

## Remarks by Chairman Ben S. Bernanke

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### The Level and Distribution of Economic Well-Being

A bedrock American principle is the idea that all individuals should have the opportunity to succeed on the basis of their own effort, skill, and ingenuity. Equality of economic opportunity appeals to our sense of fairness, certainly, but it also strengthens our economy. If each person is free to develop and apply his or her talents to the greatest extent possible, then both the individual and the economy benefit.

Although we Americans strive to provide equality of economic opportunity, we do not guarantee equality of economic outcomes, nor should we. Indeed, without the possibility of unequal outcomes tied to differences in effort and skill, the economic incentive for productive behavior would be eliminated, and our market-based economy--which encourages productive activity primarily through the promise of financial reward--would function far less effectively.

That said, we also believe that no one should be allowed to slip too far down the economic ladder, especially for reasons beyond his or her control. Like equality of opportunity, this general principle is grounded in economic practicality as well as our sense of fairness. To a significant extent, American economic success has resulted from the flexibility and adaptability of our dynamic market economy. Indeed, the ability of our labor and capital markets to accommodate and adapt to economic change has helped make possible the strong productivity performance of the U.S. economy over the post-World War II era, including the past decade. But this very dynamism sometimes creates painful dislocations, as when a shift in consumer demand, the advent of new technology, or new competition leads to the closing of a factory or causes a worker's skills to become obsolete. If we did not place some limits on the downside risks to individuals affected by economic change, the public at large might become less willing to accept the dynamism that is so essential to economic progress.

Thus, these three principles seem to be broadly accepted in our society: that economic *opportunity* should be as widely distributed and as equal as possible; that economic *outcomes* need not be equal but should be linked to the contributions each person makes to the economy; and that people should receive some *insurance* against the most adverse economic outcomes, especially those arising from events largely outside the person's control. Even when we accept these principles, however, important questions remain. For

example, what is meant in practice by equality of economic opportunity? Some might limit the concept to the absence of overt discrimination against particular individuals or groups, while others might extend the term to encompass universal access to adequate housing, education, and health care. Another difficult question is how to balance the need for maintaining strong market-based incentives, which support economic growth and efficiency but may be associated with greater inequality of results, against the goal of insuring individuals against the most adverse outcomes, which may reduce inequality but also tends to diminish the strength of incentives. No objective means of answering these questions exists. One can only try to understand the various issues and tradeoffs involved and then come to a normative judgment based on that understanding.

I raise these questions of ethics and values because they are inextricably linked with the topic of my talk today, which is the level and distribution of economic well-being in the United States. As I will discuss, the average standard of living in this country has improved considerably over time. However, by many measures, inequality in economic outcomes has increased over time as well, albeit at varying rates. In the remainder of my remarks I will review these trends. I will discuss what economic research has to say about the sources of rising inequality and briefly consider some implications for economic policy. I will not draw any firm conclusions about the extent to which policy should attempt to offset inequality in economic outcomes; that determination inherently depends on values and social tradeoffs and is thus properly left to the political process.

### **Trends in the Level and Distribution of Economic Well-Being**

On average, and by almost any measure, Americans have gained ground economically over time. For example, since 1947, the real (that is, inflation adjusted) hourly compensation of workers in the U.S. nonfarm business sector (a measure that includes both earnings and benefits) has increased more than 200 percent. In other words, the real reward for an hour of work has more than tripled over the past sixty years.<sup>1</sup> Over the same period, real disposable income per capita has increased almost 270 percent, real consumption per capita has increased almost 280 percent, and real wealth per capita has risen 310 percent. We have also seen significant gains in other indicators of living standards, such as health and educational attainment. Thus, in absolute terms, the well-being of most Americans compares quite favorably with that of earlier generations and, indeed, with the well-being of most people in the world today.

