

The 1995 labor force: a second look

About 131.4 million persons are expected to be in the 1995 labor force, 3.8 million more than projected earlier; alternative projections use various demographic and, for the first time, economic assumptions about the labor force

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During the 1982–95 period, the number of persons of prime working age (25–54) in the labor force is expected to grow considerably faster than the total labor force. Young workers will decline in absolute numbers as the rate of growth of the total labor force slows markedly. These growth trends reflect the aging of the baby-boom generation and a subsequent sharp decline in birth rates.

The Bureau of Labor Statistics has revised its labor force projections for the 1982–95 period.¹ For the middle scenario, which assumes that labor force participation of women will accelerate then taper off, the civilian labor force is projected to reach 131.4 million persons by 1995, 3.8 million more than projected earlier.² The labor force is expected to grow 1.6 percent per year over the 1982–90 period, slowing to 1.0 percent per year during 1990–95, thus continuing the slow growth which began in the late 1970's. Nearly two-thirds of the growth will be among women; nearly one-fourth will be among the black and other group.³

This article presents new projections for the 1995 labor force with alternative demographic and, for the first time, economic assumptions. The demographic alternatives illustrate the sensitivity of the size of the projected labor force to various assumptions regarding the behavior of age, sex, and racial groups.⁴ The economic alternatives explore the

sensitivity of labor force changes to assumptions about real earnings and the employment rate.

Methodology

Labor force projections require population projections. The latter have been prepared by the Bureau of the Census by age, sex, and race, based on trends in birth rates, death rates, and net migration.⁵ Once the population projections are prepared, BLS can project labor force participation rates—the percent of each group in the population who will be working or seeking work—for 64 age, sex, and race groups.

To develop labor force participation rates for each group, rates of growth over the 1962–81 period (or subperiods) are analyzed using the most appropriate time period for each group. If past trends are deemed not likely to continue throughout the projection period, the rates are modified. The rate of change in labor force participation was modified for several groups: women ages 20–44 and 45 and over, and men ages 55 and over. The rates of change in participation for all groups are tapered so that the annual changes would be zero after the year 2004.

For women ages 20 to 44, it is assumed that the rate of change in participation will accelerate during the 1982–85 period to allow some partial recovery from the 1980–82 economic slowdown. These projections assume that some of the 1980–82 slowdown in female participation rates are permanent, particularly when compared with the trends of the early and mid-1970's.

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For the older labor force, the participation rates have been declining over the 1962–81 period. It is assumed that these declines will moderate. If the historical trends for some older groups continue, the resulting participation rates would approach zero. These modifications for women and older workers were made to each age group within these broad groups. The historical rates of change in participation for all remaining labor force groups are assumed to continue.

The levels of anticipated labor force are calculated by applying projected participation rates to the Bureau of the Census' population projections.

Middle growth scenario

The overall growth in the labor force over the next 8 to 12 years will be influenced by the baby-boom generation, which will attain those ages at which both men and women have their highest participation; and by the continued, but

slower, rise in participation among women ages 20 to 44. (See tables 1 and 2.) In contrast, the increases in the labor force during the 1970's were influenced by the initial entrance of the baby-boom generation, and by the very rapid increases in the labor force activity of women, particularly married women ages 20 to 44. As a consequence of these changing influences, labor force growth is expected to slow in the late 1980's and the 1990's.

The following tabulation shows labor force growth from 1950 to 1982 and projected growth from 1983 to 1995, by age group:

	1950– 60	1960– 70	1970– 82	1982– 90	1990– 95
Age 16 and over ..	1.3	1.7	2.4	1.6	1.0
16 to 240	4.5	2.7	-1.3	-.8
25 to 54	1.3	1.0	2.3	2.9	1.6
55 and over	1.6	1.4	.3	-.7	-.2

The uncertainty of projections

Knowledge or insights concerning future employment trends is very valuable. . . . Such information is used to plan careers and training programs, and develop business expansion plans and public policy. However, information about future employment growth is clouded by uncertainty. . . . It is very important for users to understand the imprecise nature of projections so they can deal with the information properly.

Although virtually no data about changes in the economy over a 10-year period can be anticipated with absolute certainty, there are differing degrees of uncertainty. To illustrate, I would say with relative certitude that the younger labor force is going to decline in this decade. The population which will be 16 years or older in 1990 is born and unless there are truly revolutionary changes in labor force participation rates for young people along with dramatic infusions through immigration of young people, the young labor force will decline. Perhaps, at the other end of the scale the uncertainty would be a projection of employment in the oil and gas well drilling industry. If I knew what the price of oil would be in 1990 or 1995, perhaps I could come close to projecting the level of employment in that industry. But the factors that will determine the price of oil in 1990 are themselves subject to great variances and uncertainty.

