change with economic growth. Does growth result in more and better jobs? For whom? Do the patterns vary with stage of economic development? With extent of government economic involvement? With trade and industrialization strategy? With education and human resource policy? To what extent does labor share in economic growth? Evidence on such questions may be found in a study of 12 developing countries in the early 1980s undertaken by the National Bureau of Economic Research and in a project encompassing 13 LDCs in the mid-1980s under the auspices of the World Bank; the main findings of these projects are presented in Krueger (1981) and Klinov (1986), respectively. The results of these large-scale empirical studies, and of the many other studies scattered in the literature, should be systematized and added to. But the most important need I see in this area is for theoretical models of labor market *change* in the course of economic growth, along with the consequences of these changes for inequality and “poverty.

Ultimately, development economics must elucidate development *processes*. Static analyses providing a snapshot of events and behavior in developing countries are, of course, worthwhile. But our field runs the risk of going too far with static models, thereby neglecting the

dynamic aspects on which development economics is based. High priority should be given to empirically based, theoretical models of the labor market mechanisms linking growth and income distribution.

Rethinking welfare and measurement issues

We have learned that the different aspects of income distribution—inequality, poverty, and economic mobility over the life cycle—are very different from one another. Some observers place heavier weight on one, some on another, but most would want to measure them all, insofar as possible.

When poverty and inequality have been measured, they have been found to have changed very differently in the development experiences of many countries. (Economic mobility has been measured less frequently than the others because of the need for longitudinal and/or retrospective data to measure it.) A pattern arising with some frequency is that inequality rises but poverty falls in a number of countries' economic growth experiences.

These conclusions are derived from particular inequality indices (typically, the Gini coefficient and/or the income shares of particular percentile groups) and particular poverty indices (typically, the head- count ratio). But there exist many other indices of poverty and of inequality. The poverty indices do not necessarily agree among themselves, nor the inequality indices among themselves. This raises the question of which are the “best” inequality and poverty indices to use.

Among the poverty indices, the headcount ratio has certain well- known deficiencies: insensitivity to the amount by which the incomes of the poor fall below the poverty line, and

neglect of inequality in the distribution of income among the poor. These omissions were first remedied in the work of Sen (1976), who amalgamated the headcount (H), the income gap of the poor (I), and inequality among the poor (as measured by the Gini coefficient among them, G_p) into a single composite poverty measure:

$$S = H[I + (1 - I)G_p]$$

Since then, Sen's approach has been modified in two kinds of ways. One is to retain Sen's basic structure, but to use inequality indices other than the Gini coefficient or functional forms other than that given in the preceding equation; among those who have worked along these lines are Anand (1977), Thon (1979), Kakwani (1980), and Clark, Hemming, and Ulph (1981). The other approach is to use the family of poverty measures devised by Foster, Greer, and Thorbecke (1984):

$$P_\alpha = (1/n) \sum_{i=1}^q ((z - y_i)/y_i)^\alpha$$

where P_α is the poverty index with parameter α , n is the total number of households, q is the number of poor, z is the poverty line, and y_i is the income of household i . Useful overviews of these new directions in poverty measurement may be found in Foster (1984) and Atkinson (1985).

Given all these choices, the applied researcher would naturally want to know which index is best to use to assess how poverty changes with economic growth. Where this line of literature stands as of now is that each class of indices has its own merits and many appear suitable. If alternative poverty indices were to be applied and found to give different answers, the practical researcher would be in a quandary about what to conclude. But maybe that would be precisely

the right conclusion in such a circumstance: to conclude that the data are inconclusive. The welfare economics of poverty change still need some sorting out.

As for the measurement of inequality, we also have many choices. Fields and Fei (1978) axiomatized the Lorenz criterion, which is used in the great majority of inequality studies. Sen (1973) and others showed which of the commonly used, inequality indices are fully consistent with the Lorenz criterion and which are not. Those inequality indices that are Lorenz-consistent go beyond the Lorenz criterion in ranking the inequality of income distributions, even when the Lorenz criterion cannot. The ways in which these indices complete the ordering have been justified on the basis of decomposability, sensitivity to income changes affecting particular income groups, or ease of computation. What has not been done—and what should be—is to justify the choice of an inequality index on the basis of its suitability for measuring the distributional consequences of economic *growth*. I have attempted to do this in recent work (Fields, 1979, 1985) with limited success. The resolution, we have now learned, rests critically on how inequality varies with the *numbers* of persons in different economic sectors, holding the within-sector income distributions the same. This process is called “modern sector enlargement growth” (Fields, 1979) or “intersectoral shifts” (Kuznets, 1955; Anand and Kanbur, 1984). Anand and Kanbur have analyzed the effects of such growth on income inequality as measured by six inequality indices, five of which are Lorenz-consistent (Theil’s two indices, the squared coefficient of variation, the Atkinson index, and the Gini coefficient with non-overlapping distributions between high- and low-income groups) and one of which is not (the log variance). All six indices produce a particular pattern: if we suppose that the economy is divided into two sectors, one of which has higher income and higher inequality than the other, as the share of population in the low-income sector goes from 0 to 100 percent, each of the six indices either

