



# Projections summary and emerging issues

*Productivity growth and  
the educational requirements  
of future jobs are important issues  
for the remainder of the century*

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**T**he Bureau of Labor Statistics has developed projections to the year 2000. Three alternative projections—moderate growth, low growth, and high growth—were prepared. This article summarizes these projections for the 1988–2000 period—the latest of the Bureau’s regular projections.

The four articles presented in this issue have provided detailed information on projections of economic growth, the labor force, and industry and occupational employment.

This article focuses on some important issues raised by these projections. Among these issues are the relationship of productivity growth to expected future increases in our standard of living, our global competitiveness, and the extent of educational preparation needed for the types of jobs our economy is increasingly generating, particularly for minorities who represent a growing share of the labor force. The problem of a general education shortfall is also discussed.

## General overview

In the moderate or middle set of projections, the rate of economic growth, as measured by real gross national product (GNP) for the 1988–2000 period, shows an increase of 2.3 percent per year. This represents more than a 30-percent

expansion over the projected period. However, this is a slower rate of GNP growth than the 2.9-percent rate of annual growth recorded for the 1976–88 period.<sup>1</sup> Labor force growth and productivity play important but offsetting roles in the slower projected rate of real GNP growth.

Labor force growth is projected to slow appreciably, particularly when compared with the 2.0-percent annual labor force growth over the 1976–88 period. The 1.2-percent-a-year projected rate of labor force growth over the 1988–2000 period is closer to that experienced by the U.S. economy between 1980 and 1988, when the labor force slowdown began. For productivity, the projected rate of growth for the 1988–2000 period is slightly faster than the average experienced during the 1976–88 period, as shown in the following tabulation. The net effect of the two factors, as shown below for the middle scenario, is a slower projected rate of real GNP growth for the 1988–2000 period.

	1976–88	Projected 1988–2000
Real GNP .....	2.9	2.3
Labor force .....	2.0	1.2
Productivity (GNP per employee) .....	.7	1.0
Real disposable income per capita .....	1.8	1.4

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The categories in the demand structure of GNP reflect a projection over the 1988–2000 period that is a continuation of long-term trends. The two important exceptions are foreign trade and defense expenditures.

Projected changes in the composition of demand GNP shows that foreign trade is projected to change significantly, compared with long-term historical trends. Over the 1976–86 period, imports grew faster than exports. At the same time, exports and imports were increasing faster than overall GNP. However, exports have increased faster than imports since 1986, reversing the trend. The rate of growth projected for exports over the 1988–2000 period is a continuation of this recent trend—primarily because of a slower projected growth for imports.

Another category of demand GNP projected to break with the trend of the 1980's is the share of GNP devoted to defense expenditures. A larger share of GNP was devoted to defense expenditures over the 1979–86 period. That rate of expansion lessened considerably between 1986 and 1988. The projected level of real defense expenditures is for an absolute decline and, thus, for a rather pronounced decline in the share of GNP being devoted to defense expenditures over the 1988–2000 period.

The standard of living frequently is measured by the rate of growth of real per capita disposable personal income. This measure clearly showed a slower growth rate in the 1980's, compared with the 1970's. The 1988–2000 projections show an annual rate of growth of 1.4 percent, which is consistent with that which has prevailed in the 1980's. It should be noted, however, that this is one of the measures that shows considerable variation among the three alternative projections developed for the U.S. economy for the 1988–2000 period. In the alternative with the highest rate of projected GNP growth, per capita disposable personal income is projected to increase 1.9 percent a year, a rate similar to the 1976–88 period. The opposite takes place in the alternative with the slowest projected rate of GNP growth, where this measure is projected to increase only 0.5 percent per year. The spread among the projections reflects a considerably different picture of future changes in the U.S. economy in the three alternatives. The faster growth implies an expansion of 25 percent in the U.S. standard of living as measured by real per capita disposable income for the 1988–2000 period, while the slowest implies only a 6-percent expansion over that same period. The difference is largely because of the projected rate of productivity growth over the 1988–2000 period.

## Labor force

The labor force growth in the 1980's has slowed considerably compared with the growth in the 1970's. This slowdown resulted from the smaller baby-bust generation who entered the labor force following the baby-boom generation who were in the work force in the 1960's and 1970's. The projection for the 1988–2000 period is for 1.2 percent annual growth in the labor force—or 16.0 percent overall growth.<sup>2</sup> This rate contrasts with the 2.0-annual growth over the 1976–88 period, but is only modestly slower than the rate of labor force increase over the 1980–88 period. The two alternative labor force projections show a 1.0-percent annual growth for the 1988–2000 period in the low and a 1.6-annual growth in the high alternative.

