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## Labor-Market Pressures Facing Workers

Chapter 2 documented the breadth and depth of antiglobalization sentiment among US citizens. Chapter 3 showed that preferences about trade and immigration policy divide strongly across skill levels. How is this evidence on worker perceptions and preferences related to worker pressures in the US economy? To answer this question, we first need to present evidence on these pressures. In this chapter we present this evidence, and in chapter 5 we return to the question of the relationship between worker perceptions, preferences, and pressures.

At the time of this writing, many macroeconomic measures of the US economy suggested healthy times for all US workers. US GDP had been expanding uninterrupted for a decade (nearly two decades but for the 1990-91 recession), the longest peacetime expansion in US history. Aggregate US unemployment had reached near-record lows in recent years, moving below 5 percent after 1997 and at times below 4 percent. Reflecting this ongoing economic growth, US financial wealth had grown tremendously: the New York Stock Exchange index rose nearly tenfold, from 71.11 at year-end 1981 to 650.30 at year-end 1999.<sup>1</sup>

Many commentators have puzzled over the juxtaposition of strong skepticism about globalization in the face of strong macroeconomic performance. As Gerald F. Seib put it in the *Wall Street Journal*, “After eight years of economic growth, obviously enhanced by international trade, at a time of the lowest unemployment rate in 30 years, a large chunk of Americans remain oddly ambivalent about the benefits of trade. One can

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1. Equities data were obtained from the New York Stock Exchange, <http://www.nyse.com/pdfs/historical99.pdf>.

only wonder: What will their attitude be when economic times aren't so good?" (*Wall Street Journal*, 10 May 2000, A28).

What the macroeconomic performance misses, however, is the very different labor-market performance of different skill groups evident at the microeconomic level in recent decades. Indeed, the skills-preferences opinion cleavage described in chapter 3 suggests that economic performance across different skill groups is what matters. If different skill groups have fared differently, then one could conjecture a link between this differential economic performance and the skills-preference cleavage. To better understand links between worker perceptions, preferences, and pressures, in this chapter we present empirical evidence on the labor-market pressures facing different US skill groups in recent decades.

Wage trends across skill groups have differed dramatically in recent decades. First, the premium that more-skilled workers have earned over less-skilled workers has been rising sharply since the late 1970s. Second, average real-wage growth in the United States has been sluggish since the early 1970s. All this means that compared with high-skilled workers, the majority of the US labor force has had close to zero or even negative real-wage growth for about 25 years. During this period, only more-skilled workers have been enjoying real-wage gains. These patterns differ sharply from those of earlier decades, when real-wage growth was both faster and enjoyed by all groups, with steady or declining inequality.

What role has globalization played in driving these wage changes? On balance, most academic research has concluded that trade, immigration, and foreign direct investment have had relatively small roles. The real-wage slowdown remains largely a puzzle, but it has been most pronounced in the service sector, much of which is nontraded and has little FDI activity. Technological change favoring skilled workers seems to have been the major force driving up the returns to skills. There is little evidence that increases in trade, FDI, or immigration played the main role in widening inequality—although this is not to say globalization has had no role at all.

Thus, the data indicate poor labor-market performance for less-skilled US workers, in both relative and real terms, whereas the academic research suggests that globalization has not been the central force driving this performance. How these labor-market pressures are related to worker perceptions and preferences is the topic of chapter 5.

