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# Globalization, Technology, and Income Inequality

## A Critical Analysis

Ajit Singh and Rahul Dhumale

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This is a revised version of the paper 'Trade, Technology, Institutions and Social Norms: A Perspective on the Determinants of Income Inequality', which was presented at the UNU/WIDER workshop on Rising Income Inequality and Poverty Reduction: Are they Compatible? in Helsinki in December 1999. The authors are grateful to the workshop participants, and particularly to Professor Giovanni Andrea Cornia for his detailed and helpful comments. Their intellectual debt to him and to Professor A. B. Atkinson is reflected in the paper. However, the usual disclaimer applies.

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# ABSTRACT

Much of the vast literature on changes in income distribution in advanced countries during the last two decades attributes these either to globalization (specifically in the form of trade liberalization with low-wage developing countries), or to skill-biased technology, or to a combination of the two. A transatlantic consensus has emerged to suggest that these two factors have led to reduced relative demand for unskilled labour and to an increase in that for skilled workers. This in turn leads to a unified explanation of income inequality in the US and the UK (because of the greater labour market flexibility in these two countries) and mass unemployment in continental Europe (owing to their rigid labour markets). The paper challenges this transatlantic consensus both on analytical and empirical grounds. The central result of the present study with respect to developed countries is that neither trade nor technology are necessarily the most important factors in causing increased income inequality in the recent period. Although there is still considerable theoretical controversy surrounding this issue, there is robust empirical evidence to indicate that the concentration on these two factors to the exclusion of others is not justified. The paper highlights the role of social norms, economic institutions, as well as variations in employment, in causing the observed changes in income distribution.

With respect to developing countries, the paper suggests that there is not sufficient empirical evidence for establishing robust conclusions. Available data indicates that globalization (in the form of financial liberalization rather than trade) and technology are both likely to be significant factors in accounting for the increased inequality in developing countries during the last two decades. However, there is no reason to believe that the contribution of the other relevant factors (e.g. social norms, labour market institutions such as unions and minimum wages, macroeconomic conditions) is likely to be any less important in explaining the observed distributional changes in poor countries.

The analysis of this paper naturally leads to a rather different policy perspective from that of economists who attribute changes in income distribution mostly to globalization and technology.

# I INTRODUCTION

This paper provides a critical analysis of some widely accepted explanations for the significant changes in income distribution that have occurred in many countries during the last two decades. The subject has attracted a great deal of attention from economists. However, much of this vast literature emphasizes the role of globalization and technology, either singly or together, as the primary influence(s) on income distribution during this period, particularly in advanced countries. The paper assesses the validity of these propositions and provides an alternative analytical and policy perspective. It also considers whether these globalization and/or technology theses can be applied to developing countries.

An analysis of the relationship between income inequality, globalization and technological change raises complex theoretical, empirical, and policy questions. There are disputes about facts as well as the evidential value of some of the facts which are adduced in support of particular theories. At the analytical level, there are not only distinct approaches from the various fields of economics (labour economics, international economics) to these questions but, also within each field, there are diverse schools of thought.

In developed countries issues of globalization, technology, and relative wages in rich and poor countries are not merely of academic interest but have become objects of immediate concern to civil society. The dramatic images of strong protests by tens of thousands of street demonstrators at the December 1999 WTO meetings in Seattle, as well as subsequent demonstrations at the World Bank/International Monetary Fund meetings in Washington, testify to these concerns.

It is not the purpose of the present paper to provide yet another survey of the literature. This would be a duplication of effort—several excellent surveys already exist.[1] Our main objective is to review the principal issues in the continuing debate on the subject, to assess what conclusions have been reached, how robust these conclusions are, to outline some fresh issues which require research, and importantly to provide an alternative policy perspective on these questions.

[1] See for example Gottschalk and Smeeding (1997), Burtless (1995), and Slaughter and Swagel (1997) for recent reviews of the literature. See also Atkinson and Bourguignon (2000).

The paper concentrates relatively more on advanced than on developing countries. This is not because the question of income distribution is any less significant for the latter group of countries than for the former—indeed quite the contrary. The main reason for this focus is not only that greater and more reliable information is available for advanced countries but also that a wider (though admittedly rather contentious) literature exists for this group. The paper is organized as follows. Section II outlines the main stylized facts about inequality of income distribution and other unfavourable labour market tendencies (high unemployment and deindustrialization) which have come to characterize industrial economies during the 1980s and 1990s; it also reviews the relevant characteristics of North-South trade in manufactured products. Section III briefly describes the alternative approaches of different schools of thought to the analysis of the relationship between labour market deficits in the North and its trade with the South. Section IV outlines the nature of the 'transatlantic consensus' which has emerged in this area, notwithstanding serious methodological differences between trade and labour economists. This consensus gives a unified explanation for increased income inequality in the US and of high unemployment in Europe within the same conceptual framework. Sections V and VI provide a critique of the consensus and outline an alternative perspective on income inequality, unemployment and deindustrialization in advanced countries. Sections VII to IX consider trends in income inequality in developing countries and assess the extent to which these can be attributed to globalization and technology. Section X sums up the discussion and outlines policy conclusions which are substantially different than those which follow from the 'transatlantic consensus'.

# II ADVERSE LABOUR MARKET OUTCOMES IN THE NORTH AND TRADE WITH THE SOUTH: STYLIZED FACTS

## 2.1 Adverse labour market outcomes

Although the focus of this paper is to study the effects of globalization (mainly in the form of reduction in trade barriers) and technology on income distribution, it is important to appreciate that in popular perceptions trade with the South is being held responsible not only for increased inequality and wage dispersion in advanced countries but also for other important labour market outcomes. The latter include specifically deindustrialization and very high overall unemployment which has afflicted industrial countries over the last quarter century. These two variables are also briefly considered here, not least because as we shall see later, they also influence income distribution.

These misgivings of the general public have been given powerful intellectual backing by Adrian Wood's (1994) influential treatise. It has been customary for international trade economists to suggest that trade with the Third World does not do any harm to the North. It is argued that trade generally promotes welfare, but even to the extent that trade with the Third World may cause difficulties for workers and employers in some industries, it is such a small part of overall GDP in developed countries that its net effect at the macroeconomic level either on income distribution or in creating/destroying jobs is regarded as being at best marginal.[2]

Wood's study on the other hand reaches the conclusion that trade with the Third World during the 1980s and 1990s has been a major contributor to all the observed unfavourable labour market outcomes in the North: a) deindustrialization; b) high unemployment, and c) growing income inequality. He states his thesis succinctly and unambiguously in the very first paragraph of his book:

> Expansion of trade has linked the labour markets of developed countries (the North) more closely with those of developing countries (the South). This greater economic intimacy has had large benefits, raising average living standards in the North, and accelerating development in the South. But it has hurt unskilled workers in the North, reducing their wages and pushing them out of jobs. Northern governments must take action to solve this problem. Otherwise, the North will continue to suffer from rising inequality and mass unemployment, and the South from barriers to trade (Wood 1994).

Wood estimated that southern competition resulted in a net reduction of 12 per cent in manufacturing employment in the North during the period studied (1980s and early 1990s). Further, to the extent such competition induced labour saving technical progress in advanced countries, this probably led to additional job losses of equal magnitude. He also assembled a considerable array of evidence to suggest tentatively that increased inequality between skilled and unskilled labour in the North, particularly in the US, has largely been a result of southern competition rather than arising from technical change. Wood (1998) however, goes on to suggest that whilst skills-based technical progress does have a significant influence on labour market inequality, it is only globalization

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[2] This is strictly speaking true only for the first generation of this literature. References to this literature are included in Singh (1987 and 1989). These two papers also provide a critique of these studies.

which can account for the increase in the rate of change of observed income inequality in the recent period.