increases monotonically or follows an inverted- U. And in the case of no within-sector inequality, as is considered in the next paragraph, inequality *must* follow an inverted-U pattern.

The unwary reader should avoid an unwarranted conclusion. Some would argue that inequality “should” first increase and then decrease, because that is what six commonly used, inequality measures do as intersectoral shifts of the prescribed type take place. Yet, consider a five-person economy in which the income distribution goes from (1.1.1.1.1) to (1,1,1,1,5) to (1,1,1,5,5) to (1,1,5,5,5) to (1,5,5,5,5) to (5.5.5.5.5) . While inequality “should” increase with the move from (1.1.1.1.1) to (1,1,1,1,5) and “should” decrease in the last step from (1.5.5.5.5) to (5,5,5,5,5), it is not at all apparent what inequality “should” do in between. It is important to examine the underlying data carefully to make such a judgment. Just because six frequently used, inequality indices trace out an inverted-U does not mean that an inverted-U is the “right” pattern. What ought to be cannot be justified on the basis of what is. Those who argue this way are guilty of circular reasoning—not a very helpful method.

More fundamental work on the welfare economics of poverty and inequality change in the course of economic growth is badly needed. Atkinson (1970, 1985), Sen (1973, 1984), and Shorrocks (1983) are among those who have shown us that value judgments cannot be avoided if we are to do such work. It is best that development economists confront value judgments head-on.

A FINAL WORD

To borrow a phrase from Gerald Meier, whose change of thinking was described earlier, the study of income distribution and economic growth is “the economics that really matters” (1984). As we study those aspects of economic development that really matter, the interplay between empirical observation and theoretical modeling must never wander too far from center stage. Facts without analysis are barren. So, too, are deductive theories without empirical foundations. Theory and data must be brought together. Let us have the courage to tackle the difficult but important questions and the judgment to know what they are.

NOTES

¹ The data set is labeled “minimally consistent” because the data are standardized for geographic coverage (national), and income recipient unit (household), and income concept (household income).

² An earnings function is a regression equation of the form

$$\log Y = a + b_1 ED + b_2 EXP + b_3 EXP^2 + b_4 FAMBKGD + \dots$$

where Y is the individual's income, ED is years of education, EXP is years of experience, $FAMBKGD$ is a measure of family background. Other explanatory variables might also be included.

Table 1

TABLE 15.1 *A minimally consistent data set*

<i>Country</i>	<i>Year</i>	<i>Per capita GNP is year of survey \$US at 1970 prices</i>	<i>Percentage income share of the lowest 40 percent</i>
Malawi	1969	80.0	15.0
Pakistan	1963-64	93.7	17.5
	1966-67	104.7	19.2
	1968-69	112.6	20.3
	1969-70	116.8	20.2
	1970-71	118.6	20.6
Tanzania	1967	103.8	13.5
	1969	110.3	7.8
Sri Lanka	1953	83.5	14.6
	1963	91.2	13.7
	1969-70	108.6	17.9
	1969-70	108.6	17.8
	1973	111.3	19.3
India	1953-57	94.2	20.2
	1960	102.9	13.6
	1964-65	111.3	17.2
	1967-68	120.1	13.1
Thailand	1962	142.8	13.2
Philippines	1956	191.8	12.9
	1961	207.2	12.7
	1961	207.2	11.9
	1961	207.2	12.0
	1965	224.4	11.6
	1965	224.4	11.7
	1965	224.4	11.5
	1971	261.8	11.9
Egypt	1964-65	232.8	14.1
Korea	1966	190.5	23.2
	1966	190.5	18.4
	1968	226.5	21.4
	1969	246.5	21.4
	1970	269.2	17.7
	1970	269.2	17.5
	1971	289.9	18.7
	1971	289.9	23.7
Honduras	1967-68	301.0	7.3
	1967-68	301.0	6.4
Zambia	1959	308.2	13.0