Two factors are important in this slower rate of projected labor force growth. First, as already noted, by the late 1970's, the baby-boom generation had entered the work force and, since then, the much smaller baby-bust generation has been entering the labor force. In addition, the high growth rates in labor force participation of women are projected to slow, generally because women's labor force participation rates have already reached very high levels. Despite this slowdown, the changes in the male-female composition of the labor force are projected to continue over the 1988–2000 period because the rate of growth of women in the labor force is projected to continue at nearly double that for men, as shown in the following tabulation. Consequently, women who in 1988 constituted 45 percent of the work force are projected to see their share increase to 47 percent of the labor force by 2000.

*Great concern has been expressed regarding "shortages" of entry-level workers.*

	Average annual rate of change	
	1976–88	1988–2000
Total .....	2.0	1.2
Men .....	1.3	.9
Women .....	2.9	1.7
White .....	1.8	1.1
Black .....	2.7	1.9
Hispanic .....	6.4	4.0
Asian and other races ....	6.1	3.6

In terms of the age distribution of the labor force, some important compositional changes are also expected. Most importantly, the share of the work force that is 16 to 24 years old is projected to be smaller in 2000 than in 1988, declining to 16 percent, compared with 19 percent in 1988. This is because this age group is expected to continue to decline until the mid-



1990's—when it will experience a turnaround. However, the share of workers ages 55 and over is expected to remain a relatively constant share of the labor force over the 1988–2000 period. It follows from these changes that over the 1988–2000 period, increases in the share of the labor force are expected to be in the 25- to 54-year-old age groups, particularly those 54 to 75.

Another change in the composition of the labor force that is projected to continue is the growing share of minorities. Blacks who made up 11 percent of the work force in 1988 are projected to grow to 12 percent in the year 2000. Hispanics, currently 7 percent of the labor force, are projected to increase more rapidly than blacks (4.0 percent versus 1.9 percent annually), reaching 10 percent of the labor force in 2000. Asians and other races, who make up 3 percent of the work force are expected to reach 4 percent in 2000.

### Employment changes

For the total economy, employment changes over the long term mirror closely the aggregate demographic changes. Thus, the rapid labor force growth of the 1970's and the slower rate of increase in the 1980's discussed earlier are also found in the overall rate of employment growth in the U.S. economy. The 1988–2000 employment projections of 1.2 percent annual expansion continue the slowing that was found in the 1980's; the expansion is 15.3 percent for the entire period.<sup>3</sup> In absolute terms, this is a projected increase of 18.1 million jobs—compared to more than 28 million jobs added over the previous 12 years.<sup>4</sup> In the low alternative projection, the 1988–2000 job growth is 9.0 million, while in the high alternative it is 26.0 million.

A predominant story of U.S. employment growth of the last several decades has been the very rapid growth of the service-producing sector and the decline in the share of employment devoted to the goods-producing industry. The 1988–2000 projections continue this long-term employment shift to service-producing industries. Goods-producing industries are projected to grow by 428,000 or less than 2 percent over the 1988–2000 period. Manufacturing is projected to decline by more than 316,000 jobs over the projected period and, as a result, to continue to decline in its share of total employment. (See table 1.) Construction is projected to increase by 760,000 jobs, but even this increase is not large enough to arrest the decline in the share of employment in the overall goods-producing sector.

Most of the U.S. job growth over the 1988–2000 period is expected to be found in the service-producing sector—which is projected to account for 16.7 million of the 18.1 million jobs. Business services and health services are significant, both in terms of the absolute number of jobs expected to be added over the 1988–2000 period, and in their growth rates. These industries have experienced very rapid growth in the past and this growth is expected to continue into the future, although like overall employment growth, the projected rates represent a slowing from the 1976–88 rates of increase. The health service industry's rate of growth slowed in the mid-1980's as employment in private hospitals leveled off. Recently, that industry has accelerated and the growth is projected to continue.

Other important service-producing industries contributing to the projected job growth for the 1988–2000 period are retail trade and education. Retail trade is expected to generate more

Table 1. Employment, selected years, 1976 and 1988 and projected to 2000

[In thousands]

Industry	1976	1988	2000 (moderate growth)	Absolute change		Percent change	
				1976–88	1988–2000	1976–88	1988–2000
Total .....	89,942	118,104	136,211	28,156	18,107	31.3	15.3
Agriculture .....	3,371	3,259	3,125	-112	-134	-3.3	-4.1
Nonagricultural wage and salary .....	79,080	104,960	122,056	25,880	17,096	32.7	16.3
Goods-producing .....	23,358	25,252	25,680	1,894	428	8.1	1.7
Manufacturing .....	19,003	19,406	19,090	403	-316	2.1	-1.6
Construction .....	3,576	5,125	5,885	549	760	43.3	14.8
Service-producing .....	55,722	79,708	96,376	23,986	16,668	43.0	20.9
Retail trade .....	13,208	19,110	22,875	5,902	3,765	44.7	19.7
Services .....	14,243	24,971	33,718	10,728	8,747	75.3	35.0
Other <sup>1</sup> .....	7,491	9,885	11,030	2,388	1,145	32.0	11.6

<sup>1</sup> Nonagricultural self-employed, private households, and unpaid family workers.