For much of the information on projections, the uncertainty lies between these two extremes. For example, the occupation "computer service technician" is projected to grow very rapidly. From 1982 to 1995, its projected growth is 97 percent. I am confident that employment in this occupation will grow rapidly, certainly much faster than the average growth of the economy over this period. However, I am not certain that the growth rate will be 97 percent or even fall within the 94–98 percent range shown in our alternatives. The growth rate could be significantly greater. Some occupations of this size, 55,000 in 1982, have grown much faster in the past. Still, a growth rate of only 50 percent is not beyond the realm of impossibility.

Concerns received from the public have led us to think and probe further in terms of asking questions about our projections. For example, in the last 6 months, the De-

partment of Defense and some of the defense industries have said there is a critical shortage of engineers that should be reflected in our publications. During the same period, we have had three groups representing the engineering professions say that BLS has been painting such a rosy picture for engineers that we are causing a flood in the market and that their member engineers cannot find jobs.

Which of these groups is correct? We examined this dilemma and concluded that there probably are two distinct markets for engineers. One is new college graduates who are currently in short supply—in at least some engineering disciplines—and these are principally among the engineering categories used by defense contractors. But 45 year-old engineers who are working on a product or product line that has been cancelled are in a tough job market because they are not always able to compete with the young engineer. The important point here is that if this situation is true for engineers, it may also be true for accountants and auditors, lawyers, and many other occupations.

Economists and others involved in forecasting economic activity understand the uncertain nature of projections. However, others, including those who are primary users of the information, may not. Thus, the development of numerical projections is only the first task in presenting information on economic trends or employment growth. It is just as important to present the data in a meaningful way. Unfortunately, this task is neither simple nor straight forward. Despite BLS' experience with and concern about the subject, we still are not sure our users understand the uncertainty attached to our projected data. The Bureau hopes that by indicating the factors underlying growth, preparing evaluation of previous projections, and discussing alternatives and assumptions, we will provide users with some idea of the uncertainties.

—Ronald E. Kutscher
Associate Commissioner
Bureau of Labor Statistics.
Remarks before a Labor Market Information
Conference in Atlanta, Ga., June 1983

Table 1. Civilian labor force, by sex, age, and race, 1970-82, and middle growth projection to 1995

Labor group	Labor force (in thousands)					Participation rate				
	1970	1980	1982	1990	1995	1970	1980	1982	1990	1995
Total, age 16 and over	82,771	106,940	110,204	124,951	131,387	60.4	63.8	64.0	66.9	67.8
Men	51,228	61,453	62,450	67,701	69,970	79.7	77.4	76.6	76.5	76.1
16 to 24	9,725	13,606	13,074	11,274	10,573	69.4	74.4	72.6	74.7	74.5
16 to 19	4,008	4,999	4,470	4,123	4,043	56.1	60.5	56.7	62.3	62.9
20 to 24	5,717	8,607	8,604	7,151	6,530	83.3	85.9	84.9	84.4	84.1
25 to 54	32,213	38,712	40,357	48,180	51,358	95.8	94.2	94.0	93.8	93.4
25 to 34	11,327	16,971	17,793	19,569	18,105	96.4	95.2	94.7	93.7	93.1
35 to 44	10,469	11,836	12,781	17,469	19,446	96.9	95.5	95.3	95.6	95.3
45 to 54	10,417	9,905	9,784	11,142	13,807	94.3	91.2	91.2	91.3	91.1
55 and over	9,291	9,135	9,019	8,247	8,039	55.7	45.6	43.8	37.4	35.3
55 to 64	7,126	7,242	7,174	6,419	6,311	83.0	72.1	70.2	65.5	64.5
65 and over	2,165	1,893	1,845	1,828	1,728	26.8	19.0	17.8	14.9	13.3
Women	31,543	45,487	47,755	57,250	61,417	43.3	51.5	52.6	58.3	60.3
16 to 24	8,121	11,696	11,533	10,813	10,557	51.3	61.9	62.0	69.1	71.6
16 to 19	3,241	4,381	4,056	3,778	3,761	44.0	52.9	51.4	56.8	58.2
20 to 24	4,880	7,315	7,477	7,035	6,796	57.7	68.9	69.8	78.1	82.0
25 to 54	18,208	27,888	30,149	40,496	44,852	50.1	64.0	66.3	75.6	78.7
25 to 34	5,708	12,257	13,393	16,804	16,300	45.0	65.5	68.0	78.1	81.7
35 to 44	5,968	8,627	9,651	14,974	17,427	51.1	65.5	68.0	78.6	82.8
45 to 54	6,532	7,004	7,105	8,718	11,125	54.4	59.9	61.6	67.1	69.5
55 and over	5,213	5,904	6,073	5,941	6,008	25.3	22.8	22.7	20.5	19.9
55 to 64	4,157	4,742	4,888	4,612	4,671	43.0	41.3	41.8	41.5	42.5
65 and over	1,056	1,161	1,185	1,329	1,337	9.7	8.1	7.9	7.4	7.0
White	73,556	93,600	96,143	107,734	112,393	60.2	64.1	64.3	67.3	68.1
Men	46,035	54,473	55,133	59,201	60,757	80.0	78.2	77.4	77.4	77.0
16 to 24	8,540	11,902	11,371	9,854	9,271	70.2	76.7	74.9	78.5	79.1
25 to 54	29,000	34,224	35,565	41,864	44,232	96.3	95.0	94.9	94.8	94.5
55 and over	8,494	8,345	8,197	7,483	7,254	55.8	46.1	44.2	37.8	35.6
Women	27,521	39,127	41,010	48,533	51,636	42.6	51.2	52.4	58.1	60.0
16 to 24	7,141	10,179	10,013	9,285	9,025	52.1	64.4	64.4	72.5	75.4
25 to 54	15,690	23,723	25,619	34,081	37,433	48.9	63.4	66.1	75.6	78.7
55 and over	4,690	5,226	5,378	5,167	5,178	24.9	22.4	22.4	20.1	19.5
Black and other	9,218	13,340	14,062	17,217	18,994	61.8	61.7	61.6	64.8	65.7
Men	5,194	6,980	7,317	8,500	9,213	76.5	71.5	71.0	71.0	70.6
16 to 24	1,185	1,702	1,702	1,420	1,302	64.5	61.6	60.0	55.9	52.7
25 to 54	3,212	4,488	4,792	6,316	7,126	91.9	88.6	88.0	87.6	87.2
55 and over	796	790	822	764	785	54.7	40.8	40.5	34.3	32.6
Women	4,024	6,359	6,745	8,717	9,781	49.5	53.6	53.9	59.7	61.7
16 to 24	982	1,516	1,520	1,528	1,532	46.3	49.3	48.8	53.7	55.3
25 to 54	2,517	4,164	4,529	6,415	7,419	59.2	67.0	67.9	75.8	78.7
55 and over	524	678	695	774	830	30.0	26.4	25.5	23.5	22.8

