Is Global Competition Making the Poor Even Poorer?

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In recent years a number of economic phenomena have caused dismay, but one in particular seems to justify for economics its hoary reputation as "the dismal science": average real wages have fallen, while the distribution of income has become less equal. This applies not just to the United States, but to a number of countries. At the same time, "globalization" has intensified, as national economies have become more closely connected, or integrated, through increased international commerce.

The correlation between rising income inequality and globalization has inspired suggestions that globalization may have depressed wages and exacerbated inequality, making the poor even poorer. For example, in mid-1993 the head of the U.S. Council of Economic Advisers declared, "Globalization has depressed the wage growth of low-wage workers. It's been a reason for the increasing wage gap between high-wage and low-wage workers" (quoted in Greenhouse 1993).

In addition, during the debate preceding congressional endorsement of the North American Free Trade Agreement, U.S. opponents of the Agreement alleged that free trade between the United States and Mexico would impoverish many low-income workers in the United States, but leave the well-to-do untouched. As Representative David Bonior put it, "Whose side are you on? . . . Are you on the side of the Fortune 500? Or are you on the side of the unfortunate 500,000 who will lose their jobs if NAFTA passes? . . . It's not fair to ask American workers to compete against Mexican workers who earn $1 an hour or less" (quoted in Rosenbaum 1993).

Paradoxically, similar concerns existed within Mexico. In the state of Chiapas, one reported cause of the rebellion was fear among peasants that NAFTA would depress their low farming incomes even further. This anxiety is understandable. Rising income inequality has not been limited to the United States, or even to the wealthiest countries; the gap between the rich and the poor has widened in at least some of the

countries with appreciably lower incomes, including Mexico.[1] Is it possible that globalization has generated greater inequality within the poorer as well as the richer countries?

To address these issues, this article first presents some summary data on globalization and income distribution. Consideration is then given to various explanations of increasing income inequality, including globalization. The primary purpose is to present a concise summary and evaluation of published research into this complex issue, although new ground is also broken. Some recommendations for policy conclude the article. Many countries are included in the analysis, with most attention given to the advanced industrial countries, especially the United States.

I. Globalization and Income Distribution: Some Summary Measures

Measuring the inequality between the incomes received by only two people is a simple matter (once income has been defined in a measurable way), but summarizing the inequality of the different incomes received by a large number of people is much more difficult. An informative summary measure must convey an impression of the dispersion of incomes, of the degree to which incomes vary across the population. For example, one might ascertain the level of income that is exceeded by all but 20 percent of the population, and also the higher level of income that is attained or exceeded by only 20 percent of the population. The ratio of the two income levels—of the top 20th percentile to the bottom 20th (or of the top quintile to the bottom quintile)—would be one index of inequality, or dispersion.

Alternatively, one might compute the percentage share of the population's total income that accrues to those in, say, the top 20 percent and the share accruing to those in the bottom 20 percent. Significant inequality would be present if the top 20 percent received substantially more, or the bottom 20 percent received substantially less, than 20 percent of the population's total income. Other measures could be, and are, employed.[2]

Although different researchers have used different measures of inequality, and of income, a common finding is that inequality has increased in recent years. Much of the research has focused on the United States. One such study, by Kevin Murphy and Finis Welch (1993), reports that hourly wage inequality among men in the United States increased continuously and smoothly from 1969 to 1990, latest year covered by the study. Another, by Sl don Danziger and Peter Gottschalk (1993, pp. 6 & notes a rise in family income inequality over appı imately the same period. For those who beli consumption to be a better measure of welfare tl money income, David Cutler and Lawrence K (1992) report that changes in the distribution consumption during the 1980s paralleled change: the distribution of income.

Significant inequality exists between countries as well as within them.

A graphic representation of U.S. household perience is presented in Figure 1. For this ch households were ranked from lowest income to hi est and then divided into five groups of equal s This procedure reveals that between 1967 and 1 the share of total household income received by top fifth of the households rose from 43.8 percen 46.9 percent, while the shares received by the mid three-fifths and the bottom fifth fell from 52.3 perc to 49.4 percent and from 4.0 to 3.8 percent, resp tively. Moreover, this trend has been more p nounced in the latter part of the period; in fact, share of the bottom fifth rose slightly during the 10 years.

Studies of foreign countries have also discove a general tendency toward rising inequality.[3] On the latest and most comprehensive analyses, p lished by the Organisation for Economic Cooperat and Development (1993), scrutinized data on wc ers' earnings for 17 OECD member countries found increases in inequality in 12 of them during 1980s. The increases were generally small, howe except in the United Kingdom and the United Sta Only in Germany did inequality decline.