NOTE: Total employment includes wage and salary workers, the self-employed, and unpaid family workers.



jobs than either health or business services, although its rate of growth is not projected to match that of either of those industries.

### Occupational employment

The Bureau of Labor Statistics projects employment by industry and by occupation.<sup>5</sup> At the aggregate level, of course, the rate of growth is the same. Among the major occupational groups projected to show faster than average rates of growth over the 1988–2000 period are technical and related support occupations; professional specialty occupations; and executive, administrative, and managerial occupations. Each of these groups is projected to increase much faster than the 15.3-percent growth for total employment (1.2-percent annual growth). (See table 2.) In addition to those mostly high skilled occupational groups, two other occupational groups are expected to show faster than average growth—service occupations and marketing and sales occupations. The groups with the slowest rate of projected growth include operators, fabricators, and laborers (about 1 percent growth over the 1988–2000 period), and agriculture, forestry, and fishing occupations (a decline of nearly 5 percent by 2000).

The educational requirements of these groups when analyzed show that managerial, professional, and technical occupations requiring the most education and training have the faster rate of growth, while those with the least educational requirements such as operators, fabricators, and laborers have the slower growth or are projected to decline. However, despite this general rising trend in the educational requirements, many jobs that do not require a bachelors degree or more education have both good growth prospects and above-average earnings. Some of these jobs require a high school educa-

tion, while others require some post-secondary training or education. Jobs are available for those without a high school education, but entry into the better paying jobs is severely limited for such workers.

An analysis of the occupations currently held by minorities and the projected rates of growth of these occupational groups show that blacks and Hispanics are over-represented in occupations with the slowest rates of projected growth, while they are under-represented in occupations projected to have the faster rate of growth.

### Emerging issues

What do the projections hold for the U.S. labor market for the remainder of this century? They could be viewed as portraying a bright future for the U.S. economy. Among the reasons for an optimistic outlook is that the slower growth projected for the labor force, combined with an economy producing a large number of jobs, could make it possible for the unemployment rate to be lowered to levels not reached in the past two decades. If this lower unemployment rate could be coupled with an increasing rate of productivity growth, a number of problems faced by the U.S. economy could ease. For example, faster productivity growth and the resulting GNP growth would likely ease the task of lowering the Federal budget deficit. Also, faster productivity growth would lead to a more rapid rate of growth in real disposable income per capita. If this were accompanied, as it would likely be, by a faster rate of employment growth (such as depicted in the higher GNP growth alternative developed by the Bureau), this could mean more employment opportunities, particularly for minorities, older workers, and the disabled—groups that have not always shared equally in employment growth. In addition, this

*Increases in the share of the labor force are expected to be in the 25- to 54-year-old age groups.*

Table 2. Employment by occupation, 1988 and projected to 2000

Occupation	1988		2000 (moderate growth)	
	Number (thousands)	Percent	Number (thousands)	Percent
Total, all occupations .....	118,104	100.0	136,211	100.0
Executive, administrative, and managerial occupations .....	12,104	10.3	14,762	10.8
Professional specialty occupations .....	14,628	12.3	18,137	13.3
Technicians and related support occupations .....	3,867	3.3	5,089	3.7
Marketing and sales occupations .....	13,316	11.3	15,924	11.7
Administrative support occupations, including clerical .....	21,066	17.8	23,553	17.3
Service occupations .....	18,479	15.6	22,651	16.6
Agricultural forestry, fishing, and related occupations .....	3,503	3.0	3,334	2.4
Precision production, craft, and repair occupations .....	14,159	12.0	15,563	11.4
Operators, fabricators, and laborers .....	16,983	14.4	17,198	12.6

NOTE: Includes total employment of wage and salary workers, self-employed, and unpaid family workers.



employment gain could be an important contributing factor to arresting the widening of the income distribution which has appeared, particularly over the last decade.

But while a bright economic future is possible, there are no guarantees. The U.S. economy is faced with a number of problems. If these problems are not dealt with, a bright future could be jeopardized. These issues include productivity and education.

*Productivity.* The projections for the 1988–2000 period highlight our rate of productivity growth as a continuing concern. Productivity has grown much more slowly in the past 10 to 15 years than in earlier periods.<sup>6</sup> This has had an important effect on the rate of growth of real GNP and on the rate of growth in real per capita disposable personal income. Not only does productivity growth have important implications for our standard of living, it also is an integral factor if America is to remain competitive or, in some cases, if we are to regain our competitiveness. The globalization of many manufacturing and service markets means that we must remain competitive in order to sell our products abroad and also to ensure that American goods have an equal chance in domestic consumption.<sup>7</sup> The prospect for productivity growth is related to several factors: research and development, equipment embodying newer technologies, capacity utilization, and energy prices. Also, an important factor is the education and training of the labor force. A potential education gap highlights the importance of meeting our economy's educational requirements to be assured of future productivity growth. Whether the United States can remain competitive in foreign as well as domestic markets is linked to productivity growth.