The slowdown actually began in 1979. The peak labor force growth, 3.0 percent per year, occurred between 1976 and 1979. Over the 1979-82 period, growth was only 1.6 percent per year, reflecting the slowing of long-term growth, as well as the repercussions of 3 years of flat economic growth.

Over the 1982-95 period, there will be a pronounced shift in the age structure of the labor force. The 25- to 54-year-old labor force is expected to grow considerably faster

than the total labor force, 1.3 percentage points per year faster during the 1982-90 period. At the same time, the number of 16- to 24-year-old participants is projected to decline in absolute numbers. During the 1960's and 1970's, the labor force growth of younger workers was by far the fastest of any age group, reflecting the baby-boom generation initially entering and then maturing in the labor force. As this young generation ages in the 1990's, the number of persons ages 25 to 34 will decline. A shift from a young

Table 2. Black civilian labor force, by sex and age, 1972-82, and middle growth projection to 1995

Labor group	Labor force (in thousands)					Participation rate				
	1972	1980	1982	1990	1995	1972	1980	1982	1990	1995
Blacks, age 16 and over	8,707	10,865	11,331	13,600	14,833	59.9	61.0	61.0	64.5	65.4
Men	4,816	5,612	5,804	6,687	7,297	73.7	70.6	70.1	70.4	70.5
16 to 24	1,214	1,414	1,401	1,156	1,055	63.9	62.0	60.3	55.9	54.0
25 to 54	2,917	3,551	3,745	4,939	5,549	90.0	88.4	87.7	87.4	87.0
55 and over	687	647	660	592	583	49.1	39.3	39.0	33.2	31.3
Women	3,890	5,253	5,527	6,913	7,646	48.7	53.2	53.7	59.0	61.2
16 to 24	967	1,279	1,272	1,210	1,180	45.0	48.9	48.4	51.8	53.2
25 to 54	2,421	3,387	3,660	5,073	5,805	60.0	67.6	68.8	75.7	78.6
55 and over	503	588	595	630	661	27.8	26.1	25.3	23.6	22.9

to a prime working-age population in itself induces an increase in the overall participation rate, as prime-age persons are more likely to be in the labor force.

The population ages 55 and older will continue to increase. However, the participation rates for this group are projected to continue declining. For men, the increased population and declining participation have resulted in absolute declines in their number in the labor force. For women, this combination is expected to result in a relatively constant number in the labor force over the next decade. It is assumed that the new social security laws will not affect the trend of labor force participation for the population 55 and older between now and 1995.