## Changes in US Relative and Real Wages

### Fact 1: Rising Inequality across Skills

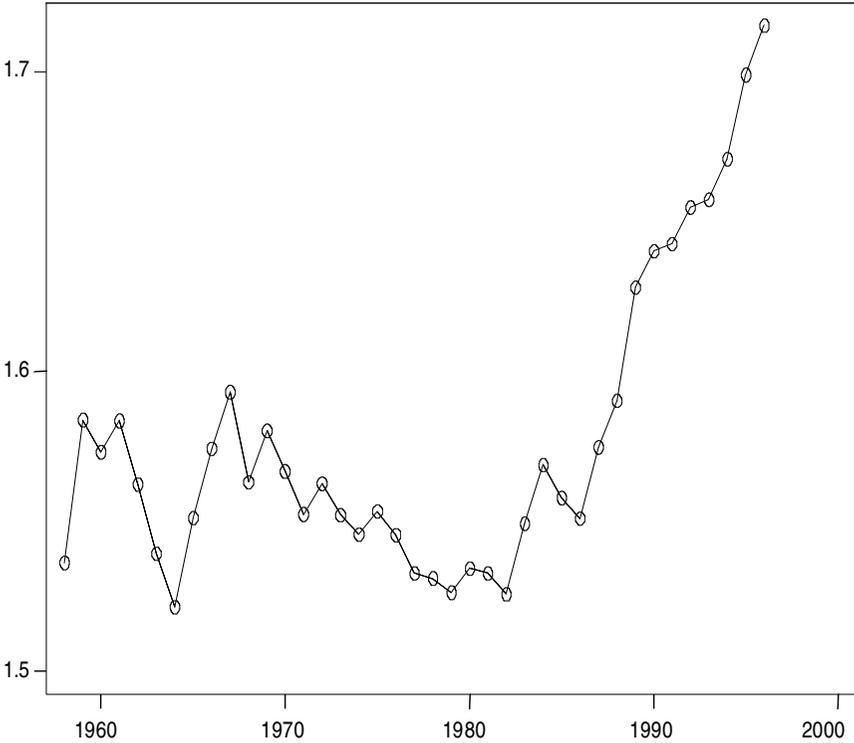
Figure 4.1 shows one approximate measure of the rising US skills premium.<sup>2</sup> For each year since 1958, the figure plots the average annual

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2. As discussed in chapter 3, economists typically distinguish different skill groups in terms of educational attainment, job classification, or work experience. Different measures have

**Figure 4.1 The skill premium in US manufacturing**

relative wage,  
nonproduction to production workers



Note: Skill premium is measured as the ratio of average annual wages of nonproduction workers to average annual wages of production workers in US manufacturing.

Source: National Bureau of Economic Research, Manufacturing Industry Database, <http://www.nber.org/nberces>.

earnings of a nonproduction worker divided by the average annual earnings of a production worker in US manufacturing, where research has shown that nonproduction workers tend to have more labor-market skills than production workers. This ratio of nonproduction to production earnings, one possible measure of the skills premium, generally declined from the late 1950s until the late 1970s. But since about 1979 it has been rising sharply. In 1979 the average nonproduction worker earned about 50 percent more than the average production worker; by 1996 this gap had grown to over 70 percent.

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different pros and cons, but it is important to stress that major labor-market shifts—such as the rising US skill premium—tend to look very similar across all measures.

This rise in the US skills premium has been under way since the late 1970s across all skills measures—education, experience, and job classification. For example, in 1979 male college-educated workers earned 30 percent more on average than male high school-educated workers. By 1995 this premium for college-educated workers had risen to about 70 percent. A similar picture of rising inequality can be found in the overall wage distribution. Both the 90/50 and the 50/10 earnings ratios for male workers—that is, the ratio of the earnings of a worker at the 90th percentile to those of a worker with median earnings and the ratio of a worker with median earnings to those of a worker at the 10th percentile—were flat or declining from 1967 until about 1979 and then rose steadily from 1979 through 1995. The exact timing and magnitude of the skills-premium changes vary somewhat with the data series used, but all series show the same dramatic picture of sharply rising returns to skills.<sup>3</sup>

## **Fact 2: Sluggish Growth in Average Real Wages**

Along with these relative-wage changes, average real-wage growth in the United States has been sluggish since the early 1970s. Figure 4.2 illustrates this real-wage slowdown. For all nonfarm workers in the private sector each year since 1964, the figure plots US average weekly earnings in real 1982 dollars (nominal dollars deflated by a price index set equal to one in 1982). From 1964 through 1973, US average real weekly earnings rose strongly, from just over \$280 to nearly \$320. But since 1973 real earnings have slid dramatically, falling below \$260 by the mid 1990s. By 2000, real earnings had recovered to just under \$280, back to early-1980s levels but still well below the 1973 peak.

Of course, the exact pattern of change in US real wages depends on both the measure of nominal wages (e.g., just salary or all compensation including fringes) and the measure of the price index used to translate nominal into real wages (e.g., a consumer price index or a producer price index). A good deal of research has examined these measurement issues (e.g., the 1997 *Economic Report of the President* and Abraham, Spletzer, and Stewart 1999). But across a wide range of possible real-wage measures, a consistent pattern is seen: growth in average real earnings in the United States has been sluggish since the early 1970s.

