HOW MUCH DOES TRADE WITH THE SOUTH AFFECT WORKERS IN THE NORTH?

Adrian Wood

Does trade with developing countries have a small and benign effect on workers in industrial countries, as most economists have maintained, or a large and adverse effect, as the general public and advocates of protection believe? A review of the evidence suggests that neither of these positions is tenable. The methods that economists have conventionally used to measure the effect of North-South trade are biased downward. The true size of this effect remains uncertain, but some recent studies suggest that it is much larger than previously estimated. Trade with the South has probably significantly altered the sectoral composition of employment in the North, shifting workers out of manufacturing and into nontraded services. More important, it has probably significantly worsened the relative economic position of unskilled workers in industrial countries, and may also have aggravated the problem of reconciling low inflation with low unemployment. Even so, the adverse side effects of trade with the South are much smaller than is popularly supposed. And the popular remedy—protection—is clearly wrong. What is needed instead is more action by governments to offset the reduction in the relative demand for unskilled labor through training and education, job creation, and income redistribution.

The effect of trade with developing countries (the South) on the labor force of industrial countries (the North) is a matter of practical importance and political controversy. Popular concern about job losses has caused tariff and nontariff barriers to be erected against the manufactured exports of developing countries, making it harder for these countries to achieve prosperity through export-oriented industrialization. In contrast, most
economists who have studied this issue have concluded that the effect of trade on employment and wages is not a serious problem. Their findings have encouraged governments and international organizations to fight against protection for domestic industries, but the evidence has failed to convince large sections of the public. A few economists have also taken a pessimistic view (Bienefeld 1982, Seers 1983, Godfrey 1985, and Gray 1985).

Up to a point there is no disagreement. The public is aware of the gains from trade that economists emphasize: inexpensive imported consumer goods and well-paid jobs in export industries. But economists recognize too that trade has uneven effects—positive as well as negative—on particular firms, industries, and localities. Realizing the potential gains from trade thus requires the reallocation of labor and capital, which in some cases is not easy and, it is widely agreed, deserves some government assistance. The controversial question is whether these adjustments are small and transitory, relative to other sources of structural change and relative to the gains from trade, or large and enduring.

Economic theory gives an ambiguous and incomplete answer to this question. It usually assumes that trade cannot reduce aggregate employment because labor is mobile and wages are flexible. But theory suggests that trade may alter the distribution of income between skilled and unskilled workers or between labor and capital. And it leaves open the possibility that wage rigidities may aggravate the transitory unemployment associated with changes in trade flows. Moreover, theory is silent on the magnitude and duration of these side-effects of trade. All this makes empirical research essential. Such research is not easy or uncontroversial, however, especially because of the difficulty of assessing how the economy would have evolved in the absence of trade. This article reviews statistical research on the effect that trade with the South has on workers in the North and discusses the implications of the results for policy.

**Import Penetration Ratios**

One sort of empirical evidence that is sometimes cited to show that trade in manufactured goods with developing countries has had little effect on the work force in industrial countries is the low level of import penetration ratios (World Bank 1987). These ratios measure the share of imports from developing countries in industrial countries' consumption of manufactures. In a few sectors—notably toys, clothing, jewelry, sporting equipment, and footwear and leather products—this share is substantial (Brodin and Blades 1986; Hughes and Waebroek 1981; Berthet-Bondet, Blades, and Pin 1988). But for manufacturing in total, the developing-country import share is low. Although the level depends on how penetration is measured, typical estimates for 1988 are about 5 percent in the United States and 2.5 percent in Japan, with the European Community in between (UNCTAD 1989, chart 4).
Such figures are valuable as an antidote to exaggerated claims and fears about manufactured imports from developing countries. But they do not shed much light on the effect of such trade on the work force in industrial countries for three reasons. First, import penetration ratios relate to output rather than employment, a vital distinction because these imports are concentrated in labor-intensive sectors, products, and activities. Second, competition from imports can displace workers even where the import penetration ratio is low, since domestic firms may respond to this competition by introducing new production methods that use less labor. Third, the import penetration ratio is a one-sided measure. It neglects the gains in employment generated by increased exports to developing countries—which are largely financed by the money that developed countries pay for their imports from developing countries.

Studies of the Factor Content of Trade

Calculating the factor content of trade is simple in principle. It involves finding out how much labor is required to produce the goods that are exported to developing countries, and how much labor would have been required to produce domestically those goods that are imported from developing countries. The net effect of trade is then estimated as the difference in labor content between exports and imports, which can be calculated both in aggregate and for particular industries and categories of workers.