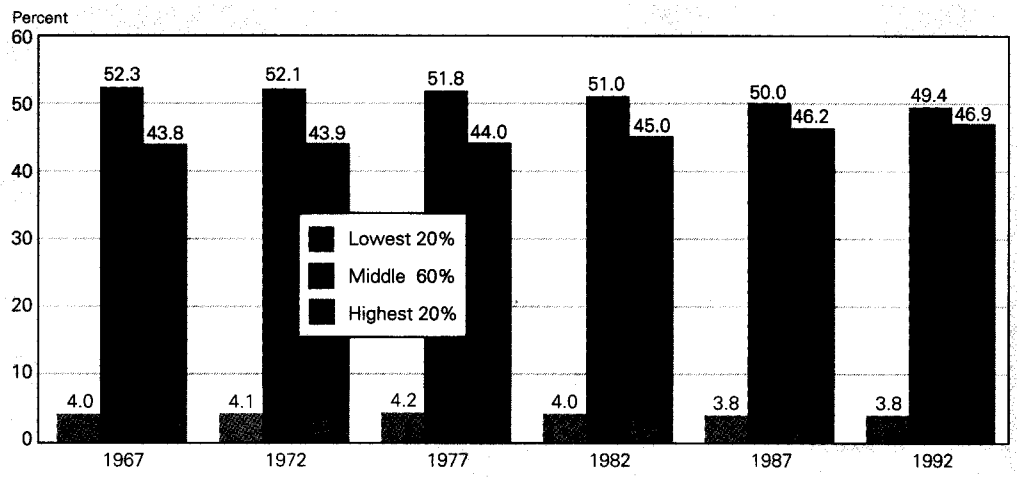
[1] See *Review of the Economic Situation in Mexico*, vol. LXX, 821 (April 1994), pp. 175–76.

[2] For a succinct discussion of methods of measuring inec ity, see Organisation for Economic Cooperation and Developm *Employment Outlook July 1993* (Paris: OECD, 1993), pp. 179–81

[3] See, for example, Blau and Kahn (1994), Katz, Loveman, Blanchflower (1993), and Green, Coder, and Ryscavage (1992 well as sources cited below.

Figure 1

Share of Aggregate U.S. Household Income, by Quintile: 1967 to 1992



Source: U.S. Bureau of the Census, *Money Income of Households, Families, and Persons in the United States: 1992*, p.xviii.

Some key findings of the OECD study are summarized in Figure 2, which relates to male workers, for whom the greatest number of countries report data. The underlying data are for deciles, with the first decile (D1) defined as the upper limit of the earnings of the bottom tenth of earners, the fifth decile (D5) as the earnings level on either side of which 50 percent of all earners lie, and the ninth decile (D9) as the lower limit of the earnings of the top tenth of earners.

As shown in this chart, during the 1980s the ratio of the ninth to the fifth decile rose in all of the 12 countries included except the Netherlands and Sweden, while the ratio of the first to the fifth decile fell in 8 of the countries.[4] By these measures, then, a general tendency toward greater inequality prevailed. A widespread tendency existed for the highest earners to earn more relative to those in the middle, accompanied by a somewhat less pervasive tendency for the lowest earners to earn less compared to those in the middle.

Of course, significant income inequality exists between countries as well as within them. In Figure 3, which summarizes data for 94 countries, it can be seen that 30 had a total output per capita of less than $2,000 in 1990, while at the opposite end of the spectrum a few enjoyed output per capita in excess of $20,000. Moreover, the degree of inequality in per capita GDP increased during the 1980s. From 1980 to 1990 the ratio of the top quintile to the bottom quintile among these countries rose from 9.9 to 12.3, and the coefficient of variation (another measure of dispersion) among the per capita GDPs rose from 88 to 98.

The general increase in inequality has occurred at a time of increasing globalization, or integration, of the world economy, as commerce between nations has grown more rapidly than world output. For example, between 1967 and 1993 the volume of world trade expanded at a compound annual rate of 5.3 percent, while world output grew at a rate of 3.4 percent.[5] And for many nations the value of their exports and imports has risen in relation to their total output.

This correlation between the increases in globalization and in inequality has fueled speculation that the former has contributed heavily to the latter. Is this speculation correct, or are factors other than globalization responsible?

