"Summary of article by Adrian Wood: How Trade Hurt Unskilled Workers" in Frontier Issues in Economic Thought, Volume 4: The Changing Nature of Work. Island Press: Washington DC, 1998. pp. 69-72

Social Science Library: Frontier Thinking in Sustainable Development and Human Well-being

"Summary of article by Adrian Wood: How Trade Hurt Unskilled Workers"

Adrian Wood's 1994 book (see the summary of his conclusion and policy recommendations, later in this chapter) forcefully stated the case that "the main cause of the deteriorating situation of unskilled workers in developed countries has been expansion of trade with developing countries."[57] In this article he summarizes the theory and evidence supporting his position, responds to criticisms of his work, and critiques the leading alternative explanations.

The starting point for the discussion is the recognition that the demand for unskilled labor has fallen substantially in developed countries, leading to increased wage inequality and/or unemployment; manufacturing employment has fallen faster than previous trends would have predicted. At the same time, imports of low-skill-intensive manufactures from developing countries have increased, as has the diffusion of computers and related technology into the workplace. Thus many empirical studies have evaluated the role of trade vs. technology, usually finding that trade makes only a small contribution, and so concluding by default that technology must be much more important. In contrast, this article argues that trade effects are quite large, and that the effects of technology are inseparable from the recent patterns of trade.

THEORETICAL FRAMEWORK

Economic theory conventionally asserts that countries export goods that intensively utilize those factors of production which are relatively abundant, and import goods that utilize those factors which are relatively scarce at home. If the mix of factors is sufficiently different from one country to another, then each country will specialize -- for example, developed countries producing only those manufactures which have high skill requirements, and developing countries producing only manufactures with low skill requirements.

The huge growth in trade over the last few decades can be seen as leading developed countries toward such specialization. As advances in transportation and communication have lowered the cost of trade, many of the most unskilled-labor-intensive manufacturing processes, such as final assembly of consumer electronics, have moved entirely to developing countries. This is one of several ways in which trade and technology are intertwined -- new transport and communications technologies have effectively lowered the barriers to trade.

A REVIEW OF THE EVIDENCE

Empirical evidence clearly suggests a link between trade and labor market changes. Among OECD (developed) countries, there is a strong negative correlation between the change from 1970 to 1990 in net manufacturing imports from developing countries as a percent of GDP, and the change in the percentage of the labor force in manufacturing. The change in imports is quite small: both the OECD average and the U.S. figure are around 1% of GDP over the 20 year period. However, there is a disproportionately large impact on unskilled labor, because the imports depress the prices of labor-intensive goods and force firms to find ways of using less labor in order to stay competitive. Moreover, since the imports displace labor-intensive production, they directly affect more workers than their share of GDP would suggest.

A common method of estimating the effect of trade on labor is to calculate its factor content -- that is, the amount of labor used to produce the country's exports, and the amount that would have been used to produce its imports in the absence of trade. A study of the factor content of U.S. trade by Jeffrey Sachs and Howard Shatz[1] found that the increase in trade from 1978 to 1990 did reduce the domestic demand for labor, but had only slightly greater effects on unskilled than on skilled labor. This study, like most published studies of factor content, errs in assuming that the labor content of imports is similar to that of goods currently produced in developed countries. Since many imports are actually more labor-intensive than goods currently produced in developed countries, the true effect is much larger. With this and other technical changes, a revised factor content analysis shows that trade from 1978 to 1990 barely changed the demand for skilled labor, but caused a large drop in the demand for unskilled labor.

Furthermore, trade leads to "defensive innovation," in which firms threatened by imports adopt new technologies that hopefully allow them to remain competitive -- typically involving a reduction in the demand for unskilled labor. This is another way in which trade and technology cannot be separated. While most empirical studies focus exclusively on manufactures, trade in services is also growing, with labor-intensive activities such as data entry increasingly moving to low-wage countries.