Wood has received important analytical support for his conclusions from some, but by no means all, leading trade economists (notably Leamer 1998 and 2000). This issue will be taken up further in Section III below.

TABLE 1
STANDARDIZED UNEMPLOYMENT RATE
IN INDUSTRIALIZED COUNTRIES, 1964-99
(average annual percentage changes)

| Country | 1964-73 | 1974-9 | 1980-9 | 1990-9 |
|---|---|---|---|---|
| United States | 4.5 | 6.7 | 7.3 | 5.8 |
| Japan | 1.2 | 1.9 | 2.5 | 3.0 |
| Germany | 1.1 | 3.2 | 7.0 | 9.0 |
| United Kingdom | 3.0 | 5.0 | 9.0 | 7.3 |
| Total of G7 countries | 3.1 | 5.0 | 6.9 | 7.1 |
| Total EU 15 | 2.7 | 4.7 | 9.0 | 10.3 |
| Total OECD | 3.0 | 4.9 | 7.2 | 7.4 |

Source: OECD (1995a).

Table 1 reports the unemployment rates in industrial countries and indicates the alarming increase in these rates since 1973, which marks the end of the so-called Golden Age (1950-73) of economic development in these countries. Particularly striking in this table are the figures for Germany. For the ten years before 1973 (i.e. the last decade of the Golden Age), the average unemployment rate in West Germany was only slightly over 1 per cent. However, during the last ten years the average unemployment rate has climbed to 9 per cent. Although the latter figure is to some extent an overstatement as it includes East Germany, but nevertheless, the difference is still quite dramatic.

Moreover, the data suggest that the incidence of the current unemployment has not been even across population groups; it has been particularly high among the youths and the low skilled workers (see OECD 1995b). As for deindustrialization, manufacturing employment in G7 countries fell by 15 per cent on average during 1970-93. The extent of changes ranged from –45.7 per cent in the UK to a positive figure of 3.6 per cent in Canada. Thus, in the UK the manufacturing labour force was literally halved over this fifteen-year period, representing massive deindustrialization[3] (see UNCTAD 1995).

[3] However, there has importantly been a trend increase in UK productivity growth. For a fuller analysis of UK deindustrialization and its comparison with the US, see Howes and Singh (2000). See also Kitson and Michie (1996), and Rowthorn and Ramaswamy (1999).

TABLE 2
CHANGES IN MARKET AND DISPOSABLE INCOME INEQUALITY IN INDUSTRIAL COUNTRIES, 1980s

| Country | Source | Years change | Market income inequality | Disposable income inequality |
|---|---|---|---|---|
| UK | Goodman and Webb (1994)<br>Atkinson (1993) | 1981-91 | +++ | ++++ |
| US | US Bureau of the Census (1995) | 1980-93 | +++ | +++ |
| Sweden | Gustafsson and Palmer (1993)<br>Statistics Sweden (1995) | 1980-93 | ++ | +++ |
| Australia | Saunders (1994) | 1980-1<br>1989-90 | + | + |
| Denmark | Aaberge et al. (1995) | 1981-90 | + | + |
| New Zealand | Saunders (1994) | 1981-9 | + | + |
| Japan | Tachabanaki and Yagi (1995)<br>Bauer and Mason (1992) | 1981-90 | + | + |
| Netherlands | Atkinson, Rainwater, and Smeeding (1995)<br>Muffels and Nelisen (1996) | 1981-9 | + | + |
| Norway | Epland (1992) | 1982-9<br>1985-92 | +<br>+ | +<br>+ |
| Belgium | Cantillon et al. (1994) | 1985-92 | + | + |
| Canada | Beach and Slotsve (1994)<br>Statistics Canada (1994) | 1980-92 | + | 0 |
| Israel | LIS (1995) | 1979-92 | + | 0 |
| Finland | Uusitalo (1995) | 1981-92 | +++ | 0 |
| France | Concialdi (1996) | 1979-89 | 0 | 0 |
| Portugal | Rodrigues (1993) | 1980-90 | 0 | 0 |
| Spain | LIS (1995) | 1980-90 | n.a. | 0 |
| Ireland | Callan and Nolan (1993) | 1980-7 | + | 0 |
| W. Germany | Burkhauser and Poupore (1997)<br>Hauser and Becker (1993) | 1983-90 | + | 0 |
| Italy | Brandolini and Sestito (1993)<br>Eriksson and Ichino (1995) | 1977-91 | -- | -- |

Source: Gottschalk and Smeeding (1997).

Degree of change is coded as follows:

| Designation | Interpretation | Rate of change in Gini |
|---|---|---|
| -- | Small decline | -5% or more |
| 0 | Zero | -4 to +4% |
| + | Small increase | -5 to 10% |
| ++ | Moderate increase | 10 to 15% |
| +++ | Large increase | 16 to 29% |
| ++++ | Extremely large increase | 30% or more |

Comprehensive information on income inequality and wage dispersion in the North during the 1980s is given in Table 2. The table reports data on both market and disposable income distribution in as comparable a form as possible for a large number of industrial countries.[4] There is an enormous amount of information in this table, but the relevant points for our purposes together with those from other data not presented here may be summarized as follows:

1. Most countries in the stated periods recorded either some increase in inequality of market income or no change at all. However, in the case of disposable income, there were many countries which show no change in inequality despite the fact that there was a worsening of market income distribution.

2. The highest increase in income inequality during the 1980s has been reported for the UK. The Gini coefficient for the UK disposable income increased by a massive 30 per cent. In fact during this period the UK market income inequality rose less than inequality in disposable income.

3. Sweden, normally a country with relatively equal incomes, also experienced a large rise in the Gini coefficient for disposable income. This increase was also greater than that for the market income in Sweden.

4. The OECD (1995b) provided information on earnings dispersion for industrial countries between 1975 and 1990. These data (not presented here) suggested that although dispersion as measured by the ratio of the ninetieth percentile to the tenth percentile has been increasing in advanced countries, this was not true for all countries. Germany was a notable exception. Moreover, the timing and the extent of the increase in dispersion was far from being uniform between countries.

5. Another important aspect of growing inequality which has received particular attention in the US is the increasing gap since 1970 between skilled and unskilled workers. Slaughter and Swagel (1997) suggest that in the US relative wages of less skilled workers have fallen steeply since the late 1970s. Between 1979 and 1988 the average wage of a college graduate relative to the wage of a high school graduate rose by 20 per cent; the average weekly earnings of males in their forties to those of males in their

[4] In the nature of the data on income distribution, such international comparisons can never be quite exact as the definition of income may differ between countries; different adjustments may be made for household size. Comparison in terms of trends are more reliable than levels, but even trends may be affected. See further Gottschalk and Smeeding (1997), Atkinson (2000).

twenties rose by 25 per cent, thus putting a premium on experience. This growing inequality reverses a trend of previous decades (by some estimates going back as far as the 1910s) toward greater income equality between the more skilled and the less skilled. At the same time, the average real wage in the US has grown only slowly since the early 1970s and the real wage for unskilled workers has actually fallen.

6. It is highly significant that the data on measures of income inequality for the 1990s do not fully conform to the pattern observed in the 1980s. Thus Atkinson (1999) reports that unlike in the 1980s, when there was an enormous increase in the Gini coefficient for disposable income in the UK, between 1990 and 1997 it hardly changed at all. Indeed, the OECD (1996) found that in the first half of the 1990s, there was no evidence of a general increase in earnings inequality in OECD countries: of the sixteen countries studied, it rose in half and fell in half. Similarly, Katz (1999) observes that the US wage structure (measured in terms of real hourly wages of the ninetieth, fiftieth and tenth percentile of workers) widened between 1980 and the early 1990s, but has narrowed between 1996 and 1998. There has also been rapid real wage growth since 1996.