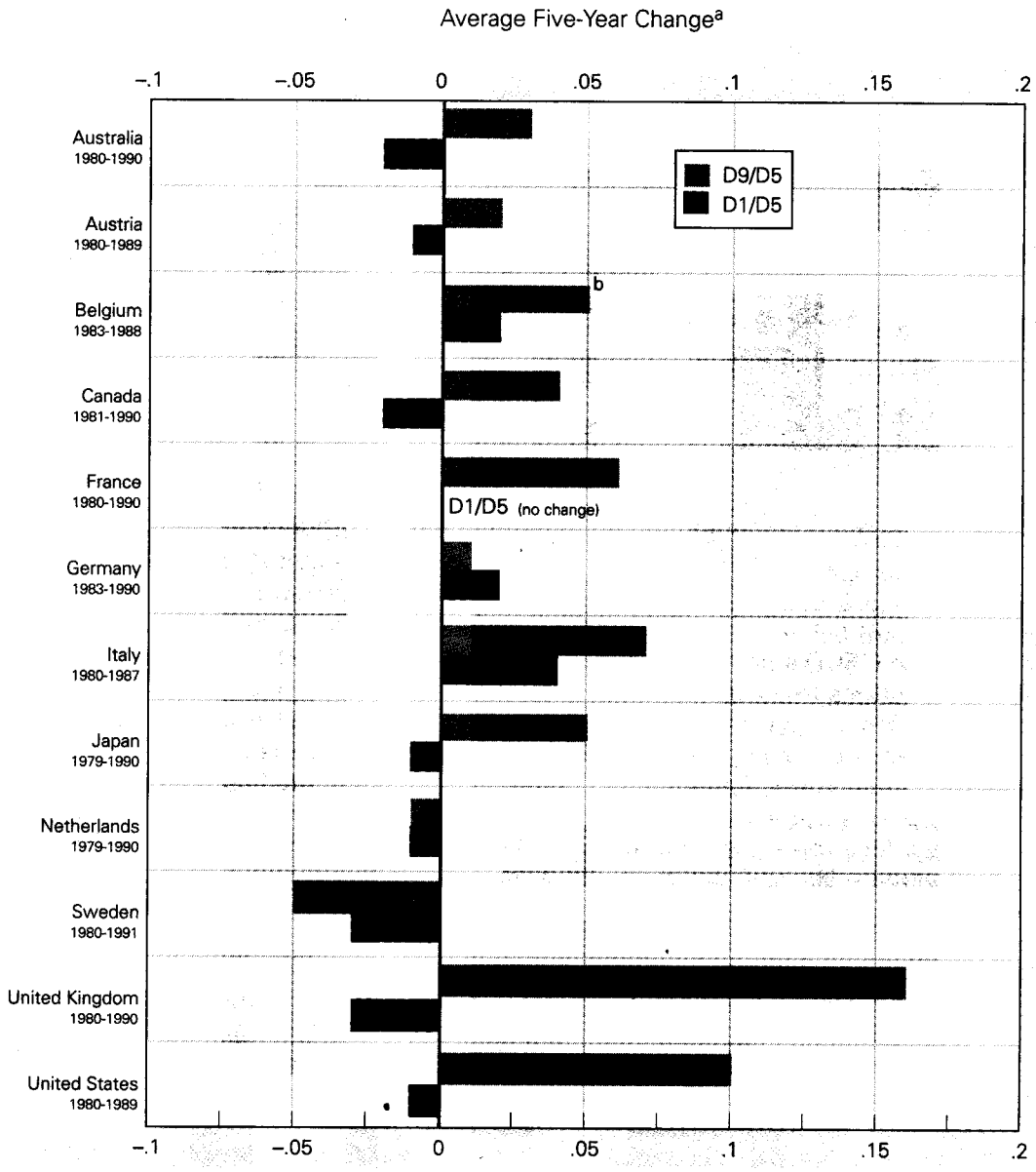
To explain changes in price, economists commonly invoke the law of supply and demand. The

[4] For Belgium, the eighth decile is used as a substitute for the ninth.

[5] International Monetary Fund, *World Economic Outlook*, various issues. Washington: IMF.

Figure 2

Changes in Ratios of Earnings Deciles for Men in the 1980s



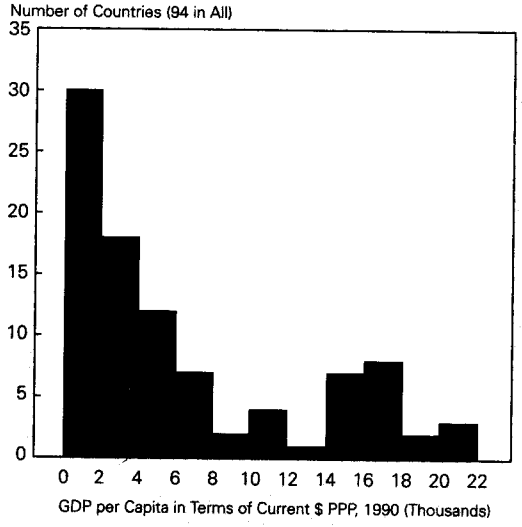
[a] Average annual arithmetic change in the ratios, over period shown, on a five-year basis.
b D8/D5.
Source: OECD, *Employment Outlook*, July 1993, Table 5.2, pp. 159-161.

price, or earnings, of labor is no exception. Thus, the following sections consider various factors, including globalization, that might have influenced the supply and demand for different categories of labor so as to generate significantly greater inequality. Because the relevant data for less-developed countries are very limited, most of the discussion relates to the advanced industrial nations.[6]

[6] Of the various sources tapped for this discussion, the most valuable was Organisation for Economic Cooperation and Development, *Employment Outlook July 1993*, pp. 157–77.

Figure 3

GDP per Capita in Terms of Current $ Purchasing Power Parity, 1990



Source: Summers, Robert and Alan Heston, *Penn World Table*, 1993.

II. Supply-Side Influences

Many factors can change the relative supply of different types of workers. Among the factors commonly deemed potentially most important are changes in the age and educational composition of the work force, including the effects of immigration, and changes in the organization, especially unionization, of the work force.

Immigration

An influx of skilled immigrants could lower the relative remuneration of skilled workers in a country, while an influx of unskilled could have the opposite effect. During the 1980s the great majority of the advanced industrial countries recorded net immigration. As the job-seekers among these immigrants usually competed for low-skilled, low-paying positions, the likely net impact was to contribute to the rise in inequality.

The size of the impact was probably small, however, with the possible exception of the United States. The United States experienced not only relatively sizable immigration, but also a substantial illegal component of generally unskilled and inexperienced job-seekers. While this influx surely operated to reduce the earnings of the less skilled relative to those of more skilled workers, the influx could hardly have been large enough to account for all, or even most, of the reduction that occurred (Bound and Johnson 1991, esp. pp. 83–84).