Foreign trade has been and is projected to continue to be the fastest growing demand category of GNP. America needs to remain competitive, particularly in high tech goods and services where, in many instances, we still are competitive. In many high tech industries, however, the United States can remain competitive only through the participation of highly skilled and highly educated workers. Consequently, the potential imbalance between the educational preparation of those entering the labor force and industry's requirements raise another important dimension to an increasing concern.

*Educational shortfall.* As mentioned earlier, occupational growth is expected to be most rapid among occupations that require some post-secondary training. The expected supply of individuals with the necessary education and

training causes concern because of a potential gap or shortfall. Some data are available which deepen this concern. For example, in a recent international assessment of mathematics and of science carried out by the Educational Testing Service, the United States ranked in or near the lowest grouping among 13-year-olds tested. The average mathematics proficiency data are highlighted in the following tabulation. (The level represents an indexed scale of proficiency in performing mathematical computations.)

	Level*
Korea.....	567.8
Quebec (French) .....	543.0
British Columbia .....	539.8
Quebec (English) .....	535.8
New Brunswick (English) .....	529.0
Ontario (English) .....	516.1
New Brunswick (French) .....	514.2
Spain .....	511.7
United Kingdom .....	509.9
Ireland .....	504.3
Ontario (French) .....	481.5
United States .....	473.9

\*Data are from a *A World of Differences. An International Assessment of Mathematics and Science* (Washington, Educational Testing Service, January 1989).

The results of the international comparisons of science proficiencies are equally discouraging.<sup>8</sup>

Additionally, an important finding from a recent assessment of literacy of young adults ages 21 to 25,<sup>9</sup> is that many young adults were unable to perform at a level very much above the lowest level of proficiency. All groups performed very well at the lowest level of proficiency; however, the fall off is sharp as the difficulty assessed rises. This decline in proficiency is true of all demographic groups but is particularly so for blacks and Hispanics. Such data heighten concerns about preparation for the more demanding jobs that clearly are continuing to emerge in the economy.<sup>10</sup>

Differences between some job requirements and the educational proficiency of the population as a whole has led some to conclude that we have a shortage or a potential shortage of college-educated workers.<sup>11</sup> This potential shortage should be examined in terms of the labor force who have a college education and those who have other post-secondary training.

The latest analyses of the supply and demand for college-educated workers carried out by BLS show a significant easing of the competition for jobs that has characterized the job market for college graduates since the early 1970's.<sup>12</sup> It should be noted, however, that the narrowing gap between the supply and demand for college graduates does not rule out some problems

*The gap between black and white men's labor force participation rates has not shown any evidence of closing.*



with the mix of college graduates by field of preparation.

In addition to looking at our economy's demand for college graduates, consideration should be given to the question, does the rapid growth of jobs requiring post-secondary training below the bachelors degree level indicate a gap between supply and demand? The BLS projections show that the most rapid rate of growth is among technician jobs. These occupations and skilled craft jobs are normally filled by individuals who have some post-secondary education or training, but generally less than a 4-year college education. In some instances, training is often obtained on the job; others require education and training in a formal institutional setting, either in a private or public institution over a 6-month to 2-year period. In many instances, the institutions for this training or education are in place. The important shortfall that may materialize is the lack of individuals with the education needed to qualify for the necessary post-secondary education or training. This potential shortfall comes about in part because of the continued low high school completion rates. (See table 3.) Because Hispanics are the fastest growing component of the labor force, their low high school completion rate raises considerable concern. Hispanic high school completion rates have not increased much over time nor shown any tendency to narrow the gap with whites or blacks. Further, some individuals who have completed high school may not qualify for post-secondary training, as depicted by the results of the assessments noted earlier. A second cause of the reduction in the number of qualified people available to enter post-secondary training below the bachelors level or on-the-job training programs has resulted from the growth in the proportion of high school graduates who are going on to college—up nearly 10 percentage points over the last decade.

Another frequently discussed topic regarding the American economy is the labor-shortage issue. Great concern has been reported regarding "shortages" of entry-level workers, particularly in geographic areas that currently have low unemployment rates.<sup>13</sup> The difficulty experienced by employers in hiring entry-level workers has resulted primarily from a very sharp drop in the number of workers ages 16 to 24 entering the labor force during the 1980's. This decline is expected to continue until at least the mid-1990's, according to labor force projections. Thus, institutions and firms that recruit primarily from this age group will be competing for declining numbers of young people through the mid-1990's. This is expected to have an effect on colleges and universities, the military, and

on industries that recruit young entry-level workers.