Conventional Methodology and Results

Calculating the actual labor content of exports is reasonably straightforward, although it requires large amounts of data. Calculating the hypothetical domestic labor content of imports is inherently more difficult. In practice, economists have usually based the calculation on actual use of labor in domestic industries that produce similar goods. For example, the hypothetical labor content of apparel imports is estimated from the actual amount of labor used (directly and indirectly) in the domestic apparel industry. The underlying assumption is that all the imports concerned “compete” with domestic production.

This assumption is clearly not appropriate for imports of many primary products (for example, cocoa or tin). So with few exceptions (UNIDO 1986 and Sapir and Schumacher 1985), economists have limited their calculations of the factor content of trade to manufactured products, which are in any event the source of most public concern. Some economists have also defined manufactures narrowly, excluding those (such as refined oil and canned food) that consist largely of a primary commodity. There have been other variations in methodology as well. For example, some economists have omitted indirect labor requirements for lack of suitable input-output tables. Moreover, factor

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content calculations have been made for many different industrial countries and time periods.

Although such variations lead to differences in the results, the examples in table 1 show that there is a high degree of similarity among them. The table compares the labor content of a representative bundle of exports to developing countries with that of an equivalent bundle of imports from those countries. The imports contain more labor than the exports, which is to be expected since the competitive advantage of developing countries lies in labor-intensive products, but the differences are small—only about 20 percent on average.

Because the labor content of manufactured imports exceeds that of manufactured exports, a balanced expansion of trade with developing countries tends to reduce employment in manufacturing in industrial countries. In fact, however, this sort of trade is not balanced. Industrial countries as a group have always had a large surplus in this category of trade. Thus some studies have argued that such trade generally increases employment in manufacturing in industrial countries (table 2). Exceptions are admitted. For example, the United States has a deficit in trade in manufactures with developing countries (especially those in East Asia), but even in this case the reduction in employment is tiny. Similar calculations have been made on the basis of past or expected changes in (rather than levels of) trade: some of these have suggested positive effects, others negative effects, but in almost all cases the net effects look insignificant relative to total employment in manufacturing.

The estimated effects are more significant in particular industries. All the studies have identified the same sets of winning and losing sectors. The losers include food processing, wood products, textiles and clothing, and leather goods and footwear. These losses have been largely offset, however, by increased employment in the machinery and chemicals industries. Of course,

<table>
<thead>
<tr>
<th>Year</th>
<th>Coverage</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>Total OECD</td>
<td>0.80</td>
</tr>
<tr>
<td>1985</td>
<td>Germany, Fed. Rep.</td>
<td>0.78</td>
</tr>
<tr>
<td>1985</td>
<td>France</td>
<td>0.80</td>
</tr>
<tr>
<td>1985</td>
<td>Italy</td>
<td>0.99</td>
</tr>
<tr>
<td>1985</td>
<td>Netherlands</td>
<td>0.80</td>
</tr>
<tr>
<td>1985</td>
<td>Belgium</td>
<td>0.85</td>
</tr>
<tr>
<td>1985</td>
<td>United Kingdom</td>
<td>0.78</td>
</tr>
</tbody>
</table>

OECD, Organisation for Economic Co-operation and Development.

Note: Data refer to industrial countries' trade in manufactures with developing countries. All calculations are based on the narrow definition of manufactures, excluding processed primary products. For other estimates, see OECD 1979, annex II; UNIDO 1978; Balassa 1979, 1986; Driver and others 1984; Kol 1986; Sapir and Schumacher 1985; and Schumacher 1983, 1984.

Table 2. Effect on Employment of Trade in Manufactures with Developing Countries, 1983

<table>
<thead>
<tr>
<th>Region</th>
<th>Exports</th>
<th>Imports</th>
<th>Net effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>662</td>
<td>-795</td>
<td>-133</td>
</tr>
<tr>
<td>EC</td>
<td>1,508</td>
<td>-644</td>
<td>864</td>
</tr>
<tr>
<td>Japan</td>
<td>947</td>
<td>-134</td>
<td>813</td>
</tr>
<tr>
<td>Other OECD</td>
<td>371</td>
<td>-204</td>
<td>167</td>
</tr>
<tr>
<td>Total OECD</td>
<td>3,488</td>
<td>-1,776</td>
<td>1,712</td>
</tr>
</tbody>
</table>

EC, European Community.