Other industrial countries generally absorbed comparatively fewer immigrants. Moreover, Italy, Portugal, and Spain, which absorbed relatively large numbers from less-developed countries, did not experience exceptional increases in earnings inequality. Thus, as the OECD study notes, immigration probably played a minor role in generating greater inequality within the industrial countries as a group.

Changes in Age Composition

During the early 1980s the populations of many industrial countries included relatively high numbers of 15- to 24-year-olds. Their entry into the work force could be expected to place downward pressure on the comparatively low pay typically received by young and inexperienced workers, thereby widening the degree of inequality. Indeed, the relative earnings of the young did decline during the decade in a number of these countries.

More than age may have been at work, however. As these "baby boomers" aged and the relative supply of 15- to 24-year-olds decreased during the latter 1980s, the comparative wage paid to these young workers might have been expected to recover. Noting that such wage recoveries were not universal and did not occur in the United States, analysts have suggested that it was relatively weak demand for less educated workers—including the typical young person—rather than mere inexperience, that may have depressed the comparative earnings of this age group.

Changes in Educational Composition

With regard to this matter of education: on the supply side, a marked rise occurred in the percentage of the work force with college education in industrial countries during the 1980s. As reported in Table 1, this rise ranged from roughly 2 to 6½ percentage points for the countries for which data are readily available. Other things equal, it would seem that the relative remuneration of these highly educated workers should have declined as their relative numbers grew.

That this decline did not generally ensue is obvious in Table 2, which includes the countries from

Table 1
Percentage of Work Force or Population with College Education

Country and Population Group	Year and Percent	
Australia: for full-time, full year	1981–82	1988–90
males in work force	9.1	13.4
France: for males over 15 years	1980	1989
of age	8.3	11.8
Germany: for working-age	1982	1989
population	7.4	9.4
Japan: for all employees	1979	1990
	17.9	22.5
Sweden: for total labor force	1980	1989
	16.6	23.1
United Kingdom: for total	1979	1989
population aged 16 to 60	12.0	18.3
United States: for total population	1979	1989
aged 18 to 64	16.6	21.5

Source: Organisation for Economic Cooperation and Development, *Employment Outlook July 1993* (Paris: OECD, 1993), p. 172.

Table 2
Change in Ratio of Earnings of College-Educated to Earnings of Less Educated, for Men

Country and Educational Groups	Initial Year and Ratio Value	Terminal Year and Ratio Value	Five-Year Annual Average Change in Ratio[a]
Australia: University/trade	1982:[b]	1990:[b]	+.03
Japan: College/upper high school	1979:1.26	1987:1.26	.00
Sweden: University/post-secondary	1981:1.16	1986:1.19	+.03
United Kingdom: University/no qualification	1980:1.53	1988:1.65	+.08
United States: College/high school	1979:1.37	1987:1.51	+.09

[a]Average annual arithmetic change in the ratios calculated on a five-year basis.
[b]Ratio values not supplied by OECD.
Source: Organisation for Economic Cooperation and Development, *Employment Outlook July 1993* (Paris: OECD, 1993), p. 171.

Table 1 for which earnings data by educational level could be obtained. In fact, increases rather than decreases were the rule. Among these five countries, the United States and the United Kingdom experienced the greatest increases in relative earnings of college-educated men, even though they also experienced substantial increases in their proportions of college-educated workers.

Again, it seems clear that demand as well as supply-side influences must be taken into account if the rise in inequality is to explained. First, however, one more supply-side factor will be considered.

Organization of the Work Force

Whether and how the work force organizes to bargain over the terms on which it supplies its labor could have a pronounced effect on the degree of earnings inequality. Thus, changes in the extent of unionization often receive attention in studies of changing inequality. As a general rule, countries with more highly unionized work forces exhibit lower degrees of inequality. Moreover, the widespread rise in inequality during the 1980s was accompanied by a fall in unionization rates in nearly all industrial countries, including the United States.

How much of the increased inequality should be attributed to diminished unionization is questionable, however. Diminished unionization may be not so much a cause of increased inequality as a consequence of other changes that not only reduced unionization rates but enhanced the bargaining power of skilled relative to unskilled workers more generally. These changes include the shift away from standardized production systems toward "non-standard" forms of work (a shift facilitated by more sophisticated computers), the shift of employment toward the service sector (with its smaller firms commonly not unionized), and the adoption by many governments of more conservative, freer-market policies.

III. The Role of Demand

As has been noted, the relative earnings of the college-educated rose during the 1980s even though they came to account for a larger proportion of the work force. This outcome implies that the demand for increases in the college-educated proportion may

have been growing faster than that proportion. Among the factors commonly suspected of generating this growth in demand are the business cycle, shifts in demand between industries, international trade, and technological progress.

The Business Cycle

Recessions might be expected to boost the relative earnings of skilled workers. The fact that the unskilled are more likely to be laid off seems to imply that the demand for their services weakens relative to that for skilled workers. Also, skilled workers may compete for jobs that in better times would be left to the unskilled, putting further downward pressure on the relative wages of the unskilled. During recoveries this process would reverse, and the relative earnings of the unskilled would tend to recover.

