

Does Trade with Low-Wage Countries Hurt American Workers?

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There are gaping disparities in wages and benefits around the world. In 1996, average hourly earnings of production workers in manufacturing were \$31.50 in West Germany, \$17.20 in the United States, \$1.51 in Mexico, and less than \$0.50 in India and China. How can such huge wage differences exist? Are American workers' wages and benefits forced down by competition from low-wage countries? Are trade barriers the solution? While there are some genuine problems raised by trading with low-wage countries, this article will try to show that popular fears are based on misunderstand-

ing of the causes and effects of wage disparities.

The following quotation, from the concluding article in the September 1996 *Philadelphia Inquirer* series "America: Who Stole the Dream?" by Donald Barlett and James Steele, forcefully expresses the widely held view that competition from goods produced in low-wage countries is unfair and detrimental to American workers.

"Companies that produce goods in foreign countries to take advantage of cheap labor should not be permitted to dictate the wages paid to American workers."

"A Solution: Impose a tariff or tax on goods brought into this country equal to the

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wage differential between foreign workers and U.S. workers in the same industry. That way competition would be confined to who makes the best product, not who works for the least amount of money.

"Thus, if Calvin Klein wants to make sweatshirts in Pakistan, his company would be charged a tariff or tax equal to the difference between the earnings of a Pakistani worker and a U.S. apparel worker....

"If this or some similar action is not taken, the future is clear. Wages of American workers will continue to slip, as well as their standard of living."

These arguments ignore a fundamental point: differences in wage rates between countries largely reflect differences in labor productivity (output per hour worked). For example, wages are low in India because productivity is low. Thus, the costs of producing goods are not as different across countries as wage rates suggest. Indeed, the United States as a whole benefits from international trade, irrespective of the wage levels of its trading partners, by specializing in what we do well and importing goods that are most efficiently produced elsewhere. By increasing efficiency, international trade, like technological change, increases the size of the economic pie available to the nation. Granted, international trade does adversely affect some industries and individuals, especially in the short run, but there are more than offsetting benefits to the rest of the economy. Rather than hobbling the efficiency of

the American economy with trade restrictions, it is better to ease the burden on the minority of Americans who are adversely affected.

MAGNITUDE OF INTERNATIONAL DIFFERENCES IN WAGES AND BENEFITS

Labor costs in the industrialized countries are much higher than those in the developing countries, although labor costs vary greatly within each group, too (Table 1; Figure 1). U.S. manufacturing wages are well below those of

TABLE 1
Indicators of Hourly Labor Costs
For Production Workers in
Manufacturing
Selected Countries, 1996^a

	Labor Costs (in \$U.S.)	Labor Costs (As a Percent of U.S. Labor Cost)
United States	17.74	100
Canada	16.66	94
France	19.34	109
Germany	31.87	180
Italy	18.08	102
Japan	21.04	119
United Kingdom	14.19	80
Hong Kong	5.14	29
Korea	8.23	46
Mexico	1.50	8
Singapore	8.32	47
Sri Lanka ^b	0.48	3

^aLabor costs in other countries are converted to U.S. dollars at the market exchange rate. Labor costs include wages and fringe benefits.

^b 1995

Source: U.S. Bureau of Labor Statistics

Germany but above those of the United Kingdom. For medium-income countries like Korea, labor compensation levels in manufacturing have reached nearly half of those in the United States, while low-income countries such as Sri Lanka, India, and China have labor costs that are less than 5 percent of U.S. levels.¹

THE PRINCIPLES OF COMPARATIVE AND ABSOLUTE ADVANTAGE

Popular discussions confuse the relationships between international trade, wages, and labor productivity. Wages are determined by the overall productivity of labor (absolute advantage)