7. Atkinson (1999) rightly emphasizes another point in relation to the observed changes in income inequality which is significant. He suggests that it is not correct to speak about long-term trends in income inequality since what the data show not only for the UK but also for other countries, are periodic episodes of increasing, decreasing or constant inequality.

## 2.2 North-South trade in manufactures

These unfavourable developments in northern labour markets have all occurred at the same time as a major spurt in imports from developing to advanced country markets. An important part of Wood's empirical case for suggesting that trade is the main cause of all the adverse outcomes in the post-1980 period for the North's workers rests on the close negative correlation between changes in manufacturing imports as a proportion of the GDP and manufacturing employment share for a cross-section of industrial countries. Further, he puts a great deal of weight on coincidence of the timing of the two phenomena in his rejection of technical change rather than trade as the main causal factor. In assessing the strength of Wood's analysis, it is therefore necessary to examine the nature, pattern, and volume of North-South trade in manufactures in recent decades.

UNCTAD (1995) provided useful empirical data on this subject covering the years 1970-93. The relevant points which emerge from it may be summarized as follows:

1. It is indeed true that the volume of manufacturing imports from the South to the North rose at a very fast average rate of 12 per cent per annum between 1970 and 1990, but the starting volume was quite low. Consequently, the total imports from developing countries excluding China in the early 1990s constituted only 1.5 per cent of the combined GDP of the OECD countries. Even now these imports are less than 2 per cent of the OECD GDP (Krugman, 2000). Many economists therefore find it difficult to see how such large changes in unemployment or income inequality in advanced countries can be attributed to this marginal volume of trade with developing countries. This point will be examined more fully below.

2. It is also important to appreciate that the North's manufacturing exports to the South were greater than its manufacturing imports throughout the period. The UNCTAD data set indicates that advanced countries enjoyed a surplus of nearly $100 billion in 1993 (measured in 1985 prices) in their manufacturing trade with developing countries. This amounted to about 1 per cent of the North's combined GDP in that year, which significantly was much the same figure as that recorded twenty years earlier in 1974. The decomposition of this aggregate figure for the North as a whole, indicates important differences between the EU, the US and Japan. The EEC trade surplus followed the pattern of the North as a whole, while the Japanese surplus rose and that of the US fell, turning negative in 1985.

3. The pattern of changes in North-South manufacturing trade balance are of significance. There are three distinct phases in the evolution of this balance. During the first phase, 1970-82, the North's trade balance with the South rose; it declined between 1982 and 1989 and started to rise again in the 1990s. The proximate causes of this evolution lay in the great surge of borrowings of petrodollars by developing countries in the 1970s; the debt crises in the 1980s which greatly reduced southern imports from advanced countries; and the post-1989 period when economic revival in developing countries again lead to increased imports from the North.

4. An analysis of changes in manufacturing employment in industrial countries suggests that these were much more closely related to recessions in these countries (1973-4, 1980-2, 1990-1) and to a reduction in exports to developing countries in the 1980s, rather than to rising manufacturing imports from the latter. It is therefore not surprising that there is very little

correspondence between timing of unemployment surges in advanced countries and either that of the growth of imports or of changes in trade balance. UNCTAD (1995) sums up as follows:

> Neither the evolution of manufacturing trade balances nor that of import penetration ratios suggests that there is any significantly close relation between North-South trade in manufacturing and unemployment. The tiny swing in the trade balance from 1970-93 compares to job losses of 15 per cent, and the timing of these losses did not systematically coincide with either declines in the North's overall trade surplus with the South or with the rise in imports from the developing countries. Not only was the growth of manufactured imports from the South actually faster in the 1970s than in the 1980s, but also the most important influence on the trade balance in the 1980s came through a decline in northern exports due to unfavourable economic conditions in the South (UNCTAD 1995).

5. Finally it is important to note that there have been previous surges of imports into advanced countries of similar magnitudes as those observed during the 1970s and 1980s without leading to adverse labour market consequences. Specifically, UNCTAD (1995) provides information on import penetration by low-wage developing countries of industrial country markets between 1970 and 1992 and corresponding information for the period 1958-75 on import penetration by the then low-wage (where wages were less than half those of the US) countries of Italy and Japan of the markets for manufactures of EEC and the US. These data indicate that the import penetration of industrial country markets during the two periods (1958-75 and 1975-92) was on a roughly comparable scale. However, this earlier fast penetration of the markets of the US and the EEC by Japan and Italy, did not result in either mass unemployment in Europe or stagnant real wages and increasing income inequality in the US. Indeed, during 1960-73, average US wages rose at 2 per cent per annum and the country had a better employment record than it has achieved subsequently. Howes and Singh (2000) argue that the main reason for the stagnation of average real wages in the US between 1973 and 1996 is that the economy in the post-1973 period has been expanding at a lower long-term rate than before. Between 1960 and 1973, the US GDP grew at an annual rate of 4 per cent compared with 2.3 per cent since 1973.

## III TRADE, TECHNOLOGY AND WAGE INEQUALITY: 'FACTOR CONTENT' AND STOLPER-SAMUELSON METHODOLOGIES

As indicated in the Introduction, studies to explain the observed changes in income distribution during the last two decades have used widely different analytical approaches. Much of the research on this subject has been carried out by labour economists and it pertains largely to one country, the US. The basic methodology employed is that of estimating the 'factor content' of international trade: the studies focus on the volume of imports and exports and examine the factors embodied in these flows. Other things being equal, imports are thought to add to the labour endowment of the importing country and reduce the labour endowment of the exporting country. Leading investigations in this mode include Borjas and Ramey (1995), Bound and Johnson (1992), Berman, Bound and Griliches (1994), and Freeman and Katz (1994 and 1995).

Wood's (1994) analysis of the relationship between employment, wage inequality and international trade is based on the traditional Hecksher-Ohlin model, with an important modification, that instead of capital and labour the two factors are skilled and unskilled labour. The North is endowed with more of the former, and the South is endowed with more of the latter. Otherwise, Wood makes the usual assumptions of constant returns to scale, balanced trade, and perfect competition. More generally, trade economists use models based on the Stolper-Samuelson theorem. Instead of trade volumes, the empirical studies in this genre focus on product prices. The leading studies are Lawrence and Slaughter (1993), Sachs and Shatz (1994), Krugman (1995), Leamer (1996 and 2000), and Slaughter and Swagel (1997).

The main conclusion of the studies by labour economists is that trade with developing countries has relatively little affect on wage dispersion or the skill premium; most of the latter in their view has been caused by skill-biased technical progress. Their basic arguments in support of these conclusions may be summarized as follows:

1. The volume of US trade with developing countries is too small to bring about the shifts in the relative demand and supply curves of skilled and unskilled labour which would be required to explain the observed changes in the skill premium and wage dispersion.

2. If trade was the main cause of the changes in the skill premium, such premium should only normally be found in trading industries. However, the gap between college graduates and high school dropouts has increased in almost all industries throughout the economy. This indicates that the main

causal factor is broad technological change such as that represented by information technology, which affects all sectors. This technology is skill-biased and raises the demand for skilled workers at the expense of unskilled workers.

3. Not only has the skill premium increased in most industries, it has also increased within industries and within large firms.

4. Another important reason for regarding technical progress to be the main cause of increased wage inequality is that despite the rise in the relative wages of skilled workers, more of them are employed in each sector: there hasn't been the substitution of the skilled workers by cheaper, unskilled workers.

The labour economists' methods and conclusions on the relationship between trade, technology and wage inequality have been severely criticized by Leamer (2000) and by Wood (1994). Wood argued that factor-content studies of northern unskilled job losses arising from North-South trade understate such losses. This is because they use the factor proportions of northern industry, which, however, can survive fierce southern competition in labour intensive products only in certain skill-intensive niches. However, Wood's own solution to this difficulty of using instead the factor proportions of industry in the South has been extremely controversial (see Burtless 1995, and Slaughter and Swagel 1997).