Table 1 (continued)

TABLE 15.1—Continued

<i>Country</i>	<i>Year</i>	<i>Per capita GNP in year of survey SUS at 1970 prices</i>	<i>Percentage income share of the lowest 40 percent</i>
Turkey	1968	322.2	9.4
Taiwan	1953	178.6	8.6
	1959-60	216.4	14.9
	1961	234.2	13.5
	1964	283.9	20.3
	1972	457.7	22.3
Malaysia	1957-58	274.1	17.7
	1957-58	274.1	15.7
	1960	286.3	9.6
	1967-68	372.3	10.4
	1970	401.4	11.8
	1970	401.4	11.2
Brazil	1970	456.5	9.2
	1970	456.5	7.7
Jamaica	1958	515.6	8.2
Lebanon	1955-60	588.3	12.3
Costa Rica	1961	450.4	13.0
	1971	617.1	14.6
Mexico	1963	564.7	10.4
	1963	564.7	10.9
	1963	564.7	9.9
	1967-68	662.6	11.2
	1968	673.8	9.8
	1969	696.9	10.2
Uruguay	1967	720.8	14.2
Spain	1964-65	852.1	16.5
Chile	1968	903.5	13.0
Argentina	1961	1,004.6	16.6
Puerto Rico	1963	1,217.4	13.7
Japan	1962	988.2	15.3
	1962	988.2	16.9
	1963	1,083.1	20.4
	1965	1,301.0	16.8
	1968	1,712.8	16.0
	1971	2,255.0	14.8
	1971	2,255.0	22.3

Table 1 (continued)

TABLE 15.1—*Continued*

<i>Country</i>	<i>Year</i>	<i>Per capita GNP in year of survey \$US at 1970 prices</i>	<i>Percentage income share of the lowest 40 percent</i>
France	1956	1,886.5	11.8
	1962	2,303.1	10.0
United Kingdom	1960	2,028.5	18.1
	1968	2,414.3	18.5
New Zealand	1966	2,278.2	20.9
Australia	1967-68	2,632.4	20.0
West Germany	1968	2,995.3	16.8
	1969	3,100.1	18.9
	1970	3,208.6	16.4
Canada	1961	3,046.6	19.7
	1965	3,509.6	19.0
United States	1960	3,827.1	15.9
	1966	4,623.3	15.4
	1970	5,244.1	15.3
	1971	5,411.9	15.5
	1972	5,585.1	14.1
Yugoslavia	1963	488.0	19.0
	1968	602.3	18.4
East Germany	1967	1,808.7	26.8
	1970	2,046.3	26.3

Source: Anand and Kanbur (1986), based on Jain (1975).

Note: These data are "minimally consistent" in that they are comparable in terms of coverage (national), income receiving unit (household), and income concept (household income).

References

- Adelman, Irma and Morris, Cynthia Taft 1973: *Economic Growth and Social Equity in Developing Countries*. Stanford, Calif.: Stanford University Press.
- Adelman, Irma and Robinson, Sherman 1978: *Income Distribution Policy in Developing Countries: A Case Study of Korea*. New York: Oxford University Press.
- Adelman, Irma and Thorbecke, Erik (eds) 1966: *Theory and Design of Economic Development*. Baltimore: Johns Hopkins University Press.
- Ahluwalia, Montek 1974: "Income Inequality: Some Dimensions of the Problem." In Hollis Chenery et al., *Redistribution with Growth*, Oxford: Oxford University Press.
- Ahluwalia, Montek 1976: "Inequality, Poverty and Development." *Journal of Development Economics*, Dec.
- Ahluwalia, Montek; Carter, Nicholas; and Hollis, Chenery 1979: "Growth and Poverty in Developing Countries." In Hollis Chenery (ed.), *Structural Change and Development Policy*. New York: Oxford.
- Anand, Sudhir 1977: "Aspects of Poverty in Malaysia." *Review of Income and Wealth*, March.
- Anand, Sudhir 1983: *Inequality and poverty in Malaysia*. Oxford: Oxford University Press.
- Anand, Sudhir and Kanbur, Ravi 1984: "The Kuznets Process and the Inequality-Development Relationship." Mimeo.
- Anand, Sudhir and Kanbur Ravi 1986: "Inequality and Development: A Critique." Paper prepared for the Yale University Economic Growth Center.
- Atkinson, A. B. 1970: "On the Measurement of Inequality." *Journal of Economic Theory*, Sept.