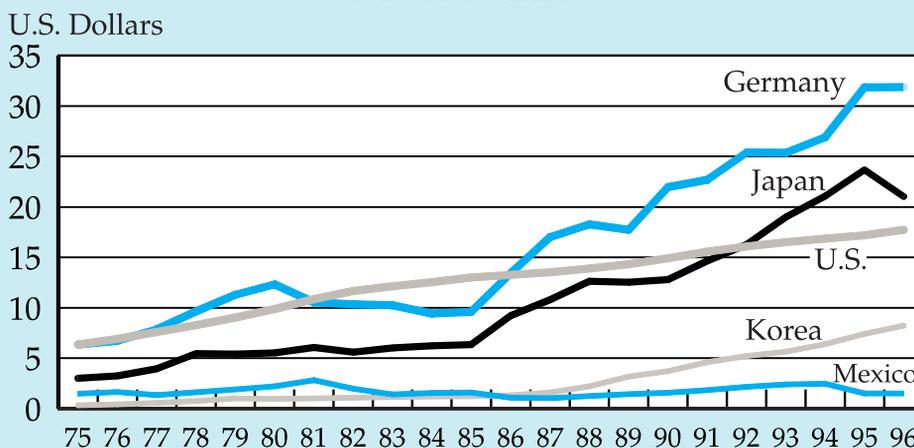
and are therefore not an independent source of international competitiveness. Trade patterns depend on comparative advantage: industry-by-industry differences in productivity across countries. We will first consider these basic principles before turning to the evidence.

The important distinction between comparative and absolute advantage, first put forth by David Ricardo in 1817, is best explained with a simple example (Table 2). With no international trade, the United States demonstrates higher productivity than Mexico in both industries in this example, but the productivity ratio is greater in computer chips (10 to 1) than in shirts (2 to 1).

To produce more shirts, a country must sacrifice chip output and vice versa, given a limited supply of workers. The number of chips that must be given up to produce, say, one more shirt is what economists call the “opportunity

¹Labor costs in manufacturing differ by industry; however, these industry variations are swamped by the overall differences in wages between countries. Therefore, it is not misleading to focus on manufacturing averages.

FIGURE 1
Hourly Labor Compensation
Of Production Workers in Manufacturing*
Selected Countries



*Labor costs in other countries are converted to U.S. dollars at the market exchange rate. Labor costs include wages and fringe benefits.

Source: U.S. Bureau of Labor Statistics

TABLE 2
Output per Worker
Per Hour

	Computer Chips	Shirts
United States	10	2
Mexico	1	1

cost” of a shirt. Since a worker in the United States can produce 10 chips or two shirts, the opportunity cost of one shirt is five chips. In Mexico, since a worker can produce one chip or one shirt, the opportunity cost of one shirt is one chip. Thus, the opportunity cost of shirts is higher in the United States than in Mexico. Therefore, Mexico has a “comparative advantage” in producing shirts, since it has a lower opportunity cost: that is, producing shirts “costs” fewer chips. Similarly, the United States has a comparative advantage in producing chips, since its opportunity cost in that industry is lower.

As the example suggests, the determination of comparative advantage depends only on the ratio of productivity in the two industries within each country. For example, if Mexican productivity were to double, so that each worker could produce either two chips or two shirts, the opportunity cost would be unchanged, and Mexico would retain its comparative advantage in producing shirts.

A related concept is that of absolute advantage. A country is said to have an absolute advantage in producing a good if a worker in that country can produce more of the good than a worker in the same industry in a different country. In the example above, the United States has an absolute advantage in producing both chips and shirts because a U.S. worker could produce more of either good than a Mexican worker.

Despite this absolute advantage, however,

the total output of the world economy—and the standard of living in each country—will be higher if U.S. workers produce more of those items in which they have a comparative advantage and Mexican workers do the same, and the two countries trade. In general, absolute advantage determines the overall level of wages in each country, and comparative advantage determines trade patterns.

To put this concept simply, let’s suppose wages in the United States are five times those in Mexico—as they were before Mexico’s currency crisis in 1994—in both the shirt industry and the chip industry.² Since U.S. workers can produce 10 times as many chips as their counterparts in Mexico, but their wages are only five times as high, the United States will have *lower* labor costs per chip. Similarly, since U.S. workers produce only twice as many shirts as Mexican workers, but their wages are five times as high, the United States will have *higher* labor costs per shirt. So, ideally, Mexico should produce more shirts, the United States should produce more chips, and the two countries should trade. Such a transaction produces more goods at lower cost because it allows each country to produce more goods in the industry in which it has a comparative advantage.