Leamer's objections to labour economists' methodology are more fundamental. He suggests that the factor-content methodology shows a total misunderstanding of the theory of international trade. The theory indicates that the volume of trade between developed and developing countries is irrelevant; it is the prices (which are determined at the margin) which matter. He also suggests that the factor bias of technical change is not relevant but rather the industry in which technical change occurs. Thus his rejection of labour economists' analysis and conclusions with respect to the relative contributions of technology and trade in explaining the recent US wage inequality.

Krugman (2000) provides a spirited defence of the factor-content methodology. His main point is that labour economists are answering a different question than the one which Leamer is considering. The latter are essentially asking the question: what would have been the profile of US wage distribution had there been no trade between the US and developing countries. Leamer is however

considering only marginal changes in trade and analysing effectively the case of a small, open economy.[5]

In their comprehensive and able review of the literature on the effects of international trade on wages and employment of skilled and unskilled workers, Slaughter and Swagel conclude that the issue of how to measure properly the impact of trade on labour markets is still largely unresolved. They observe: 'If anything, the disagreements are becoming more contentious.[6] What is remarkable, however, is the common finding across both (international trade economists and labour economists) literatures of only a small impact of trade on wages and income inequality,' (parentheses added, Slaughter and Swagel 1997: 18).

## IV THE TRANSATLANTIC CONSENSUS

Notwithstanding the above methodological difference between the labour and trade economists, there is at one level, as Atkinson (1999) notes, a remarkable degree of consensus among scholars on both sides of the Atlantic concerning reasons for growing income inequality in the US and the UK and mass unemployment in continental Europe. These are both ascribed to a single uniform cause: a shift of demand away from unskilled toward skilled workers. In the US and the UK, because of their flexible labour markets, this shift leads to increasing inequality. In continental Europe, on the other hand, with rigid labour markets, the same causal factor results in large increases in unemployment.

By thwarting market forces, European countries are able to keep up the wages of unskilled workers, but at the expense of growing unemployment. Flexible labour markets enable the US economy, so the argument goes, to have high levels of employment but real wages have remained stagnant and those of the unskilled workers have declined.

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[5] Leamer (2000) provides a reply to Krugman's points. This controversy is likely to run on and on.

[6] A main issue between the trade and labour economists is whether prices or quantities are the chief channel through which international trade affects wage inequality. However, it should be noted at despite agreement on the basic methodology, trade economists differ in their conclusions. Most of them regard Wood's estimates of the effects of trade on unemployment and income distributions to be rather extreme. This point is discussed further in Section IV.

This is of course a straightforward demand/supply model, although analysts disagree about the reasons for the rise in the relative demand for skilled workers. Some, like Wood, attribute it largely to trade with low-wage developing countries; others, probably the majority of mainstream economists (including both specialists in trade and labour markets), put more emphasis on technology.

Despite the transatlantic consensus, the model has however serious limitations as an adequate explanation for the observed changes in income distribution in advanced countries during the last two decades. These shortcomings can be summarized as follows:

1. At a theoretical level Davis (1998a and 1998b) has pointed out that the predictions of mass unemployment in Europe and income inequality in the US do not follow from the two-factor, two-goods, two-countries model normally used in the theory of international trade. To capture the essential elements of the transatlantic consensus at a theoretical level, at least a three-country model is needed which can examine the implications of trade between Europe, the US and the newly industrializing countries. However, a general equilibrium analysis of such a model does not yield the predictions postulated in the consensus.

2. At an empirical level, the available information on income inequality for the 1990s creates difficulties with the trade aspect of the model. As mentioned earlier, the 1990s data do not confirm the pattern of increasing inequality observed for the 1980s. In many countries income inequality has not worsened despite growing imports from developing countries. Further both in the US and the UK, the wages of the bottom decile relative to the median wage have increased.

3. Katz (1999) provides a useful analysis of the college/high school wage premium in the US in terms of the variations in the relative supply of and the relative demand for college equivalents for successive decades since 1940 (see Table 3). Two important points emerge from this table which are relevant to the present discussion. First, the growth of relative demand for college graduates in the 1990s has fallen considerably compared not just with the 1980s but also with earlier decades, starting in the 1950s. This is not compatible with trade explanations, as import penetration by developing countries of advanced country markets or foreign outsourcing by US multinationals has not slowed down in the 1990s. Second, this evidence, however, also creates difficulties for the skill-biased technology hypothesis as

the data does not seem to indicate a trend increase since 1980 in the relative demand for college-educated workers.[7]

TABLE 3
GROWTH OF COLLEGE/HIGH SCHOOL RELATIVE WAGE, SUPPLY, DEMAND, SELECTED PERIODS, 1940-98

| Ten-year periods | Relative wage | Relative supply | Relative demand |
|---|---|---|---|
| 1940-50 | -1.86 | 2.35 | -0.25 |
| 1950-60 | 0.83 | 2.91 | 4.08 |
| 1960-70 | 0.69 | 2.55 | 3.52 |
| 1970-80 | -0.74 | 4.99 | 3.95 |
| 1980-90 | 1.51 | 2.53 | 4.65 |
| 1990-8 | 0.36 | 2.25 | 2.76 |
| Longer periods | | | |
| 1940-70 | -0.11 | 2.61 | 2.45 |
| 1970-98 | 0.38 | 3.33 | 3.86 |
| 1940-60 | -0.51 | 2.63 | 1.92 |
| 1960-80 | -0.02 | 3.77 | 3.74 |
| 1980-98 | 1.00 | 2.41 | 3.81 |

Source: Original source Autor, Katz and Krueger (1998). Updated by Katz (1999).
Note: The relative wage measure is the log college/high school wage differential. The relative supply and demand measures are for college equivalents (college graduates plus half of those with some college) and high school equivalents (those with 12 or fewer years of schooling and half of those with some college). The implied relative demand changes assume an aggregate elasticity of substitution between college equivalents and high school equivalents of 1.4. The relative supply measure adjusts for changes in the age-sex composition of the pools of college and high school equivalents; see Autor, Katz and Krueger (1998) for details.

4. There are two types of further evidence which are also incompatible with the skill-biased technical progress hypothesis. First, there is data for the US and the UK to indicate that wage differentials have not only increased in individual industries, but also within individual, narrowly defined occupational groups. To suggest that increased earning inequality for lawyers, doctors, accountants, cooks, waiters and so on is all due to skill-biased technical change brought about by a general purpose technology such as the ICT, is not plausible. Second, the male earnings distribution data for the US in the 1990s indicates that while the wages of the bottom decile have improved relative to the median, the latter has declined in relation to the earnings of the top 10 per cent. However, in France the top decile to the median ratio was the same in 1996 as in 1974; the bottom decile to the

[7] In a different form, the technology hypothesis can still survive even if there is no observed break in trend for the skill premium in the 1980s. See further Murphy, Riddell and Romer (1998).

median ratio rose slightly over this period, arguably due to the French minimum wage protection for the low-paid workers. However as there are no such legal limits to incomes at the upper end of the distribution, this might be expected to be market determined. It would be difficult in that case to attribute the observed changes at the top end of the male earnings distribution in the two countries to a general skill-biased technological change which effected all industrial countries (Atkinson, 2000).

5. Another limitation of the transatlantic consensus model is that it ignores capital market variables altogether and yet if there is increased demand for skilled labour these variables become immediately relevant. Increased demand would elicit a supply response. However, for an economic agent to undertake training or education in the light of the skill premium also requires a knowledge of interest rates and other capital market conditions. Further, since the model is concerned only with workers' incomes, it ignores capital's contribution to income distribution. Available evidence suggests that in a number of countries, the 1980s witnessed a trend rise in profits and other non-wage income. However this was not so in all countries. Nevertheless, changes in property income clearly also need to be considered in any comprehensive explanation for variations in income inequality.