In general, earnings inequality rose, rather than declined, in industrial countries during the second half of the 1980s, even as unemployment rates declined.

While this process may be at work, the effects it might have generated have been outweighed by other influences. In general, earnings inequality rose, rather than declined, in industrial countries during the second half of the 1980s, even as unemployment rates declined. The United Kingdom and the United States stand out for marked increases in inequality during all phases of the economic cycles of the decade.

Shifts in Demand between Industries

Another factor that would operate to raise the relative earnings of skilled labor would be a shift in demand favoring relatively more employment in industries utilizing largely skilled labor and relatively less employment in other industries. In fact, shifts in employment between industries accounted for only a small part of the overall increase in relative earnings of skilled labor during the 1980s in virtually all of the countries for which data are readily available. Much more important was the increase in inequality *within* industries. Corresponding to this fact, the proportio of college-educated workers rose within all sectors c the economies of such countries.

Thus, shifts in employment from the manufac turing sector to the service sector—sometimes labele "deindustrialization"—seem unlikely to account fo the increase in inequality. Other explanations hol more promise.

International Trade: Preliminary Considerations

Both economic theory and common intuitio suggest that trade with less-developed countrie could lower the relative wages of the unskilled i industrial countries. The ratio of unskilled to skille workers is lower in industrial than in less-develope countries, and the supply of goods produced b unskilled workers is also relatively smaller. Thus other things equal, industrial countries demanc products made with comparatively large inputs o unskilled labor from the less-developed countries while the latter demand the products of skilled labo in exchange; and this pattern of reciprocal interna tional demand operates to reduce the relative earn ings of the unskilled in industrial countries and t raise them in the less-developed.

Persuasive as this argument may be, it rests o assumptions that may well be invalid. For example it assumes that both the composition of demanc for various goods and the techniques of productio are the same (or inconsequentially different) in less developed as in industrial countries. Even mor extreme assumptions are required to support a argument that trade with less-developed countrie reduces the *level* of the real wage, not just the *relativ* wage, of the unskilled in industrial countries.

Aside from the theorizing, quantitative analyse of the impact of trade have yielded differing results. The weight of expert analysis has held that trade ha had only a minor influence on income distribution, but this view is far from universal. The next section consider the two most extensive—and conflicting— empirical studies of this issue.

An Argument That Trade Has Increased Inequality

In an imposing new book, Adrian Wood, a British economist, argues that trade with developing countries has significantly depressed the earnings of unskilled labor in the advanced countries. To begin with, Wood (1994) points out that the developing countries increased their exports of manufactures to

the advanced countries at a rapid rate—about 15 percent per year in real terms—between 1960 and 1990. (He might also have noted that manufactures from developing countries have comprised a rapidly growing share of all manufactured imports into developed market economies, rising from 4.8 percent of the total in 1970 to 8.6 percent in 1980 and 13.7 percent in 1990.)[7] This growth he attributes chiefly to a reduction in barriers to trade, including reductions in transportation and communication costs as well as in tariffs and other government restrictions.

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Almost without exception, previous analyses have found such trade to have little impact on labor markets in industrial countries. Wood asserts that these studies grossly underestimate the true impact, often because of a mistaken assumption about the labor content of goods imported by the advanced countries from developing countries. The studies commonly assume the labor content of these imports to be the same as the labor content of comparable categories of goods manufactured in the advanced countries. However, these supposedly comparable categories are seldom identical to the developing country goods, which have generally gone out of production in the advanced countries under competition from developing countries. Production of truly identical goods in the advanced countries would require much more unskilled labor than the comparable (but not at all identical) categories of goods that have survived the competition from developing countries. Thus, previous studies greatly underestimate the impact of goods from developing countries on relative wages in the advanced countries.

To avoid this alleged error, Wood calculates new estimates of the unskilled labor that would be needed in the advanced countries to duplicate and replace their manufactured imports from developing countries. The estimates are based on measures of labor input used in the developing countries, adjusted to reflect the effect on that labor input that would be exerted by differences in relative labor (and capital) prices between the advanced and developing countries. On the basis of these new estimates, the growth of trade in manufactured goods between the advanced and developing countries is said to have brought about a cumulative reduction in the demand for unskilled labor of about 9 million person-years in manufacturing in the advanced countries as of 1990.

Even this figure is claimed to be too low, however, on two counts. First, it fails to recognize that advanced country manufacturers, under competitive pressure from the developing countries, have made innovations that economize on unskilled labor. Such innovation is estimated to have diminished the demand for unskilled labor in advanced country manufacturing by roughly another 9 million person-years. Second, the figure should be enlarged to encompass the impact on the services industries in the advanced countries, both the industries that supply services to manufacturers there and face no international competition and also the services industries that face competition from the developing countries.

With these two corrections, the total reduction in demand for unskilled labor in the advanced countries is said to be roughly 36 million person-years, equivalent to a reduction in demand for unskilled relative to skilled labor of approximately 20 percent. Although this estimated shift in demand took place over three decades, it was concentrated in the 1980s. According to Wood, this shift was the main cause, on the demand side, of the increased inequality during the 1980s between the earnings of the skilled and the unskilled.