Source: Balassa 1989, table 6.5. For similar estimates, see Balassa 1986 and UNIDO 1986, chap. 3.

Changes in the sectoral composition of employment mean that workers must bear the cost of changing jobs. But enormous numbers of workers change jobs each year for other reasons, and the increase that results from trade with developing countries has been estimated to be only a small percentage of total labor turnover.

Of more concern is the uneven effect that trade has on skilled and unskilled workers, and on male and female workers (but see Wood 1991). Studies of the factor content of trade show that industries that export to developing countries employ higher proportions of skilled workers than those that compete with imports from developing countries (see table 3). As a result, skilled workers gain from this sort of trade, whereas semiskilled and unskilled workers lose.

Table 3. Skill Content of Trade in Manufactures with Developing Countries

<table>
<thead>
<tr>
<th>Area and year</th>
<th>Skill category</th>
<th>Exports</th>
<th>Import-competing</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD (1975)</td>
<td>Professional and technical</td>
<td>11.2</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>Other white collar</td>
<td>19.5</td>
<td>16.9</td>
</tr>
<tr>
<td></td>
<td>Skilled manual</td>
<td>23.2</td>
<td>13.5</td>
</tr>
<tr>
<td></td>
<td>Other manual</td>
<td>46.0</td>
<td>63.6</td>
</tr>
<tr>
<td>France (1985)</td>
<td>Unskilled and semiskilled</td>
<td>31.4</td>
<td>42.8</td>
</tr>
<tr>
<td>Italy (1985)</td>
<td>Unskilled and semiskilled</td>
<td>46.7</td>
<td>51.1</td>
</tr>
<tr>
<td>Netherlands (1985)</td>
<td>Unskilled and semiskilled</td>
<td>42.6</td>
<td>53.0</td>
</tr>
<tr>
<td>Belgium (1985)</td>
<td>Unskilled and semiskilled</td>
<td>42.9</td>
<td>50.2</td>
</tr>
<tr>
<td>United Kingdom (1985)</td>
<td>Unskilled and semiskilled</td>
<td>41.3</td>
<td>51.1</td>
</tr>
</tbody>
</table>


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However, just as these studies have concluded that the net effect of trade on total manufacturing employment is tiny, they have also concluded that its effects on the skill composition of the labor force are insignificant in relation to the overall numbers of workers concerned.

**Qualifications and Alternative Results**

There are four substantial problems with the results from conventional studies of the factor content of trade, three of which are bound to understate the true effects of trade, although one could err the other way. The first problem, which is the only one that might skew the results in the direction of overstatement, is that goods imported from developing countries are often much cheaper than if they had been produced in industrial countries (Lydall 1975). Thus consumers buy more of the imports than they would have of the domestic versions, which makes the volume of imports greater than the associated decline in domestic output. As a result, using the level of imports as an indicator of the reduction in domestic output tends to exaggerate the loss of employment. But since the data refer to value rather than volume, and imports are cheaper, a given value of imports tends to displace a greater value of domestic production of the same goods. Which of these two biases predominates depends on the degree to which lower prices actually increase consumers’ demand.

The second problem concerns those calculations of the factor content of trade that point to the industrial countries’ large surplus in trade in manufactures with developing countries as evidence that such trade actually increases employment in industrial countries. The unsatisfactory logic of this argument is apparent from its curious implication that trade in manufactures reduces employment in developing countries, which conflicts head-on with much other evidence (Krueger 1983). A more reasonable method, given that developing countries pay for imports of manufactures largely out of their earnings from exports of primary commodities, is to assume zero manufactured exports from developing countries and an equal reduction in the value of manufactured exports from industrial countries. This parallel reduction (assumed in many studies of the factor content of trade) makes the effect on employment in industrial countries appear less favorable. Indeed, even this assumption may be too favorable, since the South’s manufactured exports contain some primary products that would otherwise have been exported unprocessed, and hence each extra dollar of manufactured exports adds less than a dollar to the South’s capacity to import manufactures from the North.1

The third problem is that conventional studies of the factor content of trade assume that all imports of manufactures from developing countries compete with identical goods made in industrial countries, and thus that their labor content can be estimated from data on the corresponding domestic sectors. In fact, however, firms in industrial countries no longer manufacture many of the labor-intensive items imported from developing countries. This is true both of fin-

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1 The World Bank Research Observer, vol. 6, no. 1 (January 1991)
ished goods, especially when distinguished by type and quality, and of components and assembly operations. In technical terms, then, many imports of manufactured goods from developing countries are now "noncompeting." The likelihood of and theoretical reasons for this outcome were pointed out by Krueger (1977), who also directed some relevant empirical work (Krueger and others 1981). But the implications of their insight for employment in industrial countries have been neglected. What it means is that conventional factor content of trade calculations inevitably underestimate the amount of labor displaced by imports and hence understate the adverse net effect of trade with the South on the demand for labor in industrial countries. The only question concerns the degree of understatement.