To sum up, the transatlantic consensus, despite its wide acceptance, is deeply flawed—even under its own narrow tenets. Neither trade nor technology explanations are compatible with some important data for advanced countries, particularly for the 1990s. The consensus also has rather weak theoretical foundations.

## V BEYOND THE TRANSATLANTIC CONSENSUS

A very important limitation of the literature on trade and technology reviewed above is that it provides at best a bivariate explanation of changes in income distribution: the analysis is almost entirely in terms of either trade or technology or a combination of the two. However, economists know that income distribution is subject to many influences other than just technology and trade. The most important of the additional variables include levels of employment and unemployment and macroeconomic conditions in general, deindustrialization, the strength of the trades unions, minimum wage legislation, terms of trade, and exchange rate. There are both theoretical reasons as well as empirical evidence to indicate the relevance of each of these additional variables for examining changes in income distribution. To illustrate,

Burtless (1990) found that changes in the unemployment rate accounted for about 20 per cent of the increase in earnings inequality of the US males between 1954 and 1986. At the theoretical level, both competitive and segmented labour market models can be used to explain why when there is full employment there is a relative increase in earnings at the lower end of the distribution, and why increased unemployment and the reduced demand for labour has the opposite effect.

With respect to unionization, Card (1992) suggested that a fifth of the increase in the variance of wages of the adult male population in the US could be attributed to this variable. Deindustrialization can cause an increase in earning inequality, quite independently of the unionization effect, as structural change in the course of economic development leads to a reduction in the relatively well-paid manufacturing jobs and an increase in the less well-paid service jobs (see further Harrison and Bluestone 1990)

At an empirical level in order to assess the relative explanatory power of these variables in accounting for the observed changes in income distribution, it is necessary to carry out a multivariate analysis. Galbraith (1998) provides one such study for recent changes in income distribution in the US. His results indicate that most (90 per cent) of the variation in US wage dispersion in this period can be explained by macroeconomic variables such as unemployment rates, movements in terms of trade and exchange rates, and changes in minimum wage. Neither trade nor technology figure directly in the analysis; these would however have indirect effects through variables such as exchange rate changes included in the regression equation. Galbraith's analysis of inequality in the US wage structure over the longer period (1920-92) suggests that a single variable—changes in the unemployment rate—explains 70 per cent of the variation in inter-industry wage dispersion. His results provide a rough rule of thumb: when unemployment averages about 5.5 per cent, there is no change in inequality; a rate higher than this leads to a rise in inequality whereas an unemployment figure of less than 5 per cent reduces inequality. Analogous to the concept of NAIRU, Galbraith suggests that an unemployment rate of 5.5 per cent should be called the 'ethical rate of unemployment'.

Many economists draw attention to the specific case of Canada, which did not experience the same increase in income inequality in the 1980s as that recorded in the US (see Table 2). This is despite the fact that the US and Canada are close trading partners, have similar levels of per capita incomes and both belong to the North American Free Trade Agreement (NAFTA). It is suggested by the adherents of the transatlantic consensus that the reason for the lower increase in inequality in Canada in the 1980s was the relatively greater growth

in the supply of college-educated labour in Canada compared with the US. This was made possible by the fact that in Canada university education is subsidized by the government, unlike in the US. However, McFail (2000) in her recent comprehensive multivariate analysis of changes in income distribution in Canada in the 1980s finds that the most important influences on earnings inequality were the level of unemployment and decline in unionization. The author reports that this finding is robust to various measurement choices, including gender, income concept and work status. Other significant variables were deindustrialization and increased supply of male college-educated workers. McFail found trade and technology to be insignificant determinants of income inequality.

The policy implications of this multivariate analysis are somewhat different from those of the partial equilibrium demand/supply model of the transatlantic consensus. Although the McFail study still indicates a role for the government in providing educational skills, it also suggests that more importantly there should be policy interventions at the macroeconomic level and institutional changes in the labour markets. These would include policy measures to achieve and maintain full employment and appropriate legislation or other step to help increase unionization.

## VI CHANGES IN INSTITUTIONS AND SOCIAL NORMS

An analysis of changes in income inequality in industrial countries during the last two decades is seriously incomplete unless the role of changing social norms and related institutional changes are taken into account. In narrow empirical terms, it is difficult otherwise to explain the large increase in incomes at the top end of the distribution. Such increases in top incomes have occurred not only at the aggregate level but also to a greater or smaller degree in most individual occupations as well. Moreover, it is important to recall that there are significant intercountry differences in this respect: the top incomes have risen steeply in the US and the UK but by no means in all industrial countries, as the French example in Section IV indicated.

We agree with Atkinson (1999 and 2000) that changing social norms are a necessary explanation of the observed changes at the top end of the income distribution within and between industrial countries. He considers these changes in game-theoretic terms. Here we supplement his approach by providing a historical analysis of the reasons for a major shift in these norms

during the last two decades. This is important for understanding the nature of these changes as well as for drawing valid policy conclusions.

To examine the relevant changes in social norms and institutions which have occurred in the 1980s and 1990s, it is necessary to consider the immediately preceding decades of the Golden Age of 1950-73. This period represented an extraordinary era of fast economic growth, more or less full employment, and relatively stable prices for industrial countries. Full employment and the welfare state also contributed to reducing income inequality and wage dispersion in this period. All the current negative labour market outcomes were at that time strongly positive.

Why were the growth rates so high in the Golden Age? Does that period of high employment, rapidly rising living standards, and relatively equal income distribution, have any implications for the contemporary situation in industrial countries? As these questions have been examined at length elsewhere (see Singh 1995), it will suffice to summarize here the main points of the analysis.

1. The outstanding performance of industrial countries in the period 1950-73 was not an accident, or simply a favourable outcome of a chance combination of circumstances. It derived from an economic model which was rather different from that which prevailed in the inter-war period or since the 1980s.

2. In descriptive macroeconomic terms, the Golden Age was characterized by exceptionally high rates of growth of real demand and investment. Aggregate real demand in industrial countries increased at a rate of nearly 5 per cent per annum, compared for example with the post-1973 growth of this variable at about half that rate. Similarly, during the Golden Age, capital stock and capital labour ratio in these countries recorded an unprecedented growth. These in turn generated high growth rates of productivity and output, justifying past investment and encouraging its continuation in a positive feedback loop.

3. However, a closer analysis shows that this dynamic period was the outcome of a fundamental change in economic strategy, indeed a new model of economic development which leading West European countries adopted in the quarter century following the end of World War II. This model differed radically from that previously followed by these nations.

4. The Golden Age model of social market economy emphasized cooperation—both at the international level between nation states and at the

national level between workers, employers and governments.[8] During this period, the governments committed themselves to full employment as a key economic objective. Employers agreed that the fruits of economic development should be fairly shared between workers and capital by allowing wages to increase in line with productivity and by their willingness to pay their share of the costs of the welfare state. In turn, the workers' organizations practised moderation in wage demands. Similarly, at the international level, the world economy worked with orderly trading and monetary arrangements under the hegemonic leadership of the US The implementation of this social consensus involved institutional innovations at both the national and international levels.

However, the Golden Age model represented an unstable equilibrium which was pushed off course by the oil shocks of the 1970s. The main reason for the fall of the Golden Age was that the efficiency of the central institutions of the economic regime had gradually eroded the longer the system was in operation. The continuation of the Golden Age would have required institutional renewal to re-establish the weakening social compromises. However, after the second oil shock of the late 1970s, instead of seeking such renewal, the governments of industrial countries, lead by the US and UK, turned decisively toward the alternative model of market supremacy.