Another dimension of the competition for workers, particularly entry-level workers, is the interface this has with U.S. immigration policy. In the 1970's and 1980's, a significant number of immigrants entered the American economy. Most immigrants who enter the United States legally do not initially enter to fill this country's job-related needs, but enter under other immigration categories, such as family reunification. Once in the United States, however, many of those of working age do seek jobs.<sup>14</sup> At the same time, America was attempting to maintain better control over illegal immigration, and this effort coincided with a period of tightness of the U.S. labor market in a number of geographic areas, increasing the need of many employers for entry-level workers.

*Minorities in the work force.* Earlier, it was pointed out that blacks, Hispanics, and Asians and other races are projected to represent an increasing share of the U.S. labor force over the 1988–2000 period. However, many of the occupations projected to be the most rapidly growing over the period are those that require post-secondary education or training. In many of these occupations, minorities are currently not well represented. At the same time, educational tests show a lack of educational achievement that is particularly pronounced among minorities. Consequently, are the occupations for which minorities are preparing likely to represent good job opportunities? Given the lower

**Table 3. High school completion rates by age, race, and Hispanic origin, 1976–86**

(Percent of age group)

Year	Ages 18 to 19				Ages 20 to 24			
	Total	White	Black	Hispanic origin <sup>1</sup>	Total	White	Black	Hispanic origin <sup>1</sup>
1976 .....	73.1	75.4	58.2	50.9	83.7	85.4	71.9	58.0
1977 .....	72.9	75.7	54.9	50.7	83.7	85.1	73.4	56.6
1978 .....	73.5	76.3	54.9	48.9	83.7	85.2	73.5	58.7
1979 .....	72.8	75.3	56.4	53.7	83.2	84.9	71.8	55.8
1980 .....	73.3	76.1	59.3	46.1	83.8	85.1	74.3	57.1
1981 .....	72.5	74.8	59.6	47.2	83.7	85.0	75.7	59.3
1982 .....	72.0	74.5	58.2	51.7	84.1	85.4	76.2	60.2
1983 .....	72.7	75.6	59.1	50.3	83.3	84.6	75.8	56.6
1984 .....	73.3	75.5	63.0	58.3	84.6	85.7	79.3	60.7
1985 .....	74.6	76.7	62.8	49.8	85.3	86.0	80.8	67.4
1986 .....	74.6	76.6	64.9	54.7	84.8	85.4	81.0	61.6

<sup>1</sup> Hispanics may be of any race.

NOTE: Most of the year-to-year differences in completion rates for Hispanics are not statistically significant because the small size of the Hispanic sample.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment—Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20; and unpublished tabulations.



completion rate from high school for blacks and Hispanics, it is evident that many are not prepared for the advanced education or training necessary in many of the rapidly growing occupations. (See table 3.) Further, blacks and Hispanics are currently over-represented in occupations that are projected to grow slowly or decline and are under-represented in occupations that are projected to have rapid growth.

The low labor force participation for black males is an additional element of a problem to be dealt with in assuring the highest possible involvement of all labor force groups. Labor force participation rates for black men ages 25 to 54 have only recently showed any evidence of leveling off after long-term declines. However, labor force participation rates for black men were still nearly 6 percentage points lower than for white men in 1988. (See table 4). Thus, at a time when white and black women's labor force participation rates have converged, the gap between black and white men's labor force participation rates has not shown any evidence of closing.

The continuing high unemployment rate of blacks and Hispanics illustrates the poor utilization

**Table 4. Labor force participation rates for men ages 25 to 54, 1976-88**

Year	White men	Black men	Hispanic men	Difference, less white rate	
				Black men	Hispanic men
1976 ...	94.9	90.0	92.6	-4.9	-2.3
1977 ...	95.0	90.0	92.6	-4.9	-2.1
1978 ...	95.0	90.1	93.0	-4.9	-2.0
1979 ...	95.1	90.0	93.0	-5.1	-2.0
1980 ...	95.0	90.1	92.7	-5.0	-2.0
1981 ...	95.0	87.7	92.3	-7.3	-2.3
1982 ...	94.9	88.6	92.5	-6.3	-2.6
1983 ...	94.6	87.9	92.5	-6.8	-2.1
1984 ...	94.8	88.2	92.6	-6.6	-2.2
1985 ...	94.8	88.5	92.2	-6.3	-2.6
1986 ...	94.6	89.3	92.7	-5.3	-1.9
1987 ...	94.5	87.0	92.3	-7.6	-2.2
1988 ...	94.5	88.7	92.6	-5.8	-1.9

<sup>1</sup> Hispanics may be of any race.