Central to Wood's analysis is his calculation of the labor content that would be required in the advanced countries to duplicate and replace the manufactured goods imported from the developing countries. The calculation assumes that the methods used to produce those goods in the developing countries are essentially the same as would be used in the advanced countries, the only difference being that developing country producers would use, say, eight hours of unskilled and two hours of skilled labor to manufacture a product that advanced country producers would make with, say, four hours of unskilled and three hours of skilled labor—the difference being attributable not to any difference in the technology

[7] See United Nations Conference on Trade and Development, *Handbook of International Trade and Development Statistics 1992* (New York: United Nations, 1993), p. 94.

used but to the relatively lower wage of unskilled labor in the developing countries.

However, it seems unlikely that the advanced countries use, or would use, the same technology as the developing countries to produce all, or even most, of the goods that are shipped from the developing to the advanced countries. For one thing, so much labor would be used in the advanced countries that the goods might well become prohibitively expensive.[8] In addition, research has discovered sizable and persistent gaps across even the advanced countries in both labor and total factor productivity by industry, a finding consistent with significant technological differences (Golub 1994, p. 289). Finally, it might be noted, the more closely the developing countries have in fact duplicated the technology of the advanced countries, the slimmer the grounds for classifying them in a lower stage of development and assuming that they have an abundance of unskilled workers.

A Contrary Analysis of the Impact of Trade

An alternative approach to analyzing the impact of international trade on inequality starts by examining the behavior of certain prices believed to be closely related to relative wages. As already noted, it seems that less-developed countries relatively well-endowed with unskilled labor should export manufactures made largely by such labor to the advanced countries, while the latter should export in return manufactured items made with comparatively greater inputs of skilled labor. As a consequence of such trade, in the advanced countries the price of goods with a comparatively large unskilled-labor content would tend to fall relative to the price of goods with a comparatively large skilled-labor content, and the relative wage of unskilled labor would also decline. By contrast, in the less-developed countries, such trade would tend to lower the relative price of goods with a comparatively large skilled-labor content, and thus to lower the relative wage of skilled labor. By this line of reasoning, if trade is to be held responsible for the decline in relative earnings of the unskilled in advanced countries, one should observe a decline in those countries in the relative prices of goods with comparatively large unskilled-labor content.

In fact, no such relative price decline is evident, at least for the United States, according to a recent analysis by Lawrence and Slaughter (1993). On the contrary, the relative price of traded goods produced with comparatively large inputs of unskilled labor rose slightly, rather than declined, in this country during the 1980s. By this test, then, international trade did not contribute to the rise in inequality.

A related test can also be performed. If trade had driven down the relative cost of employing unskilled labor, industries should have raised the ratio of unskilled labor to skilled labor that they employ, other things equal. It would be possible for all industries to make this shift, even though the labor force remained unchanged, by altering the proportions in which total output is divided among them. Industries employing comparatively large ratios of unskilled labor would contract their output under competition from similar industries in the less-developed countries, although the overall proportion of unskilled among the work force they retained would rise because of the relatively lower wage now paid such workers. Other industries would raise the ratio of their unskilled to skilled labor by absorbing the comparatively large numbers of unskilled workers released from the contracting industries.

Again, not this shift, but the opposite shift, was detected by Lawrence and Slaughter. Throughout U.S. manufacturing a pervasive decline has occurred in the ratio of unskilled to skilled labor. And again, international trade seems exonerated of the charge of generating greater inequality.

These findings are not conclusive, however. It is possible that trade with less-developed countries did tend to influence prices so as to generate greater inequality, but that this influence was offset by other forces. Lacking convincing evidence of such a phenomenon, many analysts speculate that technological change, rather than international trade, played the leading role—but not the sole role—in raising the relative earnings of those near the top of the earnings distribution.

Technological Change

Technological progress, or advances in know-how, can take various forms. If it raises the output of the typical skilled worker relative to that of the unskilled, the demand for skilled workers will grow compared to that for the unskilled, other things

[8] Richard N. Cooper, "Foreign Trade, Wages and Unemployment," unpublished paper, Harvard University, Cambridge, MA, July 1994. Cooper estimates that increased import competition from developing countries accounts for only 10 percent of the relative decline in wages of U.S. unskilled workers during the 1980s.

equal, thereby raising the relative earnings of the skilled.

Several pieces of evidence suggest that such "skill-biased" technological progress may well have taken place during the 1980s in the advanced countries. First, the relative earnings of the skilled rose even though the relative supply of these workers also grew. Second, the relative earnings of the skilled rose *within* virtually every industry. Finally, the relative earnings of highly educated workers and the share of highly educated workers as a percentage of total employment are highest in the most technologically advanced industries, such as those using sophisticated computers.

Many analysts speculate that technological change, rather than international trade, played the leading role—but not the sole role—in raising the relative earnings of those near the top of the earnings distribution.

One problem with this explanation of the increase in inequality is that in some countries inequality increased not only between groups of workers with different measured skill levels, but also among workers in the same skill groupings. It may well be, however, that the measured skill groupings are so broad as to conceal significant within-group skill differentials, and that the increased within-group inequality merely reflects the growth in relative demand for the more skilled at all levels. •

Other problems in relying on technological change as the primary explanation are not so easily dismissed. For one thing, direct measures of technological change are not available to support the explanation; one must rely on indirect evidence. For another, the slow growth in productivity and real wages in many advanced countries during the 1980s somewhat undermines the hypothesis that technological progress has been a powerful force.