As a reaction to the failures of the Golden Age social compromises in the 1970s (exemplified by high rates of inflation), the social market economy was abandoned. The new post-1980 economic order, which has progressed most in the US and the UK, eschews government regulation of labour, product or capital markets, as well as non-market cooperative relationships between governments, employees and employers such as 'incomes policies'. Similarly, at the international level, instead of cooperation between nation states, economic relationships are increasingly dominated by market forces unleashed by liberalization and globalization.

The new model has lead to important changes in existing institutional arrangements (e.g., restrictions on trade unions, weakening of the welfare state), as well as spawned new institutions (e.g., independent central banks). Significantly, it has also resulted in changes in social norms, so that the inequalities of wealth and income which were previously regarded as being taboo and immoral, are now regarded as being normal and acceptable. This is

[8] For an analysis of how this new cooperative model arose out of the harsh experience of the Great Depression and the political conditions of post-war Europe, see Glyn *et al.* (1990) and Singh (1995).

reflected most clearly in changes in the top end of the distribution of income and wealth. The number of billionaires, adjusted for GDP per million workers, rose five fold between 1982 and 1996. During the Golden Age, this figure was at its lowest level, a fourth of what it was in 1900 and fifth of what it is today (see Table 4).

TABLE 4
NUMBER OF BILLIONAIRES IN AMERICA IN GDP-ADJUSTED TERMS

| Year | Billionaires | Workers (in millions) | Billionaires (per million workers) |
|---|---|---|---|
| 1900 | 22 | 29.1 | 0.8 |
| 1918 | 30 | 40.9 | 0.7 |
| 1925 | 32 | 44.7 | 0.7 |
| 1957 | 16 | 69.7 | 0.2 |
| 1968 | 13 | 82.0 | 0.2 |
| 1982 | 23 | 110.0 | 0.2 |
| 1996 | 132 | 130.0 | 1.0 |

Source**:** DeLong (1998).
Note: Based on $1 billion as a multiple of GDP per worker today, using that multiple to determine the equivalent entry income in earlier years.

Similarly, the differentials between workers' pays and those of the corporate executives have widened enormously compared with the Golden Age. This is partly due to the current stock market boom and the greater use nowadays of stock options as a part of executive compensation packages. However, these large differentials also confirm the essential insights of Simon's (1957) bureau-economic theory of executive compensation. In this theory, executive compensation was essentially related to the size of the company rather than to its profitability or performance. The larger the size of the company, Simon argued, the greater will be the layers of authority or spans of control in its organizational structure and the greater would be the salary of the chief executive. An executive's pay was essentially determined by his place in the echelons of authority. This was not an entirely non-economic theory: demand and supply were important at the initial time of managerial recruitment from business schools. After that, executive remuneration was determined by bureaucratic processes within the corporation rather that by the market. Simon suggested that executives at each level of authority are paid more than those at the next lower layer. However, the coefficient relating the pays at the two authority levels was an arbitrary constant. It was socially determined and not an outcome of demand and supply partly because there was very little managerial mobility between firms. In terms of Simon's theory, changing social norms with respect to income distribution have lead to an increase in the value of this constant. Thus, in any complete story of growing income inequality of income

distribution, the role of social norms in extending the upper tail of the distribution cannot be over-emphasized.

## VII INCOME INEQUALITY IN DEVELOPING COUNTRIES

The question of inequality in developing countries is not only a very important subject in its own right, but it also raises in an acute form significant empirical and policy issues concerning the relationship between inequality, poverty and economic growth. For these countries, it is poverty reduction, rather than the lowering of income inequality per se, that is generally regarded as the most important objective. Reduction in absolute poverty is, of course, quite compatible with rising inequality provided there is sufficiently fast economic growth. However, such growth may not be feasible and inequality may itself adversely affect growth. These and related questions are the subjects of other chapters in this book and are not therefore considered here. Instead, this paper will continue with the theme of globalization and technology and assess their relevance as determinants of changes in income distribution for the case of developing countries.

The available data and analyses on how these two variables affect income distribution in the South are rather less abundant than for advanced economies. However, the subject, particularly the relationship between globalization and income inequality in developing countries, has acquired special significance in the recent period, paradoxically in advanced countries. This is largely because of the popular demonstrations that have occurred at the recent meetings of the WTO, the IMF and the World Bank. In response to such protests and in an uncharacteristically one-sided column, a leading writer in the Financial Times, Martin Wolf, argued that it is a 'big lie' to say that globalization promotes income inequality (Wolf 2000). He provided data to indicate that incomes in the world as a whole have become more equal in recent years than before.

On the other hand, it is not just protesters on the streets of Seattle and Washington, but also serious scholarship that suggests that 'world' income inequality has increased. Cornia's (1999) comprehensive review of changes in income distribution during the period 1950-90 in 77 individual countries for which adequate data are available indicates that in 45 countries (including the US and China), inequality has been rising over the last two decades. In four countries (including India), the long-term trend decline in Gini coefficients observed in the 50s and 60s has come to a halt. The author found that only in 16 countries there was a trend improvement in income distribution in the recent

past, but these were generally small or medium-sized countries. Thus Cornia's data suggest that over the last two decades inequality worsened or stopped improving in nations accounting for 79 per cent of the population and 77 per cent of the GDP/PPP of the countries in the author's sample.[9]

There is, however, conflicting evidence on this issue. World Bank (2000) suggests, on the basis of a study by Deininger and Squire (1996), that there has been no overall increase in income inequality within countries. Deininger and Squire's data indicates that inequality has increased in half their sample countries and declined in the other half with no clear overall trend. Cornia (1999) provides convincing arguments to suggest that his relatively pessimistic estimates of adverse trend changes in income distribution in the large majority of countries are, in fact, more accurate: his results are based on more complete data (collected by WIDER, Helsinki) as well as a better econometric estimation of the time trends.

It is not difficult to reconcile Cornia's thesis of increasing income inequality in both developed and developing countries with Wolf's suggestion above of a trend improvement in world income distribution. Both these statements are correct: Cornia's inequality proposition is based on within-country income distribution data whereas Wolf's statement takes into account both within- and between-country income distributions. One main reason why world individual incomes have become relatively more equal in the recent period is that over one billion people live in China and the Chinese economy has been growing during the last twenty years at an epoch-making rate of almost 10 per cent per year. Similarly, during the last fifteen years, the Indian economy, with a further billion people, has recorded a trend increase in its growth rate and has been among the fastest growing countries of the world. Since China and India are both low-income countries, higher growth rates and higher real incomes for their populations have lead to a slight narrowing of individual income distribution at the level of the world as a whole. However, as seen earlier, income distribution *within* China has become more unequal while in India the long-term trend decline in inequality has come to a stop. Moreover, the recent catching-up with advanced countries by China and India needs to be kept in perspective. As Birdsall (2000) has noted ' … it would take China almost a century of constant growth at its recent high rate just to reach the current level of US income per person'. And it would clearly take India even longer to do so.

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[9] Cornia's (1999) total sample of 77 countries accounted for 82 per cent of world population and 95 per cent of world GDP at PPP.

## VIII TRADE, TECHNOLOGY AND INEQUALITY

How do globalization and technology affect income inequality in developing countries? Are the effects analogous to these expected or observed for advanced countries?

Our earlier analysis of globalization and income inequality in advanced countries has considered the concept of globalization as essentially being synonymous with free trade, in line with much of the literature on this issue. However, in economic terms, globalization also refers importantly to freer capital movements. The latter have assumed great significance in the 1980s and the 1990s for income inequality in many developing countries, particularly in Asia and Latin America. The question of the relationship between capital account liberalization and income distribution deserves special consideration and will be considered separately in the next section. The present section will parallel the discussion for advanced countries and examine the effects of globalization only in the sense of free trade, as well as those of technology, on recent changes in income distribution in developing countries.