- Atkinson, A. B.: "On the Measurement of Poverty." Walras-Bowley Lecture presented at the Econometric Society World Congress, Cambridge, 1985.
- Ayub, Mahmood 1977: "Income Inequality in a Growth-Theoretic Context: The Case of Pakistan." Unpublished Doctoral Dissertation, Yale University.
- Berry, A. and Sabot, R. H. 1978: "Labor Market Performance in Developing Countries: A Survey," *World Development*, Nov.
- Binswanger, Hans P. and Rosenzweig, Mark R. 1984: *Contractual Arrangements, Employment, and Wages in Rural Labor Markets in Asia*. New Haven: Yale University Press.
- Blaug, Mark 1973: *Education and the Employment Problem in Developing Countries*. Geneva: International Labour Office.
- Boissiere, M., Knight, J. B. and Sabot, R. H. 1985: "Earnings, Schooling, Ability, and Cognitive Skills." *American Economic Review*, Dec.
- Cain, Glen 1976: "The Challenge of Segmented Labor Market Theories to Orthodox Theory: A Survey." *Journal of Economic Literature*, Dec.
- Chenery, H. 1974: *Redistribution with Growth*. London and New York: Oxford University Press.
- Chenery, Hollis and Syrquin, Moises 1975: *Patterns of Development, 1950-1970*. New York: Oxford University Press.
- Chiswick, Barry 1971: "Earnings Inequality and Economic Development," *Quarterly Journal of Economics*, Feb.
- Clark, S. R., Hemming, R. and Ulph, D. 1981: "On Indices for the Measurement of Poverty." *Economic Journal*, June.
- Cline, William R. 1975: "Distribution and Development: A Survey of the Literature." *Journal of Development Economics*, Feb.

- Fei, John C. H. and Ranis, Gustav 1964. *Development of the Labor Surplus Economy*, Homewood, 111: Irwin.
- Fei, John C. H.; Ranis, Gustav; and Kuo, Shirley W. Y. 1978: "Growth and the Family Distribution of Income by Factor Components." *Quarterly Journal of Economics*, Feb.
- Fields, Gary S. 1978: "Analyzing Colombian Wage Structure." World Bank, Studies in Employment and Rural Development No. 46, May.
- Fields, Gary S. 1979: "Income Inequality in Urban Colombia: A Decomposition Analysis." *Review of Income and Wealth*, Sept.
- Fields, Gary S. 1979: "A Welfare Economic Approach to Growth and Distribution in the Dual Economy." *Quarterly Journal of Economics*, Aug.
- Fields, Gary S. 1980a: "Education and Income Distribution in Less Developed Countries: With the assistance of Jorge Ducci, World Bank, mimeo.
- Fields, Gary S. 1980b: *Poverty, Inequality, and Development*. New York: Cambridge University Press.
- Fields, Gary S. 1985: "Measuring Inequality Change in an Economy with Income Growth." Paper presented at the Econometric Society World Congress, Cambridge, 1985, forthcoming in *Journal of Development Economics*.
- Fields, Gary S. and Fei, John C. H. 1978: "On Inequality Comparisons." *Econometrica*, Vol. 46(2).
- Fishlow, Albert 1972: "Brazilian Size Distribution of Income." *American Economic Review*, May.
- Foster, James E. 1984: "On Economic Poverty: A Survey of Aggregate Measures." *Advances in Econometrics*, vol. 3.

- Foster, James E. Forthcoming: "Inequality Measurement." In Peyton Young (ed.) *Fair Allocation*, Proceedings of the Symposium in Applied Mathematics, American Mathematical Society.
- Foster, James E., Greer, Joel and Thorbecke, Erik 1984: "A Class of Decomposable Poverty Measures." *Econometrica*, May.
- Gordon, David M. 1973: *Theories of Poverty and Underemployment*. Lexington, Mass.: Heath, Lexington Books.
- Harris, John and Todaro, Michael 1970: "Migration, Unemployment, and Development; A Two Sector Analysis." *American Economic Review*, March.
- ILO (International Labour Office) 1970: *Towards Full Employment: A Programme for Colombia*. Geneva: ILO.
- Jain, Shail 1975: *Size Distribution of Income: A Compilation of Data*. Washington D.C.: World Bank.
- Kakwani, Nanak 1980: "On a Class of Poverty Measures." *Econometrica*, Mar.
- Klinov, Ruth 1986: "Labor Market Performance in LDCs, 1970-1984: A Cross-Sectional Analysis." World Bank, Development Research Department Working Paper.
- Kravis, Irving B. 1960: "International Differences in the Distribution of Income." *Review of Economics and Statistics*, Nov.
- Krueger, Anne O. 1981: *Trade and Employment in Developing Countries: Volume 1*. Chicago: University of Chicago Press for the National Bureau of Economic Research.
- Krueger, Anne O. 1986: "The Relationships between Trade, Employment and Development." Paper prepared for the Yale University Economic Growth Center Symposium, April.