Although average economic well-being has increased considerably over time, the degree of inequality in economic outcomes has increased as well. Importantly, rising inequality is not a recent development but has been evident for at least three decades, if not longer.<sup>2</sup> The data on the real weekly earnings of full-time wage and salary workers illustrate this pattern. In real terms, the earnings at the 50<sup>th</sup> percentile of the distribution (which I will refer to as the median wage) rose about 11-1/2 percent between 1979 and 2006. Over the same period, the wage at the 10<sup>th</sup> percentile, near the bottom of the wage distribution, rose just 4 percent, while the wage at the 90<sup>th</sup> percentile, close to the top of the distribution, rose 34 percent.<sup>3</sup> In 1979, a full-time worker at the 90<sup>th</sup> percentile of the wage distribution earned about 3.7 times as much as a full-time worker at the 10<sup>th</sup> percentile. Reflecting the relatively faster growth of wages of higher-paid workers, that

ratio is 4.7 today. The gap between the 90<sup>th</sup> and 10<sup>th</sup> percentiles of the wage distribution rose particularly rapidly through most of the 1980s; since then, it has continued to trend up, albeit at a slower pace and with occasional reversals.

The long-term trend toward greater inequality seen in real wages is also evident in broader measures of financial well-being, such as real household income.<sup>4</sup> For example, the share of income received by households in the top fifth of the income distribution, after taxes have been paid and government transfers have been received, rose from 42 percent in 1979 to 50 percent in 2004, while the share of income received by those in the bottom fifth of the distribution declined from 7 percent to 5 percent. The share of after-tax income garnered by the households in the top 1 percent of the income distribution increased from 8 percent in 1979 to 14 percent in 2004 (Congressional Budget Office, 2006).<sup>5</sup> Even within the top 1 percent, the distribution of income has widened during recent decades.<sup>6</sup>

The measures of inequality I have cited reflect "snapshots" of a single time period, usually a year. Consequently, they may not tell a complete story about the extent of inequality or its trend. For example, the fact that an older, more-experienced worker earns more than a newly hired employee will appear as wage inequality when measured at a given time; but as long as the new employee can expect to gain experience and someday earn a higher wage, inequality arising for this reason should not particularly concern us. Studies that track individuals' positions in the earnings distribution over time suggest that, in a given five-year period, almost half the population moves from one quintile of the distribution to another, and the percentage moving between quintiles increases over longer periods (McMurrer and Sawhill, 1996). However, economists disagree about whether income mobility has changed significantly over time (Lee and Solon, 2006). If it has not, then factors related to mobility cannot go far in helping to explain the upward trend in measures of short-term inequality.<sup>7</sup>

### **The Sources of Changes in the Level and Dispersion of Economic Well-Being**

What are the underlying sources of these long-term trends in wages, incomes, and other measures of economic well-being? Economists have established that, over longer periods, increases in average living standards are closely linked to the growth rate of productivity--the quantity of goods and services that can be produced per worker or per hour of work. Since 1947, hourly labor productivity in the U.S. nonfarm business sector has increased a robust 2-1/4 percent per year, and productivity growth has been close to or above that figure in most of the past ten years. This sustained productivity growth has resulted in large and broad-based improvements in the standard of living. When discussing inequality, we should not lose sight of the fact that the great majority of Americans today enjoy a level of material abundance--including the benefits of many technological advances, from air conditioning to computers to advanced medical treatments--that earlier generations would envy.

That being said, understanding the sources of the long-term tendency toward greater inequality remains a major challenge for economists and policymakers. A key observation is that, over the past few decades, the real wages of workers with more years

of formal education have increased more quickly than those of workers with fewer years of formal education. For example, in 1979, median weekly earnings for workers with a bachelor's (or higher) degree were 38 percent more than those of high-school graduates with no college experience; last year, that differential was 75 percent. Similarly, over the same period, the gap in median earnings between those completing high school and those with less than a high-school education increased from 19 percent to 42 percent. To a significant extent, to explain increasing inequality we must explain why the economic return to education and to the development of skills more generally has continued to rise.