In an influential contribution Sachs and Warner (1995) have argued that openness[10] to the world economy (in the sense of trade liberalization and reduced distortions) benefits developing countries through two distinct channels: it raises their growth rates[11] and also leads to a convergence of their per capita incomes with the higher per capita incomes of developed countries—in other words, openness leads to beta convergence. In other contributions, Ben-David (1993 and 1996), has suggested that countries or regions which integrate through trade liberalization display lower inter-country or inter-regional income inequality than those which do not, i.e., liberalization leads to gamma convergence between countries. Although the author's examples are taken from advanced countries, his general argument is clearly relevant and important for developing countries.

The theoretical foundation for the above studies is the factor-price equalization (FPE) theorem. The latter, however, can only provide a comparative static analysis of the convergence question. Leamer and Levinson (1996) have modified the FPE theorem and given it dynamic content: their factor–price

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[10] Sachs and Warner (1995) do not consider capital account liberalization in their empirical application of openness.

[11] The question of the relationship between openness and economic growth will not be considered here. Their relationship has been examined critically in Singh (1997a), Rodriguez and Rodrik (1999) and Ocampo and Taylor (1998) among others.

convergence (FPC) theorem suggests that as economies open up and there is freer trade between them, there would be a tendency for factor prices between countries to converge. Both FPE and FPC theorems are, however, valid only under highly restrictive assumptions with respect, among other things, to technology, number of factors and goods, inter-country differences in tastes and whether or not there are factor intensity reversals. Bhagwati (1994) has argued that FPE is a theoretical curiosum, not applicable to the real world. Indeed, there are many theoretical models, both within and outside the neo-classical tradition, which predict divergence rather than either beta or gamma convergence between trading countries.[12]

Empirical evidence on the question of convergence between developed and developing countries is not very kind to the Sachs and Warner hypothesis. Detailed analysis in UNCTAD (1997) shows that except for a few Asian developing countries (including importantly, however, populous ones like China), there has been divergence rather than convergence between rich and poor countries during the last two decades. Per capita incomes in a majority of developing countries have been falling further behind those of advanced countries for a much longer period. Further, Pieper (1997) suggests that among developing countries themselves differences in total factor productivity growth rates have increased since globalization began in about the mid 1980s.

Slaughter (1997) has seriously challenged the basic statistical methodology of Ben-David's empirical analysis (referred to above) suggesting convergence among countries which integrate through freer trade. Slaughter uses the superior difference-in-differences method and re-examines the same instances of integration investigated by Ben-David (1993). Slaughter comes to a clear opposite conclusion to that of the latter: trade liberalization did not lead to convergence in any of the cases studied; on the contrary, it appears to have led to income divergence between countries in the samples.

Further evidence in relation to developing countries on the distributional consequences of globalization comes from Latin America as well as from middle income countries elsewhere. This evidence suggests that, contrary to what may have been expected on the basis of the Stolper-Samuelson theorem, as well as contrary to the experience of East Asian countries when they liberalized their trade regimes in the 1950s and 1960s, trade liberalization in Latin America in the recent period has not led to reduced wage dispersion between skilled and unskilled workers. For example, in Mexico Lustig (1998) shows that between 1984-94 wages of skilled workers increased by more than

[12] See for example Kaldor (1978), Baldwin (1992), Ventura (1997).

15 per cent while those of unskilled workers fell by a similar margin. World Bank (2000) reports that individual country studies for Chile, Columbia, Turkey and Venezuela also indicate a similar pattern: the skill-premiums increased in all of these countries.

Wood (1997) has argued that this evidence is compatible with the predictions of a Hecksher-Ohlin model applied to middle income countries. It is suggested that these countries have a comparative advantage in medium-skill industries. Freer trade with low-skill and low-income countries leads to unskilled workers being squeezed out by competition, lowering wages and employment in these sectors. The expansion in exports of medium technological goods leads to the observed skill-premium in middle-income developing economies.

Although this is a plausible interpretation of some of the facts mentioned earlier, World Bank (2000) suggests that it is not compatible with the whole of the available evidence. The Bank favours a skill-biased technology interpretation of the observed changes. It provides further bits and pieces of evidence in support of its case. First, despite the rise in the relative wages of skilled labour, the employment of skilled workers has increased. Second, this pattern is observed in all industries rather than there being just increases in certain sectors and declines in others as some trade models predict. The Bank also suggests that 'there is evidence that the pattern of shifts towards more skill-intensive employment in the industrial world in the 1970s and 1980s is being matched by a similar, later shift in the developing world'.[13]

Thus the balance of evidence so far would appear to favour technology over globalization as the more important determinant of income inequality in developing countries. It will, however, be appreciated that this evidence is not strong. The technology story cannot, for example, adequately explain some other striking facts in relation to the evolution of income distribution in developing countries in the recent period. With respect to Mexico, for example, Birdsall (2000) points out that, following the end of the debt crisis, economic growth resumed in Mexico in the 1990s, but most of these gains went to the richest 10 per cent; incomes actually fell for the remaining households. It would be difficult to attribute this phenomenon entirely to skill-biased technical progress.

Moreover, the superiority of technology over trade as an explanation for income inequality in developing countries has not considered the free capital movements aspect of globalization; nor has it considered any of the many other

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[13] World Bank (2000: 71).

factors (apart from just technology and trade) that may effect income distribution in these countries. It is to these issues that we now turn.

## IX FINANCIAL LIBERALIZATION AND OTHER FACTORS

In orthodox economic analysis, free capital movement between countries should, in principle, have similar benefits as those of free trade: indeed the former may be regarded as a form of inter-temporal trade. IMF (1998) notes '… the same arguments that create a presumption in favour of current account convertibility to promote trade in different goods at a point in time create a presumption in favour of capital account convertibility to promote trade in the same goods at different points in time'.[14] Thus capital account liberalization should lead to a more efficient inter-temporal allocation of resources between countries. Proponents of free capital flows draw particularly attention to the benefits of capital movements between mature and emerging markets which arise from the expected changes in the age distribution of populations in the two groups of countries. Thus, free capital movement should lead not only to greater economic efficiency but such flows would also be a force for convergence of incomes between rich and poor countries.

A large number of middle income countries in Asia and Latin America, with encouragement from the Bretton Woods institutions, undertook capital account liberalization in the 1990s. Since the mid 1980s, many of these countries had already been moving towards liberalization of their financial systems internally, leading to financial de-repression and higher market determined rates of real interest. There was also a huge expansion of the stock markets in developing countries. This internal liberalization of the financial system was gradually supplemented by permitting foreign portfolio capital in-flows as well as freer international capital movements generally.[15]

Critics of capital account liberalization argue that, at a theoretical level, the conventional view above ignores crucial aspects of the problem. They suggest that free trade in goods is a fundamentally different concept from that of free movements of capital. Unlike the former, the latter are intrinsically subject to asymmetric information, agency problems, adverse selection, and moral hazard. The critics also emphasize the impact of speculation on asset prices and its implications for systemic instability. Consequently, they regard financial

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[14] IMF (1998: 29).

[15] See further Singh (1997a); Singh and Weisse (1998)

markets as being particularly prone to contagion, herd behaviour, coordination failures and to multiple equilibria.[16]

Capital account liberalization in developing countries has been invariably accompanied by financial crisis and economic instability (see further Demirguc-Kunt and Detragiache (1998)). In the cases of Mexico in 1994-5, of Indonesia, Thailand, Korea and Malaysia in 1997-98, of Brazil and Russia in 1998-99, these crises resulted in 'virtual meltdowns' of the affected economies. There were devastating losses of output and employment leading to hugely adverse distributional consequences. Nobody claims today that such crises will not happen in developing countries in the future.[17]

Apart from the financial crisis, liberalization of the financial system may also have other unfavourable effects on income distribution. Increases in real interest rates benefits lenders and rentiers at the expense of borrowers, including notably the government. A large part of the government budgets in many middle-income countries now goes towards interest payments rather than being used for social expenditure. Moreover, the very fast expansion of the financial sector in real terms, i.e. in terms of the capital stock and the number of people employed, in developing countries may have led to greater inequality than before despite the increase in employment opportunities in this sector. Financial sector salaries and rewards tend to be extremely high for those at the top end of the distribution. It is difficult to justify such rewards wholly in terms of skill-biased technical progress. They are more compatible with changing social norms and the demonstration effect of the North on the South.