**Table 5. Civilian unemployment rates, by race and Hispanic origin, 1976-88**

Year	Unemployment rates				Unemployment rate ratios	
	Total	White	Black	Hispanic origin <sup>1</sup>	Black rate/White rate	Hispanic rate/White rate
<b>All workers</b>						
1976 .....	7.7	7.0	14.0	—	2.00	—
1977 .....	7.1	6.2	14.0	—	2.26	—
1978 .....	6.1	5.2	12.8	—	2.46	—
1979 .....	5.8	5.1	12.3	—	2.41	—
1980 .....	7.1	6.3	14.3	10.1	2.27	1.60
1981 .....	7.6	6.7	15.6	10.4	2.33	1.55
1982 .....	9.7	8.6	18.9	13.8	2.20	1.60
1983 .....	9.6	8.4	19.5	13.7	2.32	1.63
1984 .....	7.5	6.5	15.9	10.7	2.45	1.64
1985 .....	7.2	6.2	15.1	10.5	2.44	1.69
1986 .....	7.0	6.0	14.5	10.6	2.41	1.77
1987 .....	6.2	5.3	13.0	8.8	2.45	1.66
1988 .....	5.5	4.7	11.7	8.2	2.49	1.74
<b>Workers, ages 16-24</b>						
1976 .....	14.7	13.1	28.6	—	2.18	—
1977 .....	13.6	11.7	30.0	—	2.56	—
1978 .....	12.3	10.3	27.7	—	2.69	—
1979 .....	11.8	10.1	25.9	—	2.56	—
1980 .....	13.9	12.0	28.6	15.9	2.38	1.33
1981 .....	14.9	12.9	31.2	17.2	2.42	1.33
1982 .....	17.8	15.5	35.9	21.6	2.32	1.39
1983 .....	17.2	14.6	36.7	20.4	2.51	1.40
1984 .....	13.9	11.6	31.1	16.1	2.68	1.39
1985 .....	13.6	11.4	29.6	16.1	2.60	1.41
1986 .....	13.3	11.1	28.9	16.3	2.60	1.47
1987 .....	12.2	10.2	26.1	14.2	2.56	1.39
1988 .....	11.0	9.3	23.8	13.6	2.56	1.46

<sup>1</sup> Hispanics may be of any race.

NOTE: Dash indicates data not available.

tion of these population groups. This is particularly noticeable when the unemployment rate of young blacks and Hispanics are compared to either the unemployment rate for adult blacks or white youths. For black youth, the unemployment rates have been more than 2.5 times that of white youth, and the gap has shown no sign of narrowing even during the rapid job expansion in the 1982-88 period. Clearly, this is a serious problem for the U.S. economy. It must be dealt with if these labor force groups are to benefit fully from opportunities provided by a growing economy. (See table 5.)

Discouraged workers, who would like a job but have given up searching because they think none are available for which they could qualify, illustrate another dimension of groups that are poorly utilized. (Discouraged workers are not counted as unemployed in the official unemployment measures.) Blacks and Hispanics are much more likely to be found among this group of workers who have given up looking for a job. For example, blacks who accounted for about 11 percent of the work force, made up more than 27 percent of the discouraged workers in 1988. This proportionately higher rate is even more pronounced among the young minorities in the labor force. In 1988, blacks ages 16 to 24 made up over 37 percent of young discouraged workers and young Hispanics accounted for almost 16 percent—shares much higher than their shares of the overall labor force. (See table 6.)

**Job growth and decline.** Several issues have emerged from an analysis of the projected growth of employment by industry and by occu-



pation. For example, health services and business services, which are both projected to have significant overall job growth over the 1988–2000 period, required many workers with specialized education or training, highlighting again the need for workers with sufficient educational preparation. Further, health services includes occupations that women have predominantly held. The issue that this projected growth raises is, can this job growth be achieved without a large increase in the number of men in some of these occupations, for example, nursing?

Another large sector to consider in examining employment growth is manufacturing, which is sometimes overlooked because its rate of employment growth has been relatively slow and the projections for 1988–2000 show a decline. However, it is still projected to employ more than 19 million workers in 2000. Further, the lack of expansion in manufacturing during the last decade means that many of its workers will retire and need to be replaced over the 1988–2000 period. Consequently, many job entrants during the 1988–2000 period will find employment in the manufacturing sector.

Despite overall growth, these projections also show both industries and occupations with projected absolute declines in employment. (See the article by George Silvestri and John Lukasiewicz on pp. 42–65.) Individuals in declining industries or occupations who lose their jobs are often unable to find comparable jobs. Further, they often do not have the training and education needed for the jobs that are opening up in their geographic areas. This potential displacement has many contributing factors. Among those are technological change,<sup>15</sup> foreign trade through the substitution of foreign-made products for domestic-made products, lack of competitiveness of U.S. made goods or services, changing consumer tastes, and shifting governmental priorities. The potential for such displacement from a human resource side adds to the need to ensure that workers are trained and educated for the types of jobs that are in demand.