Economists have hypothesized that technological advances, such as improvements in information and communications technologies, have raised the productivity of high-skilled workers much more than that of low-skilled workers. High-skilled workers may have enjoyed this advantage because, for example, they may have been better able to make more effective use of computer applications, to operate sophisticated machinery, or to adapt to changes in workplace organization driven by new technologies. If new technologies tend to increase the productivity of highly skilled workers relatively more than that of less-skilled workers--a phenomenon that economists have dubbed "skill-biased technical change"--then market forces will tend to cause the real wages of skilled workers to increase relatively faster. Considerable evidence supports the view that worker skills and advanced technology are complementary. For example, economists have found that industries and firms that spend more on research and development or invest more in information technologies hire relatively more high-skilled workers and spend a relatively larger share of their payrolls on them (Autor, Katz, and Krueger, 1998; Bartel and Sicherman, 1999; Berndt and Morrison, 1995; Berman, Bound, and Griliches, 1994).

Although skill-biased technical change appears to be an important cause of the rise in earnings inequality, it does not provide a complete explanation for that trend. The hypothesis cannot explain, for example, why the sharp rise in investment in information technology in the 1990s was not accompanied by a higher rate of increase in wage inequality. Nor can it explain why the wages of workers in the middle of the distribution have grown more slowly in recent years than those of workers at the lower end of the distribution, even though, of the two groups, workers in the middle of the distribution are typically the better educated (Autor, Katz, and Kearney, 2006; Autor, Levy, and Murnane, 2003).

Another challenge for the hypothesis of skill-biased technical change, at least in its basic formulation, is to explain the especially large wage gains seen at the top of the distribution. A possible link between technological change and the substantial increases in the wages of the best-paid workers is that some advances, such as those that have swept the communications industry, may have contributed to the rise of so-called "superstars"--a small number of the most-gifted individuals in each field who are now better able to apply their talents in what has increasingly become a global marketplace (Frank and Cook, 1995; Hausman and Leonard, 1997; Krueger, 2005; Manasse and Turrini, 2001; and Rosen, 1981). For example, two decades ago, the highest-paid player for the Boston Red Sox baseball team (and in the American League), Jim Rice, earned (in inflation-adjusted terms) just over \$3 million. In 2004, the highest-paid player on the Red

Sox (and in all of major-league baseball) was Manny Ramirez, who received \$22.5 million for the season. The number of fans who can fit into Fenway Park has not increased much since Jim Rice's day. But presumably the Red Sox owners believed that Ramirez's higher salary was justified by the increases in broadcast and merchandising revenues he might generate as a result of the confluence of new distribution channels (such as Internet-based broadcasts of games) and a larger and wealthier potential global audience.<sup>8</sup> The earnings potentials of superstar entertainers, investment bankers, lawyers, and various other professionals have likewise risen sharply as technological innovations and globalization have helped them leverage their talents over a wider sphere.

The compensation of chief executive officers of corporations is often singled out for particular scrutiny. Some economists have argued that the observed increases in CEO pay packages can largely be justified by economic factors, such as changes in the relationship between the CEO and the firm that have led to shorter and less-secure tenures for CEOs (Kaplan and Minton, 2006) and to a greater tendency to hire CEOs from outside the company (Murphy and Zabojnik, 2004). Others note that substantial increases in the size and scope of the largest corporations have raised the economic value of skilled corporate leadership (Gabaix and Landier, 2006). However, critics have responded that increases in CEO pay may have been amplified by poor corporate governance, including the substantial influence that some CEOs appear to have had over their own pay (Bebchuk and Fried, 2003). This debate will no doubt continue.