Both countries’ living standards will increase from trading according to comparative advantage because the resulting world pattern of production is more efficient than if each country produces only for its own market. The United States can obtain shirts more cheaply from Mexico than by producing shirts itself, paying for these shirt imports with chip exports. International trade does not cost U.S. jobs, but it does change the industry mix of U.S. output and employment. American production of

²Wages for workers with similar characteristics will be the same in different industries within a country if the labor market is competitive and workers can freely move between industries.

chips will expand while shirt production contracts, resulting in corresponding shifts in labor demand. The reverse happens in Mexico.

There are two qualifications to this characterization of the benefits of trade. First, relocating workers between the shirt and chip industries may be difficult in the short run, resulting in some unemployment of former shirt workers in the United States. Second, this kind of trade may reduce unskilled workers' real wages in the United States, even after workers are relocated, if the chip industry employs a higher ratio of skilled to unskilled workers than the shirt industry. In the United States, as chip production expands and shirt production falls, the demand for skilled labor rises, while the demand for unskilled labor declines. As discussed later, however, the proper response to these distribution effects is not to restrict trade but to ease the transition by retraining displaced workers.

These days, international trade, which is often conducted by multinational corporations, increasingly takes the form of trade in intermediate products, but the basic gains from trade are unaffected. American companies locate the simpler parts of their production processes in developing countries, while the more sophisticated components are produced at home. For example, 21 months after the North American Free Trade Agreement (NAFTA) went into effect, the Key Tronic company, a large manufacturer of computer keyboards, laid off 277 workers in Spokane, Washington, as it relocated some of its assembly jobs to a plant in Ciudad Juarez, Mexico. But Key Tronic's chief financial officer reported that employment in its Spokane plants actually increased overall because many of the components used in the keyboards are made in Washington, and the lower costs of assembly in Mexico enabled the company to lower prices and increase sales.³

Other studies show that economic integration with Mexico has entailed a boom in manufacturing production in U.S. cities along the

border because Mexican factories specialize in assembly, which makes intensive use of unskilled labor, while border regions in the United States specialize in high-technology tasks such as production of components and product design.⁴ This international division of labor follows the principle of comparative advantage. The United States is likely to have an absolute advantage in all stages of the production process, because American workers are, on average, more skilled and educated than those in developing countries, and infrastructure in the United States is superior. But the United States' advantage in terms of efficiency is likely to be greatest in high-technology production processes, for which a highly skilled work force is critical. The United States gains from the increase in efficiency resulting from the global division of labor, just as in the simple chip/shirt example.⁵

In fact, the chip/shirt example illustrates a key point: low wages most likely reflect low productivity. Furthermore, if low wages were all that mattered in international trade, countries with rock-bottom labor costs, such as Bangladesh, Bolivia, and Burundi, would be major exporters. Yet, popular concern often focuses on countries such as Mexico and South Korea—countries with wages well above those in Africa and South Asia. Clearly, labor productivity matters, too.

Some people worry that as low-wage coun-

³"NAFTA Tradeoff: Some Jobs Lost, Others Gained," *New York Times*, October 7, 1995.

⁴See the article by Gordon Hanson.

⁵Robert Feenstra and Gordon Hanson provide a theoretical analysis of this form of comparative advantage. One difference between their results and the textbook analysis is that skilled labor reaps the gains from trade in *both* the United States and the low-wage country. This result is consistent with some evidence that the gap between the wages of skilled and unskilled workers is widening in developing countries, just as it is in developed countries.

tries acquire technology and capital, their productivity will rise, giving them a competitive edge. But there are two reasons not to be concerned about this. First, as productivity in a country rises, wages tend to rise as well, so the competitive edge lessens. Second, other factors, such as low levels of human capital (knowledge and skills) as well as poor public infrastructure and transportation services, tend to hold down productivity in low-wage countries, even when they acquire new physical capital (computers and factories). Except for products and production processes that require large amounts of unskilled labor, these factors offset the appeal of low wages for companies considering relocating their production to poor countries.

In addition, developing countries may have higher costs of other inputs, such as capital, energy, and raw materials. Prices of these inputs are more likely than wage rates to be similar across all countries, because, unlike labor, nonlabor inputs can be moved across borders in response to international price differences. Nonetheless, capital, energy, and raw material *costs per unit of output* could be higher in developing countries if these countries use nonlabor inputs less efficiently than developed countries.