## **Facts 1 and 2 Combined: Sluggish to Negative Real-Wage Growth for Most US Workers**

The combination of the sharp rise in income inequality with the sharp slowdown in real-wage growth means that real-wage growth has been

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3. These basic facts on relative earnings come from the *Economic Report of the President* for 1997 and for 2000, each of which devotes substantial space to labor markets and inequality.

**Figure 4.2 Private-sector nonfarm average weekly earnings**

1982 dollars



Note: Average real earnings are measured as weekly earnings expressed in seasonally adjusted 1982 dollars (price deflator is the consumer price index for urban wage earners and clerical workers-GPI-W). Each year's earnings are calculated by taking a simple arithmetic average of that year's 12 monthly earnings, except for 2000, where the average is taken over the 10 months through October.

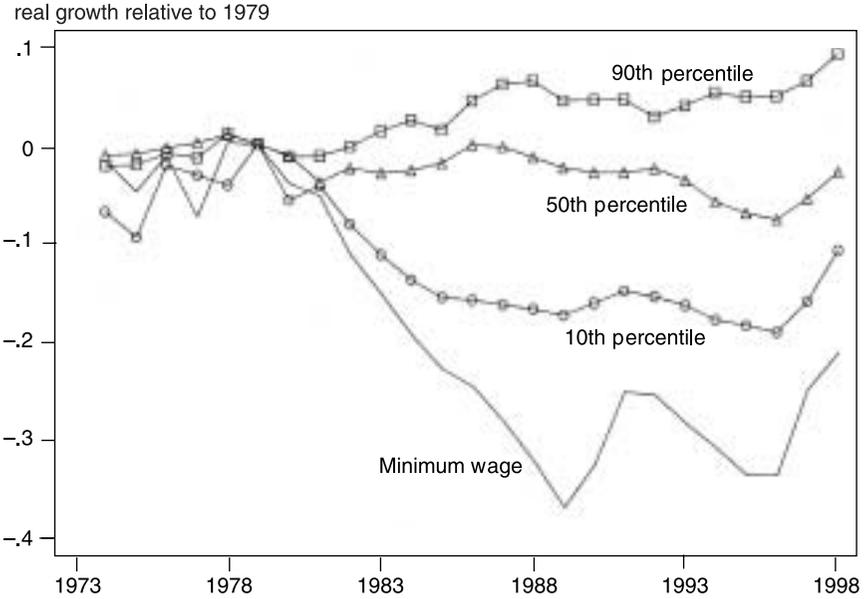
Source: US Department of Labor, Bureau of Labor Statistics, Nonfarm Payroll Statistics from the Current Employment Statistics, Total Private Average Weekly Earnings, 1982 Dollars, Seasonally Adjusted (data series EES00500051), <http://www.bls.gov/datahome.htm>.

flat or even negative for less-skilled US workers in recent decades. Figure 4.3 shows this trend. Real-wage patterns are plotted from 1973 to 1998 for four different skill groups: more-skilled workers at the 90th percentile of the overall wage distribution; medium-skilled workers at the 50th percentile; less-skilled workers at the 10th percentile; and workers earning the statutory minimum wage. For each group, wages are benchmarked to 1979 levels, so the four lines intersect at zero that year. Only more-skilled workers at the 90th percentile enjoyed higher real wages in 1998

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Inequality has risen across education, experience, and occupational groups as well as within these groups. For additional discussion, see Blanchflower and Slaughter (1999).

**Figure 4.3 Differential real-wage performance across skill groups**



Note: Average real earnings are measured as nominal earnings deflated by the CPI-UX1 consumer price index. Wage growth for four different skill groups is shown: more-skilled workers at the 90th percentile of the overall wage distribution; medium-skilled workers at the 50th percentile; less-skilled workers at the 10th percentile; and workers earning the statutory minimum wage. Each group's real-wage growth is plotted relative to its 1979 level, which is set equal to 0.

Source: Katz and Krueger (1999, figure 4).

than in 1979; real wages for all other skill groups were lower in 1998 than 1979.