To answer this question it is necessary first to assess the proportion of manufactured imports from the South that are noncompeting and then to find a better way of estimating their hypothetical labor content. Both aspects of this task pose serious difficulties. The first in principle simply involves determining which imported goods are not produced domestically. To do this satisfactorily in practice, however, would require matched sets of data on trade and production more detailed than any currently available.

The next step is to estimate how much labor (and what skills) is actually used to produce the goods in the country of origin. These estimates must then be adjusted to allow for the likelihood that higher wages—especially for unskilled workers—in industrial countries would induce firms to use less labor-intensive methods of production. The main uncertainty in making this adjustment concerns how much production methods respond to the level of wages. Some allowance should perhaps also be made for the inferiority of production technology in developing countries.

Wood (1990a) uses this method of estimating the labor content of noncompeting imports and tackles some of the other problems of conventional estimates of the factor content of trade. Because of the uncertainties involved in aspects of this calculation, the results are expressed in ranges in the original study, but the central results are shown in table 4. Not surprisingly, these estimates suggest a larger adverse effect on workers. The demand for labor in the manufacturing sector in industrial countries in 1990 is estimated to be about 9 million person-years lower as a result of trade in manufactures with developing countries. Moreover, this reduction appears to be concentrated almost entirely on unskilled labor, a result that is consistent with the earlier studies cited in table 3. The net effect on skilled workers (those with education or formal training beyond basic general schooling) is positive but small. Still, the net reductions in the central case are equivalent to only about 12 percent of total manufacturing employment, and only about 6 percent of economywide unskilled employment. Furthermore, the contraction has not been sudden. Table 4 refers to the cumulative effects of trade over two or three decades, although it also refers only to manufacturing.
Table 4. Effect of Trade with Developing Countries on Demand for Labor in Manufacturing in Industrial Countries
(cumulative effect to 1990)

<table>
<thead>
<tr>
<th>Item</th>
<th>Exports</th>
<th>Imports</th>
<th>Net effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute effect (millions of person-years)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skilled labor</td>
<td>2.0</td>
<td>-1.8</td>
<td>0.1</td>
</tr>
<tr>
<td>Unskilled labor</td>
<td>2.0</td>
<td>-11.1</td>
<td>-9.2</td>
</tr>
<tr>
<td>Total labor</td>
<td>3.9</td>
<td>-12.9</td>
<td>-9.0</td>
</tr>
<tr>
<td>Proportionate effect (percentage of 1985 manufacturing employment)</td>
<td>n.a.</td>
<td>n.a.</td>
<td>-12.3</td>
</tr>
<tr>
<td>Skilled labor</td>
<td>n.a.</td>
<td>n.a.</td>
<td>0.1</td>
</tr>
<tr>
<td>Unskilled labor</td>
<td>n.a.</td>
<td>n.a.</td>
<td>-5.7</td>
</tr>
<tr>
<td>Total labor</td>
<td>n.a.</td>
<td>n.a.</td>
<td>-2.8</td>
</tr>
</tbody>
</table>

n.a. Not applicable.

The results in table 4, in common with conventional estimates of the factor content of trade, are subject to a further basic problem (the last of the four mentioned earlier), which means that they still underestimate the true effect of trade on the demand for labor. This problem is that studies of the factor content of trade neglect the effect of trade on technical progress. For displacement of domestic production by imports is not the only way in which competition from low-wage developing countries reduces the demand for unskilled labor in industrial countries. The same result arises when defensive technological innovation succeeds in keeping firms in industrial countries competitive by enabling them to produce with fewer workers. In order to detect this indirect effect of trade, it is necessary to use an alternative method.

Time Series Studies
The main alternative to the factor content method involves examining changes over time. How strong a relation (if any) has there been over the past two or three decades between changes in employment and wages in the North and changes in the extent of trade with the South? This method requires isolating the effects of trade from those of other forces that have been acting on employment and wages in the North.