In summary, both developed and developing countries can benefit from specializing in what each produces relatively efficiently, regardless of the overall level of labor costs, because low wages do not necessarily mean low production costs across the board. Low wages may be offset by either low labor productivity or higher costs of nonlabor inputs such as capital, energy, and raw materials. Only in low-skill industries and unsophisticated production processes are developing countries likely to have lower average costs of production and, hence, a comparative advantage.⁶

⁶China's efforts to develop an aircraft industry are often presented as a counterexample. But China's exports consist overwhelmingly of low-technology items such as clothing, shoes, and toys.

WAGES, PRODUCTIVITY, AND TRADE: EVIDENCE

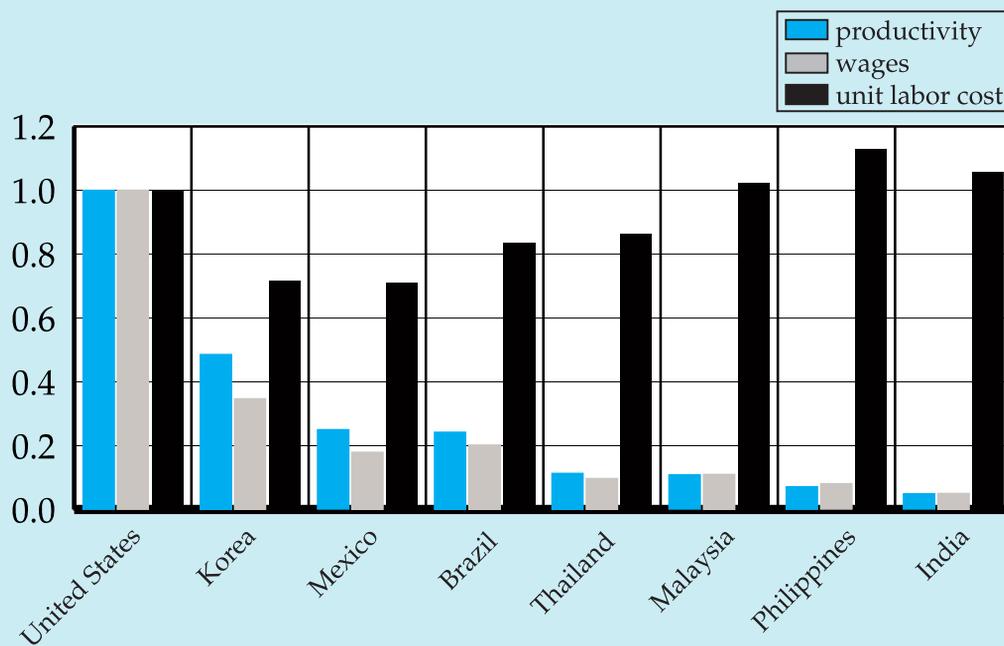
Wages and labor productivity are related (Figure 2).⁷ For example, in 1990 wages in Malaysia were 10 percent of wages in the United States. But Malaysian labor productivity was also about 10 percent of the U.S. level in 1990. This means that unit labor costs (the ratio of wages to productivity) were approximately the same in Malaysia and the United States because the difference in productivity almost exactly offset the difference in wages between the two countries. In this case, companies have no incentive to shift production from the United States to Malaysia.

In general, international differences in unit labor costs are much smaller than differences in wage rates because the huge international disparities in wages mostly reflect equally large differences in productivity. In fact, these calculations indicate that, in 1990, unit labor costs in the Philippines and India were actually higher than those of the United States, that is, the productivity difference was even bigger than the wage difference.

Some disparities between wages and productivity are to be expected for several reasons.

⁷Productivity is calculated as real value-added per employee. Value-added is the value of output minus the costs of raw materials and other intermediate inputs. Wages are defined as earnings per employee. Earnings here include all direct payments, including maternity and vacation pay and payment in kind, but exclude employer contributions to social insurance funds, as data on the latter are not available for most developing countries. The exclusion of social insurance costs is likely to overstate relative labor costs in developing countries, but only to a minor extent. Direct pay is still, by far, the larger part of compensation, accounting for 70 to 90 percent of total labor compensation even for the United States and other rich countries. The ratio of employer-paid benefits to total labor costs is not that much higher in developed countries compared with the few developing countries for which this information is available. For details on sources and methods of the calculations of wages and productivity, see my 1995 article.