Beyond the effects of technological change, the variety of economic forces grouped under the heading of "globalization" may also have been a factor in the rise in inequality, even as these forces have provided a major stimulus to economic growth and to living standards overall. Immigration--the flow of people across borders--is one aspect of the increased economic integration of the world economy. In recent decades, most immigrants to the United States have arrived with relatively low levels of skills. By itself, this pattern of immigration increases measured inequality because it leads to an increase in the relative size of the low-wage work force (Lerman, 1999). Standard economic reasoning also suggests that the immigration of such workers should reduce the relative wages of less-skilled domestic workers. Empirical analyses of individual cities or regions have found some evidence that corroborates this hypothesis, although in most cases the effect appears to have been small. A typical finding is that an increase of 10 percent in the share of immigrants in a city reduces the wages of lower-skilled natives 1 percent or less. This somewhat muted effect of low-skilled immigration on local markets may reflect the adaptability of U.S. labor and product markets, which has allowed native workers and firms to adjust with relatively little displacement (Card, 2005; Card and Lewis, 2005; and Lewis, 2004, 2005). However, studies that examine national data tend to find somewhat larger effects, with a 10 percent increase in the share of immigrants in the total population reducing the wages of low-skilled natives 3 percent to 5 percent (Borjas, 2006).

International trade, another aspect of globalization, may also have differential effects on the economic well-being of U.S. workers even as it tends to raise real wages and incomes on average. For example, some empirical research suggests that, in the 1980s and 1990s,

increased international trade reduced the profitability and hence the demand for labor in a number of industries that employed relatively more low-skilled workers (Borjas, Freeman, and Katz, 1997; Sachs and Shatz, 1994). Of course, trade has increased the potential markets for other domestic industries, leading to higher demand and thus higher real wages for workers in those industries. A related development has been the outsourcing abroad of some types of services and production activities. Because labor markets are adaptable, outsourcing abroad does not ultimately affect aggregate employment, but it may affect the distribution of wages, depending on the skill content of the outsourced work. At least until recently, most such activity appears to have involved goods and services that use relatively more low-skilled labor, which (all else being equal) would tend through the workings of supply and demand to slow the growth of wages of domestic low-skilled workers relative to those with greater skills (Feenstra and Hanson, 1996).<sup>9</sup>

Unfortunately, much of the available empirical research on the influence of trade on earnings inequality dates from the 1980s and 1990s and thus does not address later developments. Whether studies of the more-recent period will reveal effects of trade on the distribution of earnings that differ from those observed earlier is to some degree an open question. Overall, I read the available evidence as favoring the view that the influence of globalization on inequality has been moderate and almost surely less important than the effects of skill-biased technological change.

Finally, changes in the institutions that have shaped the labor market over the past few decades may also have been associated with some increase in wage inequality. For example, unions tend to compress the dispersion of pay for jobs in the middle of the skill distribution. Thus, the decline in private-sector union membership over the post-World War II period--particularly the sharp drop in the 1980s--has been associated with an increased dispersion of pay among workers with intermediate levels of skill (Freeman, 2005). The sources of the decline in union membership are much debated, and certainly long-run structural changes in the economy, such as the decline in manufacturing employment, have played a role. Whatever the precise mechanism through which lower rates of unionization affected the wage structure, the available research suggests that it can explain between 10 percent and 20 percent of the rise in wage inequality among men during the 1970s and 1980s (Card, 2001; DiNardo, Fortin, and Lemieux, 1996; Freeman, 1993).

Declines in the real value of the minimum wage, brought about by the combination of inflation and the fact that minimum wages are usually set in dollar terms, also affect the labor market. Some research suggests that this factor contributed to the relative decline in the wages of the least-skilled workers during the 1980s. Economists have also pointed out that, although higher minimum wages increase the wages of those who remain employed, they may also lead to reduced employment of low-skilled workers. Thus, the net influence of the minimum wage on earnings and income inequality, as opposed to the inequality of observed hourly wages, is ambiguous (Neumark, Schweitzer, and Wascher, 2005). In any case, the real value of the minimum wage, adjusted to include state minimum wages that are above the federal level, has been fairly flat in recent years, and



so has the proportion of the labor force that is unionized. This suggests that these institutional factors have been less important sources of increasing wage inequality recently than they were in the 1970s and 1980s.