Conventional Methodology and Results
The usual technique has been to work with an accounting relation that decomposes the sources of change in employment in particular sectors, and in the
economy as a whole, into several components. The first step is to separate the (negative) effects of labor productivity growth from the (usually positive) effects of output growth. The second step is to split up the sources of output growth, distinguishing domestic demand from export demand (which tends to raise domestic output) and import flows (which tend to lower it). The result is a table that shows how much of the actual change in employment over a particular period is attributable to each of these components.

Early applications of this technique are surveyed in UNIDO (1978) and OECD (1979). See also Krueger (1980) and Kol and Mennes (1983). The most comprehensive recent calculations of this type, summarized in table 5, are by UNIDO (1986). They cover the six largest industrial countries from 1975 to 1980 and are based on input-output tables, with alterations in intermediate input coefficients as an additional source of change in employment. Exports and imports are not shown separately, but the net effects of trade with different trading partners are distinguished. (As in all the other studies of this type, the change in employment is not disaggregated by degree of skill.)

The table suggests that foreign trade is a minute source of change in total industrial employment. Rising net exports to all developing countries on balance increased employment, but the number of jobs created was only about 2 percent of the number attributed to increases in domestic demand. Similarly, although increases in net imports from nine selected developing countries on balance reduced employment in these six industrial countries, this reduction was only about 2 percent of the reduction in employment attributed to rising labor productivity. The effects of foreign trade tend to be larger in particular industrial sectors than in these aggregate calculations (in which employment

<table>
<thead>
<tr>
<th>Source</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic demand</td>
<td>9,654</td>
</tr>
<tr>
<td>Foreign trade</td>
<td>-156</td>
</tr>
<tr>
<td>All industrial countries</td>
<td>-503</td>
</tr>
<tr>
<td>All developing economies</td>
<td>171</td>
</tr>
<tr>
<td>Nine developing economies(^a)</td>
<td>-206</td>
</tr>
<tr>
<td>Input-output coefficients</td>
<td>165</td>
</tr>
<tr>
<td>Labor productivity</td>
<td>-10,259</td>
</tr>
<tr>
<td>Total</td>
<td>-830</td>
</tr>
</tbody>
</table>

Note: The six industrial countries are France, Federal Republic of Germany, Italy, Japan, United Kingdom, and United States. Industry consists of manufacturing, mining, and utilities.

\(^a\) Argentina, Brazil, Hong Kong, Republic of Korea, Malaysia, Mexico, Philippines, Singapore, and Thailand.


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gains from exports in some industries cancel out losses due to imports in other industries. But even at the sectoral level, the UNIDO calculations suggest that changes in domestic demand and productivity generally have a much larger effect on employment than changes in foreign trade.

These results are consistent with earlier studies. For example, Cable (cited in OECD 1979, table 4) analyzed employment changes in the United Kingdom during 1970–75 in those manufacturing industries in which imports from developing countries accounted for 2 percent or more of domestic consumption. He found that total employment in these industries fell about 8 percent over this period, and that trade with developing countries contributed to the decline. But growth in productivity resulted in more than thirty times more job losses than did changes in trade with developing countries (which in more than half the industries were actually a source of job gains). Even in the apparel industry, which was especially hard-hit by imports from developing countries, growth in productivity caused four times as many job losses as trade (UNIDO 1978, table 12). A more recent study of England’s apparel industry in the 1970s, however, attributes about half its decline in employment to imports from developing countries (OECD 1985).

Qualifications and Alternative Results

These conclusions assume that changes in labor productivity are unrelated to foreign trade. Martin and Evans (1981), Beenstock (1984), and Baldwin (1984) have pointed out that this assumption may be misleading, since competition from low-cost imports is likely to prompt an increase in labor productivity. The elimination of inefficient firms, intensified pressures to cut costs and invest in technology, and the substitution of capital and skills for labor have all been cited as mechanisms through which foreign competition can raise productivity.

The two most important such mechanisms are probably defensive labor-saving innovations and changes in product mix. The latter are induced, as explained above, when competition from the South forces firms in the North to abandon labor-intensive activities, either by eliminating particular products altogether or by splitting up the production process so that only the most capital- or skill-intensive stages are performed domestically. Trade with developing countries must thus have caused larger reductions in the demand for unskilled labor in industrial countries than the accounting calculations in table 5 suggest. The question is how much larger.