FIGURE 2
Labor Productivity, Wages, and Unit Labor Costs
in Developing Countries, Relative to the United States



Source: Golub (1995)

First, differences in wages sometimes reflect temporary exchange-rate movements, which may have little effect on long-term business decisions about the location of production. For example, the appreciation of the dollar against the mark and the yen in the early 1980s sharply lowered German and Japanese wages measured in U.S. dollars (see Figure 1). The depreciation of the dollar in the late 1980s and early 1990s, however, led to a large increase in German and Japanese wages expressed in U.S. dollars.⁸ Second, as noted above, some differences in unit labor costs may be offset by nonlabor costs, so low unit labor costs do not necessarily imply a competitive advantage. Third, the available

measures of labor costs and productivity are not always fully reliable and comparable, especially for developing countries. Despite these qualifications, a fairly close correlation between la-

⁸German unit labor costs in the mid-1990s reached levels nearly double those of the United States, as German labor compensation rose well above U.S. wages and German productivity remained at about 80 percent of the U.S. level. Germany's high unemployment may reflect, in part, the relatively high level of German labor costs. The depreciation of the mark in 1996-97 has partially restored Germany's cost competitiveness. A similar description applies to recent Japanese unit labor costs, but to a lesser extent.

bor costs and labor productivity is observed across countries.

Wages and labor productivity also move together over time for individual countries. For example, Korea experienced both high wage growth and high productivity growth in manufacturing over 1970-95, compared with the United States (Figure 3). In 1970, Korean wages were 8 percent of U.S. wages, while Korean productivity was 14 percent of U.S. productivity. By 1995, Korean productivity had reached 69 percent of the U.S. level, while Korean wages grew to 48 percent of American wages. Note that U.S. manufacturing productivity and wages grew steadily over this period, so Figure 3 indicates very strong growth in Korean wages and productivity. Korean workers have greatly benefited from Korea's phenomenal economic growth.

In Mexico, wages and productivity moved closely together until the outbreak of the debt crisis in 1982. This crisis led to policies of extreme austerity and steep depreciation of the peso to enable Mexico to service its foreign debt and, in turn, caused a steep decline in the dol-

lar value of Mexican wages (Figure 4). Mexican wages recovered relative to productivity after 1986, but fell back after 1994. This decline in Mexican wages and unit labor costs in 1994-95 and the subsequent shift of the Mexican trade balance from deficit to surplus are often inappropriately cited by U.S. opponents of the North American Free Trade Agreement as vindication of their views that NAFTA would create a "large sucking sound" of jobs being siphoned off to Mexico. As in the early 1980s, the drop in Mexican wages after 1994 reflects the collapse of the peso and deep recession in Mexico. Indeed, manufacturing employment in Mexico dropped nearly 10 percent in 1995. As the Mexican economy recovers from the crisis, its wages and unit labor costs are likely to increase, as they did from 1987 to 1991.

The volume of trade is also inconsistent with fears about the competitiveness of low-wage countries (Table 3). Many developing countries' exports of manufactures to the industrial countries have increased rapidly, but the majority of these developing countries continue to run trade deficits in manufactures, as their imports

FIGURE 3
Wages and Labor Productivity,
Expressed as a Ratio of U.S.
Wages and Productivity
KOREA

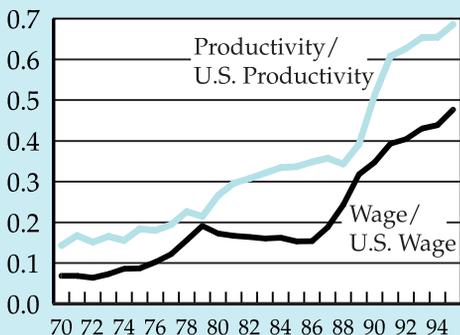


FIGURE 4
Wages and Labor Productivity,
Expressed as a Ratio of U.S.
Wages and Productivity
MEXICO

