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Do Only Economic Illiterates Argue that Trade Can Destroy Jobs and Lower America's National Income?

MUCH OF ROBERT HEILBRONER'S CRITIQUE OF ECONOMICS HAS TO DO with the economic profession's wish to be seen as a science with known constants and well-understood mathematical equations. To make the standard mathematical models work, actual homo sapiens had to be replaced with an imaginary super-rational *homo economicus* who bore little resemblance to normal human beings. Bob was ahead of his time. Behavioral economics, where humans are not assumed to act like *homo economicus,* is currently one of the hottest research areas in economics. From Bob's perspective, what was normal economic behavior in human beings was not a constant but something that changed over time as humans interacted with their economic systems. Normal behavior under feudalism was not normal behavior under capitalism, as Bob documented in his classic book on the emergence of capitalism from feudalism. In Bob's view, capitalism itself survived and thrived precisely because it was a system always in flux. The capitalism of 1900 was not the capitalism of 2004. It was the economist's job to understand the interactions between this flux and human behavior.

In this Heilbronerian spirit, I would like to investigate an area in flux: the economic impact of trade and the classical theory of comparative advantage, which has been used to describe the expected outcome of trade. When public concerns about general job losses (and professional white collar outsourcing in particular) arose during the 2004 presidential primaries, the economics profession immediately jumped to defend the classical theories of comparative advantage. The critics of trade—the individuals who lost their jobs and the politicians who wanted their votes—were wrong. Axiomatically, the profession knew that the ultimate outcome had to be good. It did not stop to investigate whether the new technologies underlying this outsourcing might, in fact, be altering (much less undercutting) the standard conclusions of comparative advantage before attacking the critics.

Put simply, were the public's concerns about jobs as stupid as they were made out to be by professional economists? (Bhagwati, 2004; Mankiw, 2004: A21)

THE COMPLEXITIES OF THE STANDARD STORY

No one denies that trade in a big picture sense is a good thing. Just think about what would happen to American standards of living if the United States had to forego the 60 percent of the oil that it imports. But that general big picture truism does not prove that every marginal change is a good thing. At the same time there is also a growing literature showing that countries that carry out a large amount of trade do not necessarily grow faster than those that trade less.

Economic theory holds that trade among countries occurs because of differences in productive opportunities, differences in tastes (Rodriguez and Rodrik, 2001; Rigobon and Rodrik, working paper)**1**,[1] or economies of scale.[2] As originally formulated in classical comparative advantage, differences in productive opportunities were determined by natural resource endowments and factor proportions. Wealthy countries produced capital intensive goods, countries with skilled labor forces produced skill intensive goods, unskilled countries

produced labor intensive goods, and countries well endowed with natural resources specialized in their production.

Instead of deploying their capital and labor in very expensive (inefficient) efforts to produce wheat in Saudi Arabia (desalinating seawater and pumping it inland to grow wheat) or oil in Australia (building coal gasification plants to produce oil), it made sense for Saudi Arabia to concentrate on producing oil, for Australia to concentrate on producing wheat, and for both to trade with each other to gain a higher standard of living than was possible for either in a world without trade. The costs of buying oil from Saudi Arabia or wheat from Australia were lower than the costs of producing oil or wheat for one's self. By doing so, both countries could have a higher per capita income. Saudi and Australian buyers could buy wheat or oil cheaper than they could buy it if it were produced at home and in both countries capital and labor could be redeployed to areas (oil production in Saudi Arabia, wheat production in Australia) where the productivity of these inputs was higher than it would have been if they had been used in desalinization plants or coal gasification plants. Everyone wins—or so it is said in the public debates about trade.

The actual story as told by economic theory was never so simple. There are a number of strong caveats to the simple conclusion that more trade is unambiguously better than less trade.

The problems start with the fact that currency values have not changed to keep exports and imports roughly in balance, as they are assumed to do in the standard theoretical models. For two decades imports in the United States[2] have vastly exceeded exports, and in 2003 imports ($1,539 billion) were far (almost 50 percent) above exports ($1,047 billion). As a result those directly losing jobs to trade have been far larger in number than those directly gaining jobs from trade.