This question requires disentangling the contribution of North-South trade from other causes of growth in labor productivity, including trade among industrial countries. As Krueger (1980) and others have emphasized, capital accumulation and autonomous technical progress gradually pull up real wages in industrial countries, making labor-intensive production uneconomic. Trade with developing countries has similar effects, which are therefore hard to iso-
late, especially because this sort of trade is probably partly a response, rather than an addition, to these internal pressures.

Wood (1989) attempts to isolate the effects of trade on growth in productivity by using data on nontraded sectors (such as construction and services) to control for other internal influences. The evidence shows that labor productivity in manufacturing in industrial countries grew faster after the early 1960s, when manufactured exports from developing countries began to take off. This acceleration is consistent with the relocation of labor-intensive production to developing countries and with the adoption of defensive labor-saving innovations in industrial countries. It could in principle also be due to faster autonomous technological progress or growth in real wages, but these explanations seem implausible because growth of productivity in nontraded sectors did not accelerate. Indeed, the growth of productivity slowed in all sectors after the late 1960s, but there was less of a deceleration in manufacturing than in nontraded sectors.

The influence of trade on the demand for labor in manufacturing is thus estimated by comparing the actual use of labor per unit of output with what labor use would have been if productivity in manufacturing, relative to productivity in nontraded sectors, had continued to grow at the slower rate of the 1950s. This method suggests that from the early 1960s to the mid-1980s the cumulative trade-induced reduction in the demand for labor in manufacturing in all industrial countries was between 10 million and 30 million person-years. Looked at another way, a result in the middle of this range would imply that, in the absence of expanded trade with developing countries, the manufacturing sector’s share of total employment in industrial countries would have remained constant from 1965 to 1985 rather than declining (from 29 percent to 22 percent, although the absolute number of workers in manufacturing did not fall).

These results are subject to several possible sources of error. The 1950s are not necessarily a good basis for comparison, and there are serious practical problems in measuring labor productivity in nontraded sectors. Faster growth of labor productivity in the manufacturing sector may have been due at least in part to other causes, such as new technology. Moreover, even if the acceleration were due to trade, it might have been mainly caused by more competition among industrial countries. A similar lack of distinction between North-South and North-North trade exists in other recent time series studies.

For example, Grossman (1982) estimates the determinants of employment and wage changes, including competition from imports as well as other domestic influences, for nine selected manufacturing industries in the United States from 1967 to 1979. He measures competitive pressure from imports by the behavior of import prices in these industries relative to the general level of prices in the economy. (The usual approach is to look at changes in import quantities, but Grossman’s price measure has the potential advantage of detecting competitive pressure even in industries that succeed in holding imports down.) Although all of these industries were popularly believed to have been severely
affected by competition from imports, Grossman's results suggest less effect. Only in one industry (radios and televisions) had price pressure from imports greatly reduced employment; no import-induced loss in employment was detected in two other industries in which developing countries are important competitors (footwear, and dolls, toys, and games), although pressure from imports appeared to have reduced wages slightly.

Grossman's findings on footwear conflict with case studies (see Hamilton 1989) that show competition from developing countries has greatly reduced employment in this industry. This reduction in employment is apparent in Grossman's data—a drop of about 40 percent in ten years—but his model attributes this contraction to other causes. It is possible that the case studies are wrong about causation and that footwear manufacturing is particularly sensitive to economywide increases in wages. But it is also possible that Grossman's model is misleading. For example, the lags seem too short: the employment-reducing effects of lower import prices are compressed into eighteen months rather than spread over several years (as installed capacity is gradually eliminated or replaced by less labor-intensive equipment).

Revenga (1989), using a different technique, concludes (as do Galbraith and Calmon 1990) that import competition has had a significant effect on wages in particular manufacturing sectors. Revenga cites other studies with similar conclusions regarding employment. All these studies involve the United States, where, several authors have also argued, the widening wage differential between more and less skilled workers over the past decade or two has been caused by increased exposure to trade (see Murphy and Welch 1988, Bluestone 1990). Although North-North trade may have played a part (see OECD 1989), this outcome is remarkably consistent with the studies of North-South trade described earlier, which show that trade with developing countries reduces the relative demand for unskilled labor. Moreover, although there appear to be no corresponding studies in other industrial countries, there is evidence of increasing inequality of wages in the 1980s in Europe as well, most notably in the United Kingdom (OECD 1987).