**Table 6. Discouraged workers, by race and Hispanic origin, 1976–88**

[In thousands]

Year	Total	White	Black	Hispanic origin <sup>1</sup>	Percent distribution		
					White	Black	Hispanic origin <sup>1</sup>
All workers							
1976	925	689	244	—	74.5	26.4	—
1977	1,026	723	253	—	70.5	24.7	—
1978	863	597	254	—	69.2	29.4	—
1979	771	551	197	—	71.5	25.6	—
1980	993	673	275	—	67.8	27.7	—
1981	1,103	751	323	—	68.1	29.3	—
1982	1,568	1,042	482	—	66.5	30.7	—
1983	1,641	1,125	470	—	68.6	28.6	—
1984	1,283	823	414	—	64.1	32.3	—
1985	1,204	810	348	—	67.3	28.9	—
1986	1,121	770	297	98	68.7	26.5	8.7
1987	1,026	693	294	106	67.5	28.7	10.3
1988	954	639	261	122	67.0	27.4	12.8
Workers, ages 16–24							
1982	479	294	172	—	61.4	35.9	—
1983	490	305	172	—	62.2	35.1	—
1984	391	220	159	—	56.3	40.7	—
1985	315	193	110	—	61.3	34.9	—
1986	280	166	100	28	59.3	35.7	10.0
1987	264	162	90	42	61.4	34.1	15.9
1988	217	124	82	34	57.1	37.8	15.7

<sup>1</sup> Hispanics may be of any race.

NOTE: Discouraged workers are those who want a job but are not looking for a job because they think they cannot get a job and have given up looking. Dash indicates data not available.

*Interaction of problems.* A very important point concerning the issues discussed is their interconnectiveness. Education and training requirements of future jobs increase the concern that many who will be entering our labor force will not meet job requirements with regard to educational preparation. The slow rate of productivity growth and, in particular, its human resource implications is an additional contributing factor to the Nation's problems. Productivity growth is also linked to the need of our economy to remain competitive, which demands the availability of a highly-skilled and an educated work force. We need to deal with each of these issues, not just separately, but as inter-related problems. □

## Footnotes

<sup>1</sup> See the article by Norman C. Saunders in this issue, pp. 13–24, for a detailed discussion of projected GNP, factors which are important to the rate of growth, and the composition of GNP.

<sup>2</sup> See the article by Howard N. Fullerton, Jr., in this issue, pp. 3–12, for the full detail of the labor force projections.

<sup>3</sup> For more detail on the industry employment projections, see the article in this issue, pp. 25–41, by Valerie A.

Personick.

<sup>4</sup> Because the labor force is a count of people at work or looking for work and the total employment measure is primarily a count of jobs from the establishment series, differences exist between the two measures of employment. Over longer periods, the two series have generally shown comparable rates of growth. Recently, particularly in 1988, the establishment employment series has shown more absolute employment growth than the household employment series. In these projections, it was assumed that by 2000 the differ-



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ences between the two employment measures will have been reconciled. Consequently, the household employment series shows a faster rate of growth than the establishment-based employment series for the period 1988–2000—reversing the 1976–88 pattern. The following tabulation shows these series for 1976, 1988, and 2000:

	(In millions)			Absolute change	
	1976	1988	2000	1976–88	1988–2000
Civilian labor force	96.2	121.7	141.1	25.5	19.5
Civilian household employment	88.8	115.0	133.3	26.2	18.3
Total employment	89.9	118.1	136.2	28.2	18.1
Civilian unemployment rate	7.7	5.5	5.5	-2.2	0.0
"Adjustment factor"	1.1	3.1	2.9	2.0	-0.2
Percent change					
				1976–88	1988–2000
Civilian labor force				+26.5	+15.9
Civilian household employment				+29.5	+15.9
Total employment				+31.4	+15.3
Civilian unemployment rate				na	na
"Adjustment factor"				+181.8	-6.5

<sup>5</sup> For a discussion on expected employment changes by occupation, see the article by George Silvestri and John Lukasiewicz in this issue, pp. 42–65.