Those who comprise this large number of net job losers are supposed to enter labor markets where wages (skill adjusted) and capital returns are the same regardless of the industries in which capital and labor are employed. Put simply, the standard results assume that those losing jobs get new jobs at wages equal to what they had. In fact,

in America those who lose jobs in manufacturing move into private services or retailing where wages in both are on average 25 percent below those in manufacturing and total compensation is even lower (the pension and health care benefits the displaced workers had in their old manufacturing jobs often do not exist in services). For those over the age of 55 the wage reductions facing job losers are much higher. Since business firms do not want to be responsible for their medical care in retirement, those older than 55 often find it virtually impossible to find anything remotely resembling an equivalent job.

Macroeconomic policies are also supposed to preserve and guarantee full employment for both capital and labor. Job losers do not spend long periods of time in unemployment. Factually full employment has not been maintained between 2002 and 2004 and those losing their jobs because of rising imports have not rapidly found reemployment.

Put together these four factual realities—imports that vastly exceed exports, lower wages in the alternative sources of employment, even larger wage cuts for those who lose jobs after the age of 55, and a high unemployment environment that makes it difficult for job losers to quickly find alternative sources of employment—and then calculate the discounted net present value of the current costs (lower wages) to American workers and compare these costs with the discounted future benefits to the American buyers of cheaper foreign products (Thurow, 1986).[3] It is certainly possible, and probably even likely, that the discounted net present value of the real income gains going to the buyers of cheaper goods are smaller than the income losses to those forced out of their current jobs since all the costs come almost immediately while the benefits stretch out over time.

Other counterfactual assumptions also lie behind the confident assertion that more trade is always better than less trade. Economists assume that the jobs gained in exporting industries have higher wages (the country has a comparative advantage in these industries) than those lost in importing industries (the country has a comparative disadvantage in these industries) and that jobs in the nontraded sectors have

wages higher than those found in the importing sector. If this is so, the jobs lost in import-competing industries pay the economy's lowest wages and come off the bottom of the economic pyramid.

These implicit assumptions are not factually correct. On average, median wages paid in import-competing industries (industries where imports exceed exports) are higher than the median wages paid in exporting industries (industries where exports exceed imports). Median wages in the import-competing industries are also higher than median wages paid in the nontraded sectors (neither exports nor imports are a significant fraction of sales).[4] If one thinks of America's pattern of imports (manufactured goods) and exports (agriculture, tourism, services), what at first seems surprising is in the end obvious. Nontraded services (restaurant labor, for example) pay the lowest wages in the economy.

Since wages are assumed to reflect underlying productivities in economics, workers are being forced out of the high productivity sector (import-competing industries) into sectors with lower levels of productivity (either exporting industries or industries that neither export nor import). If this is so, real incomes go down and not up when trade commences.

Many of the public discussions sound as if everyone will win (have higher incomes) when trade commences, but the theory of comparative advantage has never made any such claim. If trade starts when Saudi Arabia is producing wheat and Australia is producing oil, the capital and labor specialized in producing wheat in Saudi Arabia and oil in Australia find themselves with lower incomes when trade occurs. The existing capital investments (sunk costs) in coal gasification plants and desalinization plants become worthless. The human skills necessary to build and operate those plants lose their value. A skilled person becomes an unskilled person. Transition (or transaction) costs have to be built into the analysis and, when they are included, there are economic losers as well as winners.

Economists usually justify ignoring these transition losses on the grounds that those with higher incomes because of open trade could

in principle compensate those whose incomes fall because of trade. If compensation is paid to the losers, everyone is better off and an open trading regime is axiomatically better than a closed trading regime. In practice the economics profession defends free trade even when it knows that the winners will not be compensating the losers. And in fact compensation is almost never paid.

There are of course strong arguments for not paying compensation. Many other factors such as changes in technology or tastes can cause investments and skills to lose their value. Why should the losses from international trade be singled out for compensation? But the fact remains that if compensation is not paid, an open trading regime is not axiomatically better than a closed trading regime.