What does seem likely is that the same causal forces have been at work in many advanced countries, in view of the widespread nature of the increase in inequality. The cross-country experience with inequality is examined further in the next section.

IV. Casting a Wider Net: A Preliminary Investigation

The preceding discussion has focused on the advanced countries, primarily because much more of the relevant data are available for them than for the less-developed countries. Nonetheless, some useful data are available for the less-developed countries, and these data, together with data for the advanced countries, permit an examination of a much wider range of experience than that in the advanced countries alone. Casting the exploratory net over more countries may yield additional insight, even though the broader data base leaves much to be desired.

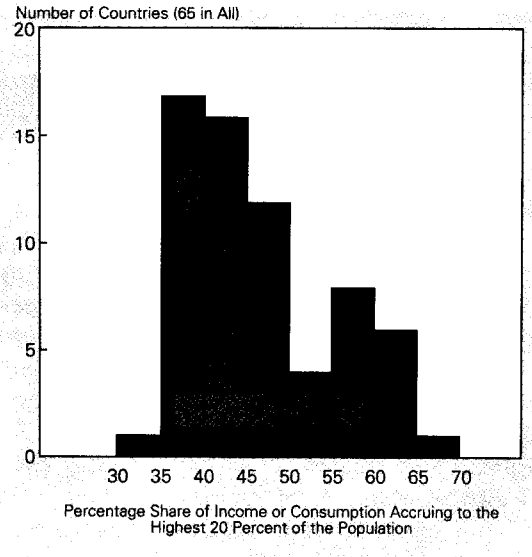
As stated at the beginning of this article, inequality can be measured in different ways. The measure that has been published and that will be used for the broad range of countries examined here is the percentage share of the population's total income or consumption expenditure accounted for by those in the highest 20 percent of income recipients or consumption spenders, on the one hand, and by those in the lowest 20 percent, on the other hand. Because this measure was not compiled for all countries in the same way or for the same year, only rough comparisions across countries can be made.

As can be seen in Figures 4 and 5, the 65 countries for which this measure is available have varied considerably in their degree of inequality. In a few countries, the top 20 percent of the population has received as much 60 to 70 percent of the total income or consumption, although the most typical proportions have been 35 to 45 percent. At the other extreme, in some countries the bottom 20 percent of the population has received as little as 1 to 3 percent of the total income or consumption, with the typical proportions ranging between 5 and 7 percent.

What accounts for this variation from one country to the next? The answer to this question should help us to discover what causes changes in inequality over time within individual countries. The preceding discussion has cited a number of influences, or variables, that could generate inequality. For some of these variables, lack of data prevents their inclusion in a comprehensive statistical analysis, but for a number of key variables the data are available for many countries. Specifically, in an attempt to explain some of the variation in inequality across countries,

Figure 4

Percentage Share of Income or Consumption Accruing to the Highest 20 Percent of the Population



Source: *World Development Report 1994*, World Bank (1994), Table 30.

the analysis undertaken in this section utilizes data for the age and educational composition of the population of each country, for the share of the country's output that consists of services, and for the extent of the country's integration into the world economy.

With respect to age, it is commonly assumed that a worker's earnings generally rise with age during his or her productive working lifetime, since age usually brings experience and seniority. But if experienced workers become relatively numerous, competition among them will tend to decrease the share of the total income accruing to the higher earners. Accordingly, this analysis posits that as the percentage of the population aged 40 to 64 rises, the share of the population's income accruing to the top 20 percent declines, other things equal.

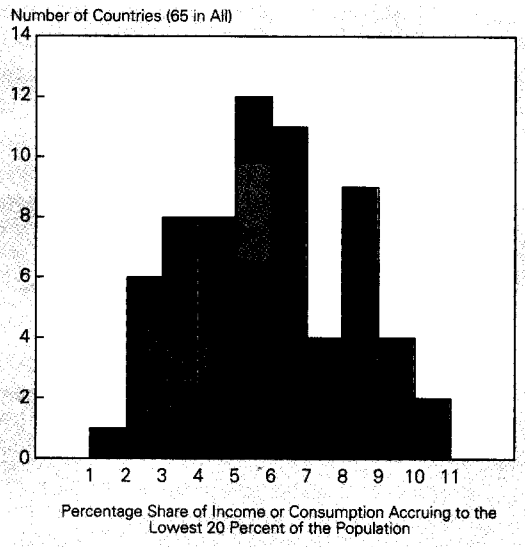
Similar reasoning applies to the relationship between the percentage of the labor force that is well-educated and the percentage of income that is received by the top quintile of the population. Thus, the latter percentage is expected to diminish as the well-educated become relatively more numerous, unless offsetting influences prevail. For the broad spectrum of countries being considered, a well-educated member of the labor force is here defined as a person aged 25 or older who has completed at least secondary education.

It may be that a country's relative demand fo skilled workers grows as the country concentrate more on the production of services and less on th production of goods. This is not to say that "deindus trialization" as such begets inequality, but that th transition to a more service-oriented economy i associated with a comparatively greater demand fo many types of skilled labor. Thus, the present anal ysis examines whether the share of income receive by the top 20 percent of the population tends to ris with the share of the country's output consisting o services.