### **Some Policy Implications**

What, if anything, should policymakers do about the trend of increasing economic inequality? As I noted at the beginning of my remarks, answering this question inevitably involves some difficult value judgments that are beyond the realm of objective economic analysis--judgments, for example, about the right tradeoff between allowing strong market-based incentives and providing social insurance against economic risks. Such tradeoffs are, of course, at the heart of decisions about tax and transfer policies that affect the distribution of income as well as countless other policy debates.

Policy approaches that would *not* be helpful, in my view, are those that would inhibit the dynamism and flexibility of our labor and capital markets or erect barriers to international trade and investment. To be sure, the advent of new technologies and increased international trade can lead to painful dislocations as some workers lose their jobs or see the demand for their particular skills decline.<sup>10</sup> But hindering the adoption of new technologies or inhibiting trade flows would do far more harm than good, as technology and trade are critical sources of overall economic growth and of increases in the standard of living.

A better approach for policy is to allow growth-enhancing forces to work but to try to cushion the effects of any resulting dislocations. For example, policies to facilitate retraining and job search by displaced workers, if well designed, could assist the adjustment process. Policies that reduce the costs to workers of changing jobs--for example, by improving the portability of health and pension benefits between employers--would also help to maintain economic flexibility and reduce the costs that individuals and families bear as a result of economic change. Of course, devising policies that accomplish these goals in the most effective way is not straightforward, nor can such policies deal with all of the negative effects of trade and technology on affected individuals. Displaced older workers present a particularly difficult problem, as these workers have greater difficulty than others in finding new jobs and experience a greater decline in earnings than other workers if they are re-employed (Munnell and others, 2006). Considerable debate and analysis of policy alternatives lie ahead, but these discussions will be well worth the effort.

As the larger return to education and skill is likely the single greatest source of the long-term increase in inequality, policies that boost our national investment in education and training can help reduce inequality while expanding economic opportunity. A substantial body of research demonstrates that investments in education and training pay high rates of return both to individuals and to the society at large (Acemoglu and Angrist, 2001; Becker, 1964; Card, 1999; Topel, 2004). That research also suggests that workers with more education are better positioned to adapt to changing demands in the workplace.

In assessing the potential of education and training to moderate inequality, one should keep in mind that the economically relevant concept of education is much broader than the traditional course of schooling from kindergarten through high school and into college. Indeed, substantial economic benefits may result from any form of training that helps individuals acquire economically and socially useful skills, including not only K-12 education, college, and graduate work but also on-the-job training, coursework at community colleges and vocational schools, extension courses, online education, and training in financial literacy. The market incentives for individuals to invest in their own skills are strong, and the expanding array of educational offerings available today allows such investment to be as occupationally focused as desired and to take place at any point in an individual's life.

Although education and the acquisition of skills is a lifelong process, starting early in life is crucial. Recent research--some sponsored by the Federal Reserve Bank of Minneapolis in collaboration with the University of Minnesota--has documented the high returns that early childhood programs can pay in terms of subsequent educational attainment and in lower rates of social problems, such as teenage pregnancy and welfare dependency.<sup>11</sup> The most successful early childhood programs appear to be those that cultivate both cognitive and noncognitive skills and that engage families in stimulating learning at home (Heckman, Stixrud, and Urzua, 2006).

To return to the themes I raised at the beginning, the challenge for policy is not to eliminate inequality *per se* but rather to spread economic opportunity as widely as possible. Policies that focus on education, job training, and skills and that facilitate job search and job mobility seem to me to be a promising means for moving toward that goal. By increasing opportunity and capability, we help individuals and families while strengthening the nation's economy as well.

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## Footnotes

1. This result is calculated using the data on compensation per hour in the nonfarm business sector from the Bureau of Labor Statistics, deflated by the price index for personal consumption expenditures from the national income and product accounts.