Compensation may also be impossible. Since the transition costs come early and the gains for trade come later, the net present value of the short-run transition costs can easily exceed the net present value of the long-run gains from lower prices. If this is true, the aggregate national net present value of opening up to trade is negative and compensation is not even theoretically possible (Krugman and Obstfeld, 2003: 223).[5]

Unless compensation is actually paid, the losers are not being economically illiterate when they exercise their democratic right to oppose free trade in a democracy. Trade does, in fact, lower their lifetime incomes. Democracy does not demand that its voters be philosopher kings, worried about the general welfare but uninterested in their own personal welfare. Those politicians who chase their votes are not being venal.

There is also a long-standing literature on how tariffs can be used to raise national incomes by altering the terms of trade in favor of the nation that imposes the "optimal" tariff (Krugman and Obstfeld, 2003: 223). There is also a much newer literature that shows that if the standard model is modified to include learning by doing, knowledge externalities, and economies of scale in the new industries created by research and development, restrictions on trade can raise national incomes above what they would be without those restrictions (Krugman

and Obstfeld, 2003: 276). Both of these literatures are ignored in public discussions on the grounds that they require highly sophisticated trade restrictions and do not apply to the crude trade restrictions actually imposed by governments. But if one looks at Chinese trade restrictions on what it calls "pillar industries" (such as semiconductor chips), a reasonable person could come to the conclusion that China is trying to follow the dictates of this literature. China is protecting what it believes to be the sunrise industries of the future. China is not protecting the sunset industries of the past.

Why these caveats are never mentioned when economists jump into public debates about free trade is an interesting sociological and political question.

THE NEW REALITIES

In the classical model of comparative advantage, none of the factors of production (capital, labor, or natural resources) were thought to be movable. But even without labor or capital mobility, a perfect global trading system would eventually lead to what is known as "factor price equalization." Wage rates (adjusted for skills) and capital returns would eventually equalize across countries. Goods production would simply move around the world until this was true. The long-run outcome of factor price equalization was, and is, well known. For the world as a whole the returns to the relatively scarce factor (capital) would rise relative to the returns of the relatively abundant factor (labor). Since skilled workers are in short supply relative to unskilled workers, the wages of the skilled would rise relative to the wages of the unskilled. When factor price equalization was complete, unskilled workers located in the first world would unambiguously lose (Thurow, 2003: 100).[6]

In the United States, what is predicted by factor price equalization is precisely what has been happening. Capital's share of national income is up; labor's is down. The wages of the skilled have risen relative to the wages of the unskilled.

Between first and third world countries, returns would equalize with every factor of production (skill sets in the case of labor) being paid

the same amount regardless of whether it was located in a rich country or a poor country. Countries would be rich or poor based not on differences in the prices paid to individual factors of production but based on their aggregate supplies of capital and skilled or unskilled labor.

Factor price equalization has traditionally been ignored in public policy discussions about trade because it is assumed to occur very slowly. But if capital and labor mobility were high, factor price equalization could occur quite rapidly.[7] And there is no doubt that labor and capital mobility is accelerating.

World capital markets have created a mechanism for moving capital rapidly around the world. When it comes to making productive investments, capital-intensive investments can be and are made in poor countries today. Wealthy countries no longer automatically specialize in capital-intensive products. Just think of the world's steel industry, which is now predominately located in poor countries such as China.**3**

In the past, immigration rules stopped labor from freely moving around the world, but today's new electronic communication technologies have provided an alternative avenue for moving labor. Electronically, many types of labor services can now freely move around the world. Firms can build production teams where members of the team are spread across many geographic locations. People can be on the production team electronically without having to be at the same place physically. Modern electronics have enormously accelerated cross-border labor mobility.

To describe what is happening in today's world, the traditional factors of production have to be augmented by technology and management skills. But both of these have also recently become much more mobile. New communication and transportation technologies permit global supply chains where foreign direct investment effectively moves technology around the world. Companies move their technologies to wherever they can be used most profitably, teach local labor how to use that technology, and supply any ingredients—specific engineering and management skills or proprietary capital equipment—that are missing locally. Technologies are no longer employed where they are invented

and developed. Similarly, companies move management around the world both physically and electronically.