An admittedly rough estimate incorporating all of these factors is that as of 1990, trade lowered the overall developed-country demand for unskilled labor, relative to skilled labor, by about 20 percent.

RESPONSE TO CRITICS

Four major criticisms of the author's position merit special attention. First, Sachs and Shatz found that, contrary to expectations, the industrial sectors that began the 1980s with low skill intensity had a slightly smaller than average increase in skill levels during the decade. This is a surprising result that requires further study, but it is a very indirect test of the theory.

Second, the calculation of large trade impacts assumes that currently imported goods would have been produced and sold domestically in the absence of trade. However, in that case the prices would have been higher, since developed-country labor is paid more. If the price elasticities are high enough (i.e., the higher prices would have deterred enough customers from buying), then there is no possibility of domestic production even in the absence of trade. The author has

defended his price elasticity estimates in his 1994 book, and believes that there is a general tendency for elasticities to be overestimated.

Third, even the estimated 20% reduction in demand for unskilled labor might not be enough to explain the observed changes in labor markets. It seems likely that "trade accelerated a preexisting downward trend in the relative demand for unskilled labor" (70), while the ongoing increases in the supply of skilled labor may have created additional needs or opportunities to employ even more skilled labor. "But whatever the cause of the secular demand shift, it has been amplified by recent changes in trade..." [71]

Finally, a series of technical objections have been raised against the use of factor content calculations, and are answered by the author. Perhaps the most serious objection is that, in Heckscher-Olin trade theory, trade affects wages only through product prices; therefore prices should provide a more direct test of the theory. Answering this requires a look at price data.

EVIDENCE ON PRICES AND SKILL INTENSITY

If trade has reduced the wages of unskilled workers, then according to Heckscher-Olin theory, it must have reduced the relative prices of labor-intensive goods. Lawrence and Slaughter (see article summarized in this chapter) find that this did not occur for the U.S., Japan, or Germany in the 1980s. However, they use an unusual and intricate method of calculation. Sachs and Shatz reanalyze the U.S. data and find that prices fell slightly for the least skill-intensive products, relative to the most skill-intensive ones -- though, in the opinion of Sachs and Shatz, the decline appeared too small to explain the change in wages. This is not a serious problem: the changes in wages would be expected to be much larger than the changes in prices. Additional puzzling results in other authors' analyses suggest that products within individual industrial sectors are becoming more heterogeneous over time, making studies of prices at the sectoral level less appropriate in testing the underlying theory.

A last category of evidence, which several economists use to support the technology explanation over the trade explanation, is the rising proportion of skilled workers within most sectors, despite the rise in their relative wages. This certainly implies that the demand for labor has shifted, possibly due to technical change biased against unskilled labor. However, this does not mean that trade is absent from the picture. Studies of U.S. manufacturing, analyzing as many as 400 detailed sectors, find a high, positive correlation between increases in import penetration and the rise in skill intensity during the 1980s. Other studies find a positive relationship between exporting and increasing skill levels. At the very least, technology is advancing most rapidly in the sectors most affected by trade. Studies of direct expenditure on new technology are ambiguous, and cannot distinguish whether technology is a cause or an effect of other changes.

> Where does all this leave the "trade versus technology" debate? It seems certain that new technology contributed to the recent deterioration in the relative economic position of unskilled workers -- as a background trend, as a cause of lower trade barriers, and as a response to foreign competition. The key question, though, is whether spontaneous diffusion of computers and new management methods would have reduced unskilled workers to anything like their current

> plight [in the absence of imports from developing countries]... The answer to this question, on the basis of the evidence now available, appears to me to be "probably not." [77]

For the author's concluding suggestions about policy responses, see the other summary of his work in this chapter.

Notes

1. Jeffrey D. Sachs and Howard J. Shatz, "Trade and Jobs in U.S. Manufacturing," *Brookings Papers on Economic Activity* 1 (1994), 1-84.