2. Goldin and Margo (1992) find that wage inequality has been increasing at varying rates since 1950. Piketty and Saez (2003) obtain a similar result for wage income since the mid-1950s; using a measure of total income excluding capital gains, they find that inequality was more or less constant from the early 1950s until the early 1970s and rose thereafter. By contrast, Weinberg (1996) found that family income inequality, as measured by the Gini index, had diminished somewhat between 1947 and 1968, but had increased between 1968 and the early 1990s, when his sample period ended.

3. The data are weekly earnings of full-time wage and salary workers aged twenty-five and older and are derived from the Current Population Survey, published by the Bureau of Labor Statistics. The data are deflated by the price index for personal consumption expenditures.

4. Other important measures of economic well-being include consumption and wealth. Some economists view consumption as a better measure of economic well-being than labor compensation or income because consumption is a more direct indicator of the standard of living and because, on the assumption that households consume according to the income they expect to receive over the longer term, it may also be a better measure of a household's long-term economic prospects. As with other measures of economic well-being, consumption has become increasingly unequal over time, although at any point in time it is less unequally distributed than wages or income (Krueger and Perri, 2006). Wealth--the difference between a household's assets (both physical and financial) and its liabilities--shows a slightly different pattern. As we know from the Federal Reserve's triennial Survey of Consumer Finances, wealth is distributed far more unequally than income, with about 33 percent of aggregate household net worth being held by the top 1 percent of families and with just 2-1/4 percent of wealth being held by the bottom half (Kennickell, 2006). However, the relative shares of wealth held by the richest and poorest have changed very little over the past decade or so, in contrast to the further widening in the distributions of wages, incomes, and consumption.

5. In general, measures of economic well-being (such as disposable income) that take account of taxes paid and transfer payments received from the government show lower levels of inequality at any point in time than measures that exclude such payments; the difference reflects the progressive nature of our system of taxes and transfers. However, analysis of these broader measures indicates that, over time, tax and transfer policies have not materially altered the general tendency toward greater inequality.

6. Data on the distribution of income in the top 1 percent comes from an update of Piketty and Saez (2003), available at <http://elsa.berkeley.edu/~saez/TabFig2004prel.xls>.

7. Another respect in which snapshots of inequality may be misleading is that they are influenced by fluctuations in income that are transitory and that hence have a smaller effect on long-term economic well-being. One study suggests that, for men, about one-third of the rise in point-in-time earnings inequality during the 1970s and 1980s resulted from an increase in the transitory variation in wages (Moffitt and Gottschalk, 2002). The proper interpretation of these short-lived changes in earnings is not clear. To the degree

that they are associated with factors such as job changes, moves, or entry into or exit from schooling, temporary variations in individual incomes could signify a healthy labor market. On the other hand, such variations would be of greater concern if they reflected a higher incidence of factors such as short periods of unemployment or loss of income due to health problems.

8. Recently, the Red Sox paid \$51 million simply for the right to negotiate with the Japanese pitcher Daisuke Matsuzaka; they later signed Matsuzaka for an additional \$52 million over six years. Illustrating some of the effects of globalization on baseball economics, the city of Boston anticipates that increased interest by Japanese tourists will bring in some \$75 million, aside from what the Red Sox will earn from signing Matsuzaka (Reed, 2006).

9. For an opposing view, see Grossman and Rossi-Hansberg (2006).

10. Surveys of workers displaced from jobs because their plant closed or moved show that rates of such job loss fluctuated only a little, on balance, from 1983 to 2003 despite the decline in unemployment over that period (Farber, 2005). A range of studies have yielded conflicting answers to the question of whether job stability and job insecurity have changed over time, although the editor of a set of papers presented at a conference at the Federal Reserve Bank of New York concluded that the relationship of employees and firms weakened some in the 1990s (Neumark, 2000).

11. More information on the Early Childhood Research Collaborative and copies of its research papers can be obtained from the website of the Federal Reserve Bank of Minneapolis, [www.earlychildhoodrc.org](http://www.earlychildhoodrc.org).