Conclusions and Implications for Policy

Are the effects of trade with developing countries on workers in industrial countries as small and benign as most economists have maintained? Or are they as large and adverse as the advocates of protection and the general public are inclined to believe? Empirical evidence suggests that neither of these positions is tenable. Trade with developing countries has probably had a significant effect on the sectoral composition of employment in industrial countries, and it has probably also significantly worsened the relative economic position of unskilled workers. But its impact cannot conceivably have been as large or as adverse as is sometimes alleged.
Economists have tried to measure the effect of trade with the South on workers in the North by looking at the factor content of trade and at the sources of change in employment. Both methods, as conventionally applied, suggest that the net effect is insignificant—at least in relation to total employment and in relation to other sources of structural change. Both methods, however, are subject to clear downward biases that undermine the credibility of their results. These results are also hard to reconcile with the substantial gains consumers in industrial countries and workers in developing countries have apparently realized from trade, and with the strength of the demand for protection in industrial countries.\(^8\)

It is not possible to arrive at a confident or precise conclusion about how large the effect has been or how it has affected different groups of workers. Too little work has been done, and the results are diverse and open to various doubts. What can be done at present, though, is to establish a fairly confident upper limit on the magnitude of these effects and to show that even this worst case is not nearly as bad as has sometimes been suggested.

Trade with the South has had two effects on the composition of the demand for labor in the North. It has shifted workers out of such traded sectors as manufacturing and into nontraded sectors, such as construction and services; and it has reduced the demand for unskilled labor relative to the demand for skilled labor. These alterations in the composition of the demand for labor may also have contributed to aggregate unemployment because of immobility and other rigidities in the labor markets of industrial countries. But popular concern that trade with the South simply reduces the number of jobs in the North is misplaced. Indeed, expansion of trade can sometimes raise the aggregate level of employment by increasing efficiency, income, and the demand for labor (see OECD 1989).

As for the magnitude of the effect on sectoral employment, the largest number mentioned in any study is a cumulative net reduction of 30 million person-years in the demand for labor in manufacturing. Although this number seems large, it is actually rather small in relation to total employment in industrial countries (more than 300 million), especially since this decline has been spread out over a quarter of a century. On an annual average basis, it would have altered the sector of employment of less than 0.5 percent of the labor force, which should be compared with the roughly 20 percent of workers who change jobs each year (OECD 1989). Of course, this net reduction conceals larger gross flows into and out of particular manufacturing industries. Moreover, the shifts in employment have been more noticeable in recent years because the absolute size of the annual increases in imports from the South has become larger. In addition, employment in other traded sectors—agriculture, mining, and some services—may have been reduced by trade with the South. But even if the 30 million person-years estimate were doubled, this trade-induced increment to structural change and the reallocation of labor would appear proportionally modest and unlikely to pose a serious or enduring problem.

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The magnitude of the effect of trade with the South on the skill composition of the demand for labor is probably similar to that of the sectoral effect. In manufacturing, the reduction in demand for less skilled workers has actually been greater than the net reduction in total demand for labor (because the demand for skilled labor has increased), but apparently not by much, so the figure of 30 million person-years probably again roughly indicates its upper limit. This is equivalent to approximately 20 percent of the current unskilled labor force of industrial countries (imperfectly measured as those with less than a complete secondary education). There is almost no evidence on the other traded sectors, but including them might substantially increase this figure and perhaps even double it (Wood 1990a). This shift, however, appears much smaller when one recalls that it has been spread over two or three decades.

Thus the change each year in the skill structure of the demand for labor in the North caused by trade with the South cannot have been very large, but neither has it been trivially small. Moreover, changes in skill structure pose potentially more serious and durable problems than changes in sectoral structure. Expanded employment opportunities for professional, technical, and skilled manual workers are of little help to unskilled workers whose jobs have disappeared. The market's solution to this mismatch is a wider wage differential between skilled and unskilled workers, which should increase the relative demand for unskilled labor and reduce its relative supply by strengthening the incentives to acquire skills. And there is evidence, particularly in the United States but also in Europe, that a considerable widening of skill differentials has occurred in the past decade or so, although it is not clear how much has been caused by increased trade with the South.