<sup>6</sup> A considerable body of literature is available describing the productivity slowdown and some of the factors contributing to it. Among those are: Martin Neil Baily, "What Has Happened to Productivity Growth?" *Science*, Oct. 24, 1986, pp. 443–51; Edward F. Denison, *Accounting for Slower Economic Growth: The United States in the 1970s* (Washington, the Brookings Institution, 1979); Edward F. Denison, *Trends in American Economic Growth, 1929–1982* (Washington, The Brookings Institution, 1984); Dale W. Jorgenson, Frank M. Gollop, and Barbara M. Fraumeni, *Productivity and U.S. Economic Growth* (Cambridge, MA, Harvard University Press, 1987); *The Slowdown in Productivity Growth: A Symposium*: "Symposium on the Slowdown in Productivity Growth," by Stanley Fischer; "Productivity Puzzles and R&D: Another Nonexplanation," by Zvi Griliches; "Productivity and Postwar U.S. Economic Growth," by Dale W. Jorgenson; "The Productivity Slowdown, the Oil Shocks, and the Real Cycle," by Mancur Olson; and "Tax Policy and Economic Growth: Lessons from the 1980's," by Michael J. Boskin, *The Journal of Economic Perspectives*, Fall 1988, pp. 3–97; *Trends in Multifactor Productivity, 1948–81*, Bulletin 2178 (Bureau of Labor Statistics, 1983); *The Impact of Research and Development on Productivity Growth*, Bulletin 2331 (Bureau of Labor Statistics, 1989); Edwin Dean, Kent Kunze, and Larry S. Rosenblum, "Productivity Change and the Measurement of Heterogeneous Labor Inputs," Paper presented at Conference on New Measurement Procedures for U.S. Agricultural Productivity, Mar. 31–Apr. 1, 1988 (Bureau of Labor Statistics, 1989); "Multi-factor Productivity Measures, 1987" (Bureau of Labor Statistics, October 1987), USDL 88–478; John H. Bishop, "Is the Test Score Decline Responsible for the Productivity Growth Decline?" *The American Economic Review*, March 1989, pp. 178–97; and Zvi Griliches, "Productivity, R&D, and Basic Research at the Firm Level in the 1970's," *The American Economic Review*, March 1986, pp. 141–54.

<sup>7</sup> See *International Competition in Services and Paying the Bill, Manufacturing and America's Trade Deficit* (U.S. Congress, Office of Technology Assessment, July 1987 and June 1988).

<sup>8</sup> "An International Assessment of Mathematics and Sci-

ence" (Washington, Educational Testing Service, January 1989). This study had the financial support of the National Science Foundation and the U.S. Department of Education and was carried out in five countries and four Canadian provinces. In each area, a representative sample of 13-year-olds was drawn at random from 100 different schools. Approximately 24,000 students took the 45-minute mathematics assessment along with the 45-minute science assessment.

<sup>9</sup> "Literacy: Profiles of America's Young Adults" (Washington, National Assessment of Educational Progress, Educational Testing Service, September 1986). This assessment is from 3,600 nationally representative 21- to 25-year-olds and included a 60-minute measurement of proficiencies. Percentages of persons and selected tasks at or above successive points on the prose scale follow:

Selected tasks at decreasing levels of difficulty*	points on the prose scale**	Race/ethnicity			
		Total	White	Black	Hispanic
Identify appropriate information in lengthy newspaper column	375	8.8	10.8	0.7	3.3
Orally interpret a lengthy feature story in newspaper	325	37.1	42.6	10.5	23.5
Write about a job one would like	200	96.1	98.0	86.2	93.8

\*Number indicating difficulty level designates that point on the scale at which individuals with that level of proficiency have an 80-percent probability of responding correctly.

\*\*Prose is one of three categories tested, the other two are document search and quantitative proficiency. The tests reinforce results from the prose test.

<sup>10</sup> "Workforce Quality" (U.S. Department of Labor, Commission on Workforce Quality, 1989).

<sup>11</sup> "The Bottom Line: Basic Skills in the Workplace" (Washington, U.S. Departments of Labor and Education, 1989).

<sup>12</sup> This analysis is scheduled to be updated in the Summer 1990 issue of the Bureau of Labor Statistics *Occupational Outlook Quarterly*. Also see the Summer 1988 issue of the *Quarterly*.

<sup>13</sup> "Labor Market Shortages" (U.S. Department of Labor, 1989).

<sup>14</sup> For an analysis of the effect of immigration on employment, see "The Effects of Immigration on the U.S. Economy and Labor Market" (U.S. Department of Labor, Bureau of International Labor Affairs, 1989), Report 1.

<sup>15</sup> For further information on technological change and its implication for employment, see the following BLS bulletins: *Technological Change and its Labor Impact in Four Industries*, Bulletin 2316, 1988; *Technology and its Impact on Labor in Four Industries*, Bulletin 2263, 1986; *Technology and Its Impact on Labor in Four Industries*, Bulletin 2242, 1986; *The Impact of Technology on Labor in Four Industries*, Bulletin 2228, 1985; *Technological Change and Its Labor Impact in Four Industries*, Bulletin 2182, 1984; *The Impact of Technology on Labor in Five Industries*, Bulletin 2137, 1982. See also *Technology and Structural Unemployment: Reemploying Displaced Adults* (U.S. Congress, Office of Technology Assessment, February 1986).