These variations in growth rates by age groups mean that persons ages 25 to 54 will account for a much greater share of the 1995 labor force than the 1982 labor force. Prime working-age persons (25 to 54) are expected to account for about 73 percent of the 1995 labor force, up from 61 percent in 1970, and 64 percent in 1982. The growing proportion of prime-age participants could favorably affect productivity because of the greater continuity of participation by women and because of the higher educational attainment of all participants. This continuity and educational attainment imply that the future labor force will be more experienced and better trained, compared with the 1970's when younger workers (ages 16 to 24) accounted for a large share of labor force growth. The maturing of the labor force in the 1980's and 1990's means that employers may have difficulties finding young workers. The decline in the number of youths will be particularly important to the Armed Forces, the single largest employer of young men.

Median age. The median age of the labor force will rise slightly over the next 10 to 15 years. The median age was fairly constant between 1950 and 1970, but dropped sharply between 1970 and 1980 when the baby-boom generation entered the labor force. The following tabulation shows the median age of the labor force for 1950 to 1980 and the projected median age for 1990 and 1995, by sex and race:

	1950	1960	1970	1982	1990	1995
All participants ..	38.6	40.5	39.0	34.8	35.9	37.3
Men	39.3	40.5	39.4	35.3	36.4	37.8
Women	36.7	40.4	38.3	34.2	35.3	36.8
White	—	40.7	39.3	35.0	36.1	37.5
Black and other...	—	38.2	36.6	32.8	34.8	36.3

The differences in median age between men and women and between whites and black and other minorities reflect the age mix of the respective labor forces. For example, in 1982, men ages 55 and over accounted for 14.4 percent of the male labor force; women ages 55 and over accounted for only 12.7 percent of the female labor force. These median age differences between the two groups are projected to continue.

Women and minorities. During the 1982–95 period, the number of women and minorities in the labor force are projected to grow faster than the overall labor force. The following tabulation shows total labor force growth and growth for women, blacks, and black and other minorities for the 1950–82 period, and projected growth, 1982–95:

	1950– 60	1960– 70	1970– 82	1982– 90	1990– 95
Total	1.3	1.7	2.4	1.6	1.0
Women	2.4	3.1	3.5	2.3	1.4
Black and other ..	—	1.8	3.6	2.6	2.0
Blacks	—	—	—	2.3	1.8

Women, both white and black, will account for about two-thirds of the labor force growth during the 1980's and 1990's, about the same proportion as in the 1950's. During the 1960's and 1970's, when men of the baby-boom generation entered the labor force, the proportion of growth attributed to women dropped despite rapid increases in their participation rates. With the young men of the baby-boom generation now in the labor force, the share of labor force growth attributed to women will be greater over the next decade.

The black and other group, should account for slightly more than 21 percent of the additions to the labor force during the 1982–90 period, increasing to nearly 28 percent in the 1990–95 period. Since 1960, this group's proportion of overall growth has been growing despite the continuing drop in participation by black men. The black labor force is projected to grow at almost twice the white rate, reflecting the younger age structure of the black population.

The two groups just discussed overlap. White women and black and other men and women together will account for 72.4 percent of the 1982–90 labor force growth, and 75.8 percent of the 1990–95 growth. These two groups accounted for only 66.8 percent of the 1970–82 labor force growth.

Economic dependency. Around 1986, more of the population should be in the labor force than not in the labor force. The economic dependency ratio, the number of persons not in the labor force divided by those in the labor force, was high in the 1960's, but declined sharply through the 1970's as the baby-boom generation and women entered the labor force in large numbers. During the 1980's and 1990's, the ratio should continue to decline, but at a considerably more moderate pace, reflecting only the continued increases in participation rates for women.

The numerator of the economic dependency ratio can be disaggregated into all persons who are (1) under age 16, (2) between ages 16 and 64, and (3) age 65 and over. The denominator of the ratio in each instance is the total labor force. The following tabulation shows the economic dependency ratio for 1960 to 1982 and projected for 1990 and 1995 for these age groups.

	1960	1970	1982	1990	1995
Total population ..	150.4	138.5	106.5	96.4	94.1
Under age 16	81.45	72.1	48.9	45.2	45.2
Age 16 to 64	50.2	46.8	36.0	28.4	26.0
Age 65 and over ..	18.7	19.6	21.6	22.5	22.9

The drop (from 50 to 36 persons per hundred workers) in the ratio attributed to the 16- to 64-year-olds reflects the steady entry of women into the work force. The economic dependency ratio for persons under age 16 has declined over the 1960 to 1