

Discussion

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Although average real wages in the United States have increased since 1980, the real wages of the less educated have fallen. In fact, the wage gap – the difference between the median real wage of college-educated workers and the median real wage of other workers – rose by 35 per cent between 1980 and 1995 (*Economic Report of the President*, 1997). In the intense political and economic debate referred to by Markusen and Venables over the causes of, and possible remedies for, this sharp increase in the wage gap, two competing stories have emerged for explaining this increase. The first is that competition from workers in less developed countries, in the form of increased trade and investment flows between the United States and these countries, has driven down the wages of the less educated workers. The second is that changes in technology have occurred in the US workplace, particularly with the introduction of computers and robotics, that have driven down the demand for workers who lack the education to use this technology.

The Stolper–Samuelson theorem of Heckscher–Ohlin trade theory offers an appealing explanation of the increasing wage gap based on increases in trade flows between the United States and less developed countries: the United States has relatively more educated workers than does a developing country such as Mexico. According to the Heckscher–Ohlin theory, the United States will export to Mexico goods that use these educated workers intensively. Mexico, on the other hand, will export to the United States goods that use the less educated workers intensively. The Stolper–Samuelson theorem says that the resulting increase in the demand for educated workers in the United States will drive up their real wages, and the resulting decline in demand for less educated workers will drive down their real wages.

So far, so good. There are three problems with this explanation, however. First, Heckscher–Ohlin theory predicts that the increase in demand for the education-intensive goods, the goods that the United States exports, should have driven up their prices. Instead, as Lawrence and Slaughter (1993) have shown, the prices of the goods that the United States exported actually fell slightly during the 1980s compared with the prices of the goods that it imported. Secondly, the Stolper–Samuelson theorem predicts that the opposite movement in relative wages should occur in Mexico – that the wage gap there should shrink as that in the

United States grows. In fact, the wage gap in Mexico has grown in a similar way to that in the United States (see, for example, Alarcon and McKinley (1996)). Thirdly, the timing is wrong. Whereas the 1980s were the period with most of the increase in the wage gap, the 1990s have been the period with most of the increase in trade between the United States and less developed countries.

A more convincing explanation of the increase in the wage gap in the United States has been provided by Krusell et al. (1997): a sharp decline in equipment prices in the 1980s, due largely to a fall in computer prices, led to an increase in demand for educated workers, who are complements for this equipment in production, and a decline in demand for less educated workers, who are substitutes. In a carefully calibrated model, Krusell et al. show that the timing of the fall in equipment prices and the increase in the wage gap is right. Furthermore, their theory predicts the fall in the prices of the US export goods and the increase in the wage gap in Mexico.

Where do Markusen and Venables stand on all this? What they have done is to propose an ingenious, yet plausible, new explanation of the increase in the wage gap based on increases in trade with developing countries. It is now trade in services within multinational corporations that is the culprit. A multinational firm in the United States opens a plant in Mexico. The education-intensive services connected with the operations of the plant are conducted at the headquarters in the United States, but the less-education-intensive production work is done in Mexico. Real wages of educated workers in the United States go up, and real wages of less educated workers go down. What about the wages of workers in Mexico? The effects are ambiguous because the multinational firm has access to a different technology than do Mexican firms. As Markusen and Venables explain:

In our calibration, multinational firms are generally more skilled-labour intensive than national firms, using more skilled labour for branch-plant fixed costs versus the additional unskilled labour for transport costs used by national firms. This depends, however, on firm scale.

The opening of plants in Mexico that are subsidiaries of multinationals can actually increase demand for educated workers there, who will be managers at these plants rather than working in the Mexican firms in the same sector or in the other sector, which is less education intensive.

Markusen and Venables' model is capable, therefore, of explaining the increasing wage gap in both the United States and Mexico. There are parts of their story that ring true, and I hope that either they or others spend more effort on following it up. Where this effort is needed is in

looking at the data. I still think that the timing is wrong in their story: the explosion of foreign direct investment into Mexico occurred in the 1990s, but the increase in the wage gap in both the United States and Mexico occurred mostly in the 1980s. The differences in technologies between multinational branch plants and Mexican firms in the same sector, while plausible, also need some study.

What I like about Markusen and Venables' paper is the way it mixes an imaginative insight with theoretical ingenuity to produce a thought-provoking new take on an important debate. I am nervous, however, that this might end up being as far as this new take goes. The 'new trade' literature – which, over the past two decades, has introduced scale economies, product differentiation, and imperfect competition into the study of international trade and investment, and in which Markusen and Venables, along with people such as Paul Krugman, are the leaders – is short on confrontation with data.

To make this point, I will mention a paper by Markusen – not because it is a bad paper; quite the opposite. (And Jim is such a good friend of mine that I do not think that he will take offence at my good-natured criticism; if he does, I can make up for it by buying him a beer.) Markusen (1986) proposes a simple model to explain some of the stylized facts of international trade from, say, 1950 to 1985: world trade has grown faster than world income; most of this growth in trade has been trade between developed countries; and most of the trade between developed countries is intra-industry trade. In Markusen's model, developed countries trade among themselves for the typical reasons in the new trade literature: scale economies and product differentiation. Developed countries trade with less developed countries for the reasons in Heckscher–Ohlin theory: differences in factor endowments. Trade between developed countries grows faster than income because the goods they trade are superior goods. The key assumption in Markusen's model is the non-homotheticity of consumers' preferences. At first glance, this seems to match the facts, because the primary goods that developed countries have traditionally imported from less developed countries are inferior goods.

Bergoing (1996) takes this model to the data and finds that it does not work. Specifically, he makes a number of heroic assumptions to calibrate Markusen's model, but finds that it cannot come close to explaining the increase in trade. The sticking point is that the goods that developed countries trade are not superior enough, and their share in consumption has not been increasing. The product category most traded between developed countries is automobiles and auto parts for example, but consumer expenditures on automobiles and auto parts have not increased

at anywhere near the rate at which trade in this product category has increased. Furthermore, suppose, ignoring the data, that we assume that these goods are actually very superior. Then their share in consumption in poor countries should have risen even faster than that in richer countries as the poor countries became richer, driving up trade between developed and less developed countries even faster than the trade between developed countries. There may be something of an escape clause here, because trade between developed and less developed countries has recently begun to expand more quickly than that between developed countries, but this is the opposite of the result that Markusen set out to establish.

Bergoeing's work suggests many exciting directions for future research, and I think it is an example of something that is all too rare in the new trade literature: research that takes seriously the sort of models that Markusen and Venables are so good at building, where I mean 'take seriously' in the sense of carefully calibrating a model and then comparing its results with the data along a number of dimensions. Krusell et al. have done this with their story of technological change driving the increase in the wage gap. Somebody – maybe Markusen and Venables themselves – will need to do something similar before I can accept their story of the culprit being the expansion of foreign direct investment by multinationals.

References

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