- Kuznets, Simon 1955: "Economic Growth and Income Inequality." *American Economic Review*, Mar.
- Kuznets, Simon 1963: "Quantitative Aspects of the Economic Growth of Nations: VIII, Distribution of Income by Size." *Economic Development and Cultural Change*, Jan.
- Kuznets, Simon 1966: *Modern Economic Growth*. New Haven: Yale University Press.
- Leys, Colin 1975: *Underdevelopment in Kenya*. Berkeley: University of California Press.
- Meier, Gerald M. 1984a: *Leading Issues in Economic Development* (1st ed., 1964). New York: Oxford University Press.
- Meier, Gerald M. 1984b: *Emerging from Poverty: The Economics that Really Matters*. Oxford: Oxford University Press.
- Oshima, Harry 1962: "The International Comparison of Size Distribution of Family Incomes with Special Reference to Asia." *Review of Economics and Statistics*, Nov.
- Pant, Pitambar 1974: "Perspectives of Development, India, 1960-61 to 1975-76: Implications of Planning for a Minimum Level of Living." Reprinted in T. N. Srinivasan and P. K. Bardhan (eds), *Poverty and Income Distribution in India*, Calcutta: Statistical Publishing Society.
- Paukert, Felix 1973: "Income Distribution at Different Levels of Development: A Survey of Evidence." *International Labour Review*, Aug.
- Psacharopoulos, George 1973: *Returns to Education*. San Francisco: Jossey-Bass.
- Psacharopoulos, George 1981: "Returns to Education: An Updated International Comparison." *Comparative Education*, Vol. 17.
- Psacharopoulos, George 1985: "Returns to Education: A Further International Update and Implications." *Journal of Human Resources*, Fall.

- Pyatt, Graham and Thorbecke, Erik 1976: *Planning Techniques for a Better Future*. Geneva: International Labour Office.
- Pyatt, Graham; Chen, Chau-Nan; and Fei, John 1980: "The Distribution of Income by Factor Components." *Quarterly Journal of Economics*, Nov.
- Robinson, Sherman 1976: "A Note on the U Hypothesis Relating Income Inequality and Economic Development." *American Economic Review*, June.
- Saith, A. 1983: "Development and Distribution: A Critique of the Cross-Country U-Hypothesis." *Journal of Development Economics*, Dec.
- Seers, Dudley 1969: "The Meaning of Development." *International Development Review*, Dec.
- Sen, Amartya K. 1973: *On Economic Inequality*. Oxford: The Clarendon Press.
- Sen, Amartya K. 1976: "Poverty: An Ordinal Approach to Measurement." *Econometrica*, March.
- Sen, Amartya K. 1984: *Resources, Values, and Development*. Cambridge, Mass.: Harvard University Press.
- Shorrocks, Anthony 1983: "Ranking Income Distribution." *Econometrica*, Feb.
- Squire, Lyn 1981: *Employment Policy in Developing Countries*. New York: Oxford University Press.
- Srinivasan, T. N. and Bardhan, P. K. (eds) 1974: *Poverty and Income Distribution in India*. Calcutta: Statistical Publishing Society.
- Thon, D. 1979: "On Measuring Poverty." *Review of Income and Wealth*, Dec.
- Thornbecke, Erik 1973: "The Employment Problem: A Critical Evaluation of Four ILO Comprehensive Country Reports." *International Labour Review*, May.
- Todaro, Michael 1976: *International Migration in Developing Countries*. Geneva: International Labour Office.

Todaro, Michael 1985: *Economic Development in the Third World*, Third Edition. New York:
Longman.

Weisskoff, Richard 1970: "Income Distribution and Economic Growth in Puerto Rico, Argentina
and Mexico." *Review of Income and Wealth*, Dec.