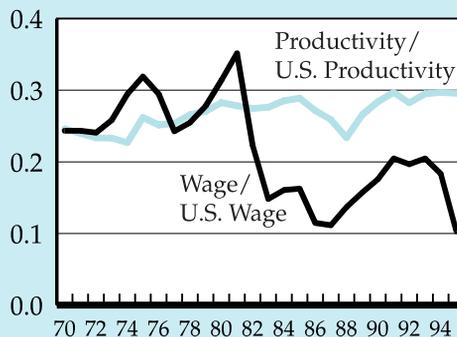


TABLE 3

**Developing Countries' Trade in Manufactured Goods
with All Industrial Countries, Selected Years, as a per-
cent of Developing Countries' GDP**

		Exports to Industrial Countries	Imports From Industrial Countries	Trade Balance
Brazil	1970	0.3	2.8	-2.5
	1980	1.1	2.2	-1.1
	1990	2.2	1.5	0.6
	1995	1.7	3.1	-1.4
India	1980	1.1	1.8	-0.7
	1990	2.1	2.2	-0.1
	1995	3.8	3.3	0.5
Korea	1970	6.1	9.8	-3.7
	1980	14.3	11.4	2.9
	1990	15.2	11.6	3.5
	1995	12.3	13.9	-1.6
Malaysia	1970	8.0	13.6	-5.5
	1980	9.3	19.1	-9.8
	1990	19.1	31.3	-12.2
	1994	33.2	45.0	-11.8
Mexico	1970	0.8	4.3	-3.4
	1980	0.7	5.7	-5.1
	1990	3.7	6.8	-3.1
	1995	19.3	16.8	2.5
Thailand	1970	1.3	9.6	-8.3
	1980	4.2	9.4	-5.2
	1990	10.7	17.3	-6.6
	1995	12.8	21.9	-9.1

Sources: United Nations, International Monetary Fund.

have grown nearly as much. For many of these developing countries, two-way manufacturing trade with the industrial countries is now quite large in relation to their gross domestic product (Brazil and India are exceptions). Trade in manufactures is, on the whole, much more important for the developing countries than for the developed countries, as measured by share of respective GDP.

In summary, wage differences do mostly reflect productivity differences. Macroeconomic shocks and exchange-rate fluctuations, however, can entail large discrepancies for several years.

INTERNATIONAL TRADE AND THE U.S. LABOR MARKET

U.S. Employment Performance. Critics argue that the overall U.S. trade deficit and the deficits with particular developing countries such as China and Mexico reduce the number of jobs in the United States. As evidence, they often cite the decline of manufacturing employment. They claim that other countries, such as Japan and those in Western Europe, have less open markets and consequently do not run trade deficits like the United States. But these arguments ignore the fact that overall U.S. employment growth has been extraordinarily impressive, far outpacing that of Europe and Japan. Indeed, there has been much discussion in these countries about how to emulate U.S. employment performance. In 1997, the U.S. unemployment rate fell below 5 percent, its lowest level since the early 1970s. In recent years, the labor force and employment have increased more rapidly than the population of working age: 4 million workers were added in 1996 and the first half of 1997 alone. The *New York Times* reported recently that the demand for labor is so strong that “companies are recruiting among those ignored in the past: mothers at home with their children, older men who had retired or been laid off, students, immigrants, people with criminal records. State offi-

cial [in Louisville, Kentucky] who help former prisoners get jobs say companies now reject fewer convicted felons.”⁹

Therefore, while the U.S. trade deficits do displace some workers, any associated job losses have been more than offset by overall job creation. In fact, the causation runs in the reverse direction: the strength of the U.S. economy, which manifests itself in employment growth, is an important cause of the overall U.S. trade deficit, since imports rise with incomes. Recessions in Japan, Europe, and Latin America, meanwhile, have held down U.S. exports.

Even in manufacturing, international trade has had a secondary role in affecting employment trends. In 1994, manufacturing accounted for 16 percent of all U.S. jobs, down from 26 percent in 1970. A recent study found that the U.S. trade deficit accounted for only one tenth of this decline; the remainder is mostly due to the difference in productivity growth between manufacturing and the service sector.¹⁰ As manufacturing productivity increases, fewer workers are needed to produce a rising volume of output, and the released workers shift to the service sector. Much the same occurred in agriculture earlier in the century. Technological change and capital investment lowered the share of employment in agriculture from 44 percent in 1900 to 3 percent today. This process was undoubtedly painful for many displaced workers, but few today would consider reversing the clock on the gains in standard-of-living afforded by the growth in agricultural productivity.