Natural resource endowments cannot move around the world, but they are both less and less used per unit of GDP created and much cheaper to ship around the world. South Korea has one of the world's most efficient steel industries without local supplies of either iron ore or coal.

Just to make the analysis clear, let us imagine that natural resources have dropped out of the economic equation completely and that capital, labor, technology, and management are completely mobile (move without cost). Now comparative advantage is not fixed at any one geographic location. Every country has access to the same production opportunities and the same factors of production. Potentially, every country now has access to the same potential efficiency frontier. Everyone is equally good at producing everything. If there are no economies of scale, if tastes are identical, and if factor prices are everywhere equal, no trade in goods would take place. The costs of producing for one's self (importing the factors of production one does not have) or buying from abroad would be identical. Comparative advantage disappears since everyone has access to the same set of production opportunities. There are no differences to create comparative advantage.

In this world a nation is essentially competing against itself. It (in America) cannot be better than itself (in some foreign country). It has no comparative advantage against itself because everything that leads to American productivity can be moved to some other country where it contributes to that country's productivity.

If factor prices are not equal across the globe, production will occur at the geographic locations that minimize costs. Absolute costs and not comparative advantage determine trade. While capital costs and the costs of acquiring technology are rather equal around the world, labor costs are not. As a result, labor costs would essentially determine the location of activities. Put simply, production moves to low labor cost locations until wage differentials have disappeared.

The disappearance of comparative advantage and the rapid achievement of factor price equalization depend on costless factor mobility. But there are costs to moving even when moving is technologically feasible. Transition costs arise and coordination costs undoubtedly increase when production teams are geographically spread out. Some things do not move—infrastructure and legal systems, for example. Intellectual property rights may be lost. Academic and scientific research shows that research teams are the most productive when the individuals 4live on top of each other—not even in different buildings. Being physically close to the ultimate customer often makes a difference in economic success and failure. Natural resources are not irrelevant.

In this real world how much will move, as opposed to how much could move, depends upon a detailed analysis of the nature of the transition costs, the ongoing coordination costs, the importance of face-to-face contact and informal information exchange, and the extent to which those things that cannot move anchor different industries to specific locations. What this means, of course, is that detailed empirical studies have to be done before anyone can axiomatically conclude that the gains from trade are positive.

There is another way in which real world economies do not fit the lens of traditional comparative advantage. Economists look at each country as if it were homogeneous and act as if the entire labor force has, for example, an average amount of education. A country is well educated or poorly educated. But reality is much more complex. India can have 100 million people who are as well educated as the best in the first world and 900 million illiterates. Averages show India to be poorly educated but with today's technologies it is possible to build an enclave economy within India using those 100 million well-educated individuals (leaving the 900 million behind). These 100 million well-educated individuals effectively become a new low-wage first world economy.

This effect cannot be described using comparative advantage. A new player has essentially entered the game. The effects on old players are best understood if one imagines a Wal-Mart suddenly appearing and

taking their market shares away from them. New competitors force wages and selling prices down for old competitors. If the 100 million well-educated Indians were in a separate country, changes in currency values would quickly raise their wages to first world levels, but their national currency values are effectively set not by their 100 million well-educated but by the 900 million poorly educated citizens.

Since economics does not have a formal theory of technical change, the "product cycle" has been grafted on to the theory of comparative advantage to allow it to explain trading patterns over time. According to the product cycle, first world countries move into the higher productivity new industries created by the latest advances in technology and third world countries step into the old low-technology industries first world countries are abandoning. Thus the jobs lost to trade when technologies actually move from one country to another are at the base and not at the peak of the economic pyramid.

But there is no need for this to be so. Technical advances could transform an industry or a job at the top of the first world economic pyramid into an industry or job now best done in the third world. There are many current examples where new technologies have made it possible to shift jobs that were at the top of the first world pyramid to the third world. A patient's MRI or X ray, for example, is taken in Boston but read in a city in India. The Internet means that the images do not have to be hand-delivered to the radiologist who will read them. They are delivered electronically. The medical team serving the patient is now spread around the globe. Those paying hospital bills gain since a radiologist costs a lot less in India than he or she does in the United States, but America loses a $400,000 per year job. Similarly, a semiconductor chip design team can work 24 hours a day with no one having to work through the night if part of the team is in Silicon Valley and part of the team is in Shanghai. Electronic communication makes it possible to create production teams across vast distances. Production is both cheaper and faster. But a high-wage engineering job has been lost in America. The losers from trade now occupy a very different part of the income distribution.