Again, exact real-wage movements depend on many measurement issues, but the overall pattern of different real-wage performance across skill groupings is clear for all measures. Similarly, the 2000 *Economic Report of the President* describes the dramatically different real-income performance for families across different quintiles of the overall income distribution. From 1973 to 1993, the bottom 40 percent of families suffered real-income declines—nearly 1 percent per year for those in the lowest quintile, and about 0.3 percent per year for those in the second quintile. Those in the third quintile had basically zero real-income growth. Only families in the fourth and fifth quintiles enjoyed real-income increases, about 0.4 percent and 1.3 percent per year, respectively. Thus, from 1973 through 1993, 60 percent of US households had flat or declining real income. Looking at less-skilled groups, Freeman (1995) reports that the real hourly earnings of male high school graduates fell by 20 percent from

**Table 4.1 The skill mix of the US labor force since 1940 (percent)**

Year	High school dropouts	High school graduates	Some college	College graduates
1940	76	14	5	5
1950	66	21	7	6
1963	52	30	9	9
1970	45	34	10	11
1979	32	37	15	16
1989	23	39	17	21
1999	17	33	25	25

Note: Each cell reports the share of the total US adult population (aged 25 and over) accounted for by that labor group in that year.

Sources: Johnson (1997, table 1) for all years but 1999. For 1999: US Bureau of Census (2000), *Educational Attainment in the United States, March 1999*, Washington: US Government Printing Office.

1979 through 1993, with an even larger 30 percent decline for “entry-level” male high school graduates.

How big a part of the US labor force are these less-skilled workers who have suffered poor wage performance, both in real and relative terms, for some 25 years now? As typically defined by labor economists, they constitute the majority of the US labor force. Table 4.1 shows the skill mix among US workers since 1940. The US labor force has been upgrading skills for decades. In absolute terms, however, even as of 1999, college graduates—the group typically defined as the most-skilled workers—accounted for only about one in four US workers. Adding those with some college still captures only 50 percent. Even after 60 years of rising educational attainment, the median US worker is still a high-school graduate and has seen poor wage performance in both real and relative terms for more than a generation.

We make two final points about US wages. First, real-wage growth for all skill groups has been much stronger since about 1996, but the impressive gains of the past few years have not undone the poor performance of the past few decades. Figures 4.2 and 4.3 illustrate this strength for all workers and for different skill groups. The same strength is evident in other earnings data. For example, the 2000 *Economic Report of the President* reports real-income growth of 2 to 2.5 percent across all five family income quintiles from 1993 to 1998. This real-wage growth at all parts of the skills distribution is important, and research findings are beginning to emerge

on whether advances in computers and information technology have driven this growth (e.g., the symposium in the Fall 2000 *Journal of Economic Perspectives*). Placing this recent growth in context, however, shows that it has not offset the flat or negative growth of recent decades. Figure 4.2 shows that average real earnings in 2000 returned to early-1980s levels—which were still well below pre-1980 levels. Similarly, figure 4.3 shows that the growth of 1996-98 did not return wages to 1979 levels for workers at the 50th and 10th percentiles.

The second point to note is that recent US wage changes differ markedly from US wage movements earlier in the 20th century. Krugman (1992) reports that from 1900 to 1970, US output per worker rose at an average annual rate of 2.3 percent, reaching the rate of 2.8 percent during the 1950s and 1960s. From 1970 through the start of the 1990s, output per worker grew at only 1.2 percent per year. To the extent that workers earn their marginal product, these productivity measures also indicate the likely pattern of real wages.<sup>4</sup> In earlier decades, inequality across skill levels and households was generally flat or falling. For example, from 1948 through 1973, family income grew faster for the lowest quintile than for the highest (*Economic Report of the President* 2000).

## Has Globalization Driven Recent US Wage Changes?

The globalization of the US economy depicted earlier in figures 1.1 through 1.3 suggests that the answer might be yes. Each figure shows sizeable increases in globalization over roughly the same period that labor-market performance deteriorated. However, the answer is not as clear as that, because most academic research has concluded that increased trade, immigration, and foreign direct investment have *not* been the most important forces driving shifts in real and relative wages.