Nor is it true that the overall “quality” of jobs has declined as the quantity has increased.

⁹“Jobs Opening Faster Than They Can Be Filled,” *New York Times*, July 10, 1997.

¹⁰See the article by Robert Rowthorn and Ramana Ramaswamy.

Careful studies show a mixed picture. Job growth has been strong in high-paying as well as low-paying occupations, as industries have shifted the occupational mix of their employees. Between 1983 and 1994, jobs in managerial, professional, and technical occupations grew more rapidly than overall U.S. employment.¹¹ Once again, this does not deny that some workers have suffered because of job dislocation and wage declines, sometimes caused by competition from imports. The overall performance of the labor market, however, is at variance with the popular view that international trade is devastating American labor.

Wage Inequality. Increased inequality of wages has been one of the most salient features of the American labor market in recent decades. While average family income has increased, the gap between higher-paid and lower-paid workers has widened sharply.¹² Much of the increase in wage inequality reflects a greater demand for skilled labor, as evidenced by a large increase in the wages of college graduates relative to the wages of workers without a college education. While increased wage inequality is not necessarily a bad thing in itself, as it may reflect a more competitive and discerning labor market, the plight of those at the lower end of the income distribution is a source of concern. The question here is the role international trade is playing.

As suggested by the Mexico shirt/ U.S. computer chip trade example, international trade with poor countries can be expected to increase the relative demand for skilled labor in the United States, since the United States expands production in industries that make intensive

use of skilled labor and it imports goods created largely by unskilled labor. Such trade may cause not just a widening in the wage gap between skilled and unskilled labor but also an absolute decline in the real income of unskilled workers. Also, the widening wage inequality has coincided with an increase in international trade with low-wage countries, suggesting a possible connection.

Although there may be a connection between increased trade and income inequality, many studies conclude that international trade with low-wage countries has played, at most, a secondary role in increasing income inequality. As a recent survey of the literature concludes, "Nearly all of this research finds only a modest effect of international trade on wages and income inequality."¹³ The small effect of trade on wage inequality in the United States is not so surprising when one considers the small size of such trade. Although imports of manufactured goods from developing countries have expanded rapidly, in 1995 they still amounted to only 3 to 4 percent of U.S. gross domestic product (GDP) and 7 percent of the value of manufacturing production. More than half of U.S. imports of manufactured goods still come from other industrialized countries, some of which have higher wages than the United States (see Table 1). Most economists think that technological change, which has increased demand for workers with higher skills, is mainly responsible for the rise in the demand for skilled rather than unskilled labor and the resulting increase in wage inequality. Many economists believe that advances in information technology, such as computers and telecommunications, are at the heart of the changes affecting the U.S. economy.

In the case of technological change, the benefits to the overall standard of living outweigh

¹¹See the study published by the Committee on Economic Development.

¹²See Peter Gottschalk's article for a summary of the facts and other articles in the same issue of the *Journal of Economic Perspectives* for further discussion.

¹³See the article by Matthew Slaughter and Phillip Swagel.

the associated dislocations to those whose skills become obsolete. The economic effects of international trade are similar: trade and new technology both raise the general standard of living while hurting those whose occupational skills are devalued. Why accept technological change while restricting trade? Many people recognize that new technology entails a shift in the composition of jobs rather than a net loss of jobs but fail to understand that the same is true for international trade. But, as discussed previously, by specializing according to comparative advantage, countries increase their productive efficiency with little net effect on job creation.

Although technological change is far more important than international trade as a cause of wage inequality, trade does adversely affect some workers. Rather than restrict trade, the United States should offer a social safety net and retraining, which are better ways of helping displaced workers. That way, society can

reap the gains from trade and share them more equally.

CONCLUSIONS

Trade between the United States and low-wage countries benefits most people in both places, irrespective of wage differences. Differences in wages largely reflect differences in labor productivity and are not a form of unfair competition. Developing countries tend to specialize in products created mostly by unskilled labor while the United States specializes in more sophisticated goods. Some unskilled workers in the United States are adversely affected by such trade, although factors other than trade are more important in accounting for increases in wage inequality. In any event, restricting trade is an inferior solution—it is better to help displaced workers adjust rather than deny society the gains from specialization according to comparative advantage.

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