Thus financial liberalization rather than trade is likely to have been a greater influence on the recent evolution of income distribution in developing countries. However this deliberate concentration on globalization (in the form either of free-trade or free capital movement) and technology in this essay does not in any way imply that there are not other factors which are any less important. Milberg (1997), for example, has emphasized that labour market institutions and employment growth have been more important determinants of income distribution in developing countries than trade. There are also country specific factors which cannot be overlooked. These may be illustrated by considering the case of China which has recorded an appreciable increase in income inequality since the mid 1980s. Students of the Chinese economy attribute this to the growing role of the markets, decentralization and

16 For a fuller discussion see Singh (1997b); Singh and Zammit (2000); Stiglitz (1994)

17 These issues have been discussed more fully in Singh (1998, 1999); Singh and Weisse (1999)

diminishing fiscal ability of the central authorities to ameliorate regional income inequalities.[18] However, the role of changing social norms typified by Deng's famous slogan 'it's glorious to be rich', is also likely to have been important in changing people's perceptions and making increased inequality socially acceptable.

To sum up, both globalization (particularly in the form of financial liberalization) and technology are likely to have influenced the recent evolution of income distribution in developing countries. Available empirical evidence, however, does not allow us to determine the relative importance of these factors either in relation to each other, or more importantly with respect to the other kinds of factors outlined above. More varied case studies as well as multivariate analyses are required for an assessment of the relative influence of the various factors. Such empirical work is particularly important for devising appropriate policy response to the challenge of adverse trend changes in income distribution experienced by many developed and developing countries in the last two decades.

## X CONCLUSION AND POLICY IMPLICATIONS

There is a large and growing literature on changes in income distribution in advanced countries during the last two decades. Most of the contributions attribute these changes to either globalization (specifically in the form of trade liberalization with low-wage developing countries), or to skill-biased technology, or to a combination of the two. These two factors are thought to have led to reduced relative demand for unskilled labour and to an increase in that for skilled workers. This has resulted in increased income inequality in the US and the UK (because of the greater labour market flexibility in these two countries) and in mass unemployment in continental European countries (owing to their rigid labour markets). This paper challenges these conclusions both on analytical and empirical grounds. The central result of this study with respect to developed countries is that neither trade nor technology are necessarily the most important factors in causing increased income inequality in the recent period. Although there is still considerable theoretical controversy surrounding this issue, there is robust empirical evidence to indicate that the concentration on these two factors to the exclusion of other is not justified. The paper has highlighted the role of social norms, economic institutions, as well as growth of employment, in causing the observed changes in income distribution.

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[18] See further Khan and Riskin (1999).

With respect to developing countries, the paper suggests that there is not sufficient empirical evidence for establishing robust conclusions. Available data indicates that globalization (in the form of financial liberalization rather than trade) and technology are both likely to be significant factors in accounting for the increased inequality in developing countries during the last two decades. However, there is no reason to believe that the contribution of the other relevant factors (e.g. social norms, labour market institutions such as unions and minimum wages, macroeconomic conditions) is likely to be any less important in explaining the observed distributional changes in poor countries.

Turning to policy, in advanced countries, the main proposal of most scholars in this field, whether they believe trade or technology to be the principle factor in causing increased income inequality, is to emphasize increased training and education of the workforce. This would enable workers to keep up with the new technology, as well as to maintain and enhance competitiveness.

The analysis of this paper, however, leads to a rather different policy perspective. As social norms, unions, growth of employment and macroeconomic conditions are regarded as important determinants of income inequality (as well as other current labour market deficits), education and training can only go so far. Indeed, without appropriate macroeconomic conditions, it may not be very far at all, as the experience of many transition economies, with highly educated populations, during the last decade demonstrates.

The record of the Golden Age indicates that all of the present deficits of the North's labour markets can be corrected if there were a prolonged period of full employment with steadily rising real wages. This suggests a policy-mix that would lead to a trend increase in the North's economic growth. However, in order to be sustainable and effective, such growth would need to be 'high quality' i.e. stable and egalitarian, with moderate inflation. Faster growth in the North would also benefit the South and indeed lead to a positive feedback-loop, increasing indirectly the demand for labour in both the North and the South. The important question is whether such fast, high quality growth is feasible today in the North.

As noted above, advanced economies did experience this kind of economic growth during the Golden Age, when there was fast growth of real wages, full employment, reduced income inequality as well as low inflation. However, between 1990 and 1999 these economies have grown at a rate of only 2.3 per cent per annum compared to 5 per cent per annum in the Golden Age. Why can

they not expand today at, say a rate of 4 per cent per annum if not at the Golden Age rate? What are the main economic constraints on their growth? One of us[19] has examined this question in detail elsewhere and argued that the main constraints on faster growth in advanced economies do not lie on the supply side. Not only are there unutilized human resources, but there is also powerful new technology of ICT whose potential is far from being realized. Scholars of technical change regard the ICT technology as being on par with, if not superior to, electricity and the steam engine as one of the most important technological developments of the last two centuries.

The chief constraints on faster OECD growth now lie on the demand side. However, industrial countries cannot effect a trend increase in the rate of growth of real aggregate demand by simply using normal fiscal and monetary policies. First, if it is not to be thwarted by further payments disequilibria between leading industrial countries, it would be necessary for the demand expansion to be internationally coordinated. Secondly, and equally importantly, past experience suggests that restrictive institutional mechanisms at the national level will be needed so that an increase in aggregate monetary demand translates itself into an expansion of real demand and not just be dissipated by a rise in wages and prices. Thus, despite the recent price stability in industrial countries, pay coordinating mechanisms are essential for achieving the trend increase in the rate of growth of real demand required for continuous full employment.

It may be objected that incomes or pay coordination policies have not worked in the past. Why should they work now? There are two reasons for optimism on this score. One important reason is that the world now has experience of the alternative economic regime and of its unpleasant results in terms of mass unemployment in European countries. Instead of wastefully maintaining a large reserve army of the unemployed, or abandoning the welfare state in favour of US type labour market flexibility, surely it is sensible to seek cooperative arrangements between employees and employers which can at least reduce this waste. Secondly, and more importantly, incomes policies in the past have been introduced as temporary stop-gap measures to control inflation. Even when these have been successful in containing inflation, such policies have often resulted in reducing the share of wages and increasing that of profits which makes them unsustainable. What is being proposed here are pay coordination policies for the long-run. Such policies would only work if they are seen to be fair and involve progressive redistributions of income over time. Pay policies

[19] See further Singh (2000)

must not simply be devices for reducing workers' living standards or for freezing the distribution of income.

Thus, the demand constraint on economic growth in advanced countries is not technical but deeply institutional. It will require new institutions both at the national and at the international level to relax the constraint.[20] These institutions will help promote cooperative relationships between nation states and between workers, employers, and the government within nation states.

The essentially political process of achieving the required institutional changes should also help bring about changes in social norms towards more egalitarian income distribution.[21]

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[20] These institutional mechanisms have been discussed more fully in Singh (1995 and 1997a)

[21] The question of policies to achieve fast egalitarian growth in developing countries is much more complex, not least because of their wide disparity in terms of levels of economic, social and institutional development. For reasons of space, these issues are not discussed here. These have, however, been examined in Singh (2000). Nevertheless, parts of the broad policy approach outlined above in relation to advanced countries will be useful particularly to many middle income developing countries (e.g. pay coordination policies).

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