Consider real wages first. As noted earlier, the real-wage slowdown has been most pronounced in services, which are largely nontraded and have little FDI activity. From 1973 through 1993, real output per hour in US manufacturing grew at an average annual rate of about 2.5 percent. But in the nonfarm private sector, real output per hour grew at an average annual rate of only 1.4 percent. Thus, the productivity slowdown was concentrated mainly outside of US manufacturing and agriculture—that is, in the part of the economy that is mainly nontradable and in which

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4. Although in theory there should be a virtually one-to-one relationship between productivity or output per worker and real wages, in practice there can be differences. For example, the 2000 *Economic Report of the President* reports that US real output per hour grew annually at 3.3 percent from 1948 through 1973, but at only 1.5 percent from 1973 through 1990, with even slower growth in real compensation, 0.8 percent per year, from 1973 to 1993.

production is much less related to FDI.<sup>5</sup> Many researchers have used evidence like this to cast doubt on arguments that the US real-wage slowdown has been driven by globalization forces.

What about the rising US skills premium? The academic literature on this subject is extensive, and it offers a wide range of conclusions (see surveys in Freeman 1995 and Richardson 1995). However, most studies seem to have concluded that technological change favoring skilled workers has been the major force driving up returns to skills. This “skill-biased” technological change, widespread across the majority of US industries, does not appear to be robustly related to various globalization forces. Consider each force in turn.

Most trade economists looking at the role of international trade have organized their data analyses around the Stolper-Samuelson process outlined in chapter 3. For trade to have driven changes in US relative wages via changes in US relative product prices, it would have done so by raising the relative price of less-skill-intensive goods during the 1970s but then lowering the relative price of less-skill-intensive goods since around 1980. Have prices actually moved in this manner? No: changes in US product prices have not clearly matched up with changes in the skills premium. This has led many to conclude that trade has not been a major force driving wage movements. Other studies using other methods have reached similar conclusions.<sup>6</sup>

The literature examining the impact of immigration on native wages in US regions is also extensive. The standard approach is to regress the change in native wages on the change in the stock of immigrants across US metropolitan areas. Most studies find that immigration has, at most, a small negative impact on local native wages. As for FDI, there is no robust correlation between either outward or inward flows.<sup>7</sup>

This is not to say that trade, immigration, and FDI have had *no* role in *any* recent US wage changes. A number of studies have concluded that these globalization forces have played some part. For example, Feenstra

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5. These productivity data come from the Bureau of Labor Statistics, <http://146.142.4.24/cgi-bin/surveymost?pr>.

6. Leamer (1998) and Baldwin and Cain (2000) find that US relative product prices fell for less-skill-intensive sectors during the 1970s. And these two studies as well as Lawrence and Slaughter (1993) and Bhagwati (1991) find no clear trend in US relative product prices during the 1980s. See Slaughter (2000a) for a survey of these product-price studies. Borjas et al. (1997) calculate trade's role in rising inequality by calculating changes in US labor supplies “embodied” in flows of US exports and imports. This is a very different methodology from the product-price studies, but they also find only a small role for trade.

7. Recent immigration papers include Borjas et al. (1997) and Card (1997). See Borjas (1994 and 1999) and Friedberg and Hunt (1995) for surveys. See Slaughter (2000b) and Blonigen and Slaughter (2000) for studies of outward and inward FDI and skill upgrading within US industries.

and Hanson (1999) find strong evidence that “outsourcing”—that is, importing intermediate inputs—in US manufacturing accounts for about 15 percent of the overall rise from 1979 to 1990 in the manufacturing skills premium. In contrast, their proxy for technological change, computer use, accounts for about 35 percent of the overall rise—more than twice as much. And despite the ambiguous product-price evidence, Leamer (1998) argues that greater international trade has played a role. Borjas et al. (1997) argue that immigration’s wage effects should appear nationally rather than in local labor markets and conclude that greater immigrant inflows have helped pressure the wages of high school dropouts.

The appropriate measurement of these globalization pressures has been the subject of a great deal of sharp methodological debate—and, not surprisingly, different methods have led to different conclusions. However, most academic researchers have concluded that technological change, not globalization, has been the major force affecting US labor markets in recent decades. In a recent survey of many prominent economists about the relative contribution of various forces to the rising US skills premium, the average of their responses was that technological change has accounted for 45 percent of the rise, trade about 10 percent, and immigration only about 5 percent (*Economic Report of the President 1997*, 175).

## Summary

In this chapter we have shown that compared with high-skilled workers, the majority of the US labor force has experienced poor relative and real-wage performance in recent decades. On balance, most academic research has found that technological change, not globalization, has been the major force affecting US labor markets in recent decades. Given this evidence on labor-market pressures facing US workers, we now turn to links between these pressures and worker perceptions.