Using conventional textbook analysis, the efficiency (production) frontiers that are used to represent comparative advantage shift outward but also change their shape. And as they do, comparative advantage shifts. What was efficient to do in one country now becomes efficient to do in another country. Since the transition costs are now at the top of the economic pyramid and not at the bottom, the chances that the discounted net present value of these transition costs exceeds the discounted net present value of the lower prices paid by the buyer goes up.

It should be pointed out that the causes of this shift are not trade alone. To make the result possible it takes both trade and a shift in technology. But in the real world it is precisely such combinations that are now occurring. One could argue, and some economist do, that the real cause of the economic losses is technology and not trade, but that is semantics at its worst.

There is another route whereby globalization is changing the outcome of the economic game. As productivity rises, the gains from increases in productivity can be distributed in two ways. Prices can fall and the gains go to those who buy the products where productivity has risen. Or prices can remain constant and payments to the factors of production (wages in the case of labor) go up, producing income gains for those who supply factors of production. Empirically, after World War II increases in productivity showed up mostly as higher wages paid. But starting in the mid-1990s, the proportions seem to have reversed. More and more of the gains in productivity started to show up as price reductions (computers are the best example) and fewer and fewer of them showed up as wage increases. Much of this shift can be traced to globalization and the downward price pressures from cheaper imports.

While the avenue for distributing the gains from higher productivity does not affect the total gains in output, it does affect who gets those gains. Benefits go more to consumers and less to workers. Every worker is a consumer, but every consumer is not a worker (the elderly, the wealthy). As a result, the real income share of workers goes down while that of the elderly or the wealthy go up. Workers are worse off

than they would be if trade had not forced a shift in the avenue by which gains in productivity are distributed.

Put simply, with today's technologies the short-run benefits of marginal changes in trade are no longer axiomatically obvious. In the long run, the gains undoubtedly exceed the losses but in the short run the reverse can easily be true. The problem, of course, is that we always live in the short run.

NOTES

1. Given a standard convex production frontier with diminishing returns, if tastes differ so that countries want to consume in regions of the production frontier where diminishing returns are large, it pays to accommodate those tastes by having each country produce in the middle of the efficiency frontier where productivity (output per unit of input) is highest and trade with each other to get the goods at either end of the production frontier where efficiency is lower that are also the goods their consumers actually want.
2. With economies of scale the efficiency frontier is concave and maximum total output is achieved by having both countries concentrate in the production of one good and then trade that good for the other good. Which country specializes in which good is arbitrary.
3. For some inexplicable reason the benefits and costs are not discounted in the traditional textbook analysis.
4. Five percent less in 1986.**5**
5. Discounting costs and benefits (a standard economic procedure) is strangely absent from textbooks on international trade (although it is now to be found in some of the newer literature on international trade).
6. They could, however, be compensated for their losses from the higher returns enjoyed by first world capitalists, from the higher wages paid to first world skilled workers, and by first world buyers who get cheaper goods and services.
7. In the 1970s, manufacturing wages in Germany, Japan, and the United States equalized very rapidly—in less than a decade.

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AUTHOR QUERIES

1 Date for working paper? Also, please insert date, if available, in citation in references

2 addition of "in the United States" ok?

3 A question and a point here: first, the question: can you add another country besides China so we have more than one example to illustrate "poor countries"? e.g., Brazil, Ukraine? Poland? Also, do you want to call China a poor country without acknowledging/calling into question the popular perception that it is a wealthy country?

4 Change to: "work in the same location—the same office rather than in different buildings even."

5 Not clear what this footnote is referring to; imports/exports as a fraction of sales? And if so, why is the 1986 data relevant?

6 Date for working paper available?