This widening of wage differentials should in principle prevent any enduring problem of unemployment among unskilled workers. But it also increases inequality, and for this reason may be resisted—by unions, minimum wage laws, or minimum income provisions in social security systems. This sort of relative wage rigidity would perpetuate the initial shortage of skilled workers and surplus of unskilled workers, making it harder for governments to reconcile the conflicting policy objectives of low inflation and low unemployment. There is strong evidence that these two macroeconomic policy objectives have become harder to reconcile in industrial countries over the past two decades (Johnson and Layard 1986). It is not possible to say how much of this problem—if any—has been caused by increased trade with developing countries in conjunction with relative wage rigidity. But it seems rather likely that this is part of the explanation, especially in Europe, where there are more institutional obstacles to wage flexibility and where there is persistent large-scale unemployment of unskilled workers.

So the effect of trade with developing countries on workers in industrial countries may well be more of a problem than most economists acknowledge. But it has been much less of a problem than is popularly supposed. Moreover, the popular remedy, protection, is clearly wrong, even if considered only from...
the standpoint of industrial countries, without regard to the damage it inflicts on developing countries. Study after study has shown that the cost of protection to society at large far outweighs the gain to those in protected sectors (de Melo and Tarr 1988).

But there are losers from trade, and governments can reduce and resist political pressure for protection by helping the losers in other ways. The usual sort of help has involved assistance in moving from one sector to another, which is highly desirable (see OECD 1989). But the changes that trade causes in the sectoral composition of the demand for labor are less problematic than the associated changes in its skill composition. To tackle the problem of reduced demand for unskilled workers, governments of industrial countries should increase expenditures on education, training, and the creation of unskilled jobs. The disposable incomes of low-paid workers should also be raised through the tax and welfare systems. Unfortunately, however, over the past decade most industrial countries have shifted their policies in the opposite direction. This has harmed both the less prosperous citizens of their own countries and (through greater pressure for protection) the much poorer people in developing countries.

Notes

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1. The primary product content of the South's manufactured exports (narrowly defined) was 28 percent in 1985 (Wood 1990b). But increases in manufactured exports reduce net primary exports by less than this figure suggests because manufactures imported from the North contain some primary products purchased from the South.

2. The sharp distinction between competing and noncompeting imports has been replaced in recent computable general equilibrium models by the assumption of imperfect substitutability between imports and domestically produced goods. Such models have been used to analyze the effect of trade on employment, but not specifically the effect of North-South trade (OECD 1989).

3. The most disaggregated such data set is compiled by the OECD, which is at the four-digit level of the International Standard Industrial Classification (Brodin and Blades 1986; Berthé-Bonnet, Blades, and Pin 1988).

4. Looking at interperiod changes in differences in productivity among sectors avoids the obvious objections to considering only the change in productivity in manufacturing over time, or only the difference between growth of productivity in manufacturing and in nontraded sectors. In principle, this calculation also requires estimating the effect of trade on the real output of manufactured goods in industrial countries, but in practice this effect appears to have been negligible.

5. The range of results reflects the use of alternative sources of data. The upper limit of 30 million person-years is more tentative than the central figure and lower limit. One source actually suggests a much higher upper limit, but this result was rejected on grounds of inconsistency with other evidence.

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6. These figures relate to all industrial countries together; the experience of individual countries has varied. That the share of employment in manufacturing fell in industrial countries during this period in a way that could not have been predicted by earlier data (either time series or cross-section) is shown in Syrquin (1988, pp. 239-42) and Syrquin and Chenery (1989, especially tables 4, 14, 15, and 17).

7. Thus the effect of import competition may be captured mainly in the time trend term, which is the only industry-specific independent variable other than the import price index. In a subsequent paper applying the same methodology to the U.S. steel industry, Grossman (1986) tests lags of up to twenty-four months, but his model suggests full adjustment within eighteen months. The results of this paper imply that import competition substantially reduced employment, accounting for about a quarter of the actual decline in employment in the steel industry during 1976-83 and about a half during 1979-83. This intensified competition, however, was mainly the result of the appreciation of the dollar, and over the full period an unexplained time trend accounted for more of the decline in employment.

8. Baldwin (1984) summarizes the results of many studies of protection in industrial countries. Trade barriers tend to be highest in labor-intensive industries with high proportions of unskilled workers, low average wages, and large imports from developing countries.

9. More precisely, such wage rigidity would tend to increase the "natural" or "non-accelerating-inflation" rate of unemployment. For a simple account of how a decline in the demand for unskilled labor relative to that for skilled labor could indirectly increase aggregate unemployment, see Wood (1988).

References

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