Last but by no means least is the relationshi between globalization and inequality. One measur of the degree to which a country has become "glob alized" is the ratio of its international trade in good and services to its total output. This ratio is a genera index of the country's integration or interdependenc with the world economy. The question addresse here is whether the share of income accruing to th

Figure 5

Percentage Share of Income or Consumption Accruing to the Lowest 20 Percent of the Population



Source: *World Development Report 1994*, World Bank (1994), Table 30.

top 20 percent of the population rises as this measure of globalization rises, other things equal.

The results of the analysis, which are reported in more detail in the appendix, reveal statistically significant relationships of the kind expected between the share of income or consumption accruing to the top 20 percent of the population, on the one hand, and the measures employed for age, education, and services, on the other hand, for the 48 countries that could be included.[9] From country to country, the income share going to the top quintile tends to fall as increases occur in the percentage of the population aged 40 to 64 and in the percentage of the population aged 25 or over with at least a secondary school education. Also, that income share tends to rise with the percentage of the country's gross domestic product that consists of services. However, no significant relationship was discovered between the income share of the top 20 percent and the degree of globalization.

Analysis reveals statistically significant relationships between the share of income or consumption accruing to the top 20 percent of the population and the age of the working population, the percentage that is well-educated, and the share of output consisting of services—but not the degree of globalization.

These results generally correspond with the views expressed in other studies of inequality. Like those studies, the analysis undertaken here is handicapped by the lack of a reliable measure of technological change, and would have to appeal to some unmeasured phenomenon such as technological change to explain the bulk of the variation observed in internal inequality across countries.

V. Conclusion

Within many countries, the incomes received by the inhabitants became less equal during the 1980s. Among the possible explanations, immigration flows and changes in the age composition of the population, and perhaps changes in the organization of the work force, seem to have influenced the supply of labor so as to engender higher inequality in at least some of the advanced countries. For most analysts, however, the key factor has been skill-biased technological change, which presumably has rapidly raised the relative demand for skilled labor.

Convincing evidence has not yet been marshaled to support the hypothesis that increased globalization has contributed substantially to greater inequality. But globalization remains suspect, and if it is believed to have this effect, what would be the proper policy response? It is easier to specify what should not be done than to specify what should be done.

Protectionist measures that would limit the degree of globalization, or of world economic integration, should be eschewed, because increasing integration surely benefits the world economy by introducing greater efficiency, thereby raising world output per capita. If increasing inequality is judged undesirable, measures should be considered to redistribute income with minimal impairment of incentives and efficiency. And if the relative demand for skilled labor is in truth rapidly increasing, that fact bolsters the case for enhancing the quality of education and specialized occupational training (understandably, a favorite recommendation of academic researchers).

Prudence would favor keeping an open mind on the question of what has produced the rising inequality observed in so many countries. Research into the issue has been largely probing, preliminary in nature, and definitive answers have yet to be discovered. As with many other complex social phenomena that economics tries to unravel, satisfactory explanations do not come easily.

[9] Simultaneity may be present, but probably not crucially, in the equation specified in the appendix.

Appendix

Following is the estimated regression equation discussed in the section entitled, "Casting a Wider Net: A Preliminary Investigation." Forty-eight countries were included in the estimation, with data primarily for the 1980s. T-statistics are in parentheses and, if starred, are significantly different from zero at the 0.05 level under the one-tail test appropriate for the hypotheses under consideration.

$$H20 = 53.35 - 0.90A - 0.20E + 0.27S + 0.03I; \ \bar{R}^2 = 0.46;$$
$$(7.89) \quad (-4.24)^* \quad (-1.74)^* \quad (1.94)^* \quad (0.52)$$

where

H20 = percentage share of income or consumption expenditures attributable to the highest 20 percent of the population;
A = percentage of population aged 40–64;
E = percentage of population aged 25 or over having completed secondary or higher education;
S = services production as a percentage of GDP; and
I = ½ (exports + imports) as a percentage of GDP, a measure of integration.

Sources of data:

H20: World Bank, *World Development Report 1994: Infrastructure for Development* (New York: Oxford University Press, 1994), Table 30: Income distribution and PPP estimates of GNP, pp. 220–21.

A: Bos, Eduard, My T.Vu, Ann Levin, and Rodolfo A. Bulatao, *World Population Projections 1992–93 Edition Estimate and Projections with Related Demographic Statistics* (Baltimore: The Johns Hopkins University Press, 1992) (diskette).

E: Barro, Robert J. and Jong-Wha Lee, *International Comparisons of Educational Attainment*, NBER Working Paper No. 4349 (Cambridge, MA: NBER, July 1993) (diskette).

S: World Bank, *World Development Report* (New York: Oxford University Press, various years), Table 3: Structure of production.

I: International Monetary Fund, *International Financial Statistics* (Washington, D. C.: International Monetary Fund, December 1993); International Monetary Fund, *International Financial Statistics* from FAME database; and International Monetary Fund, *International Financial Statistics Yearbook 1993* (Washington, D. C.: International Monetary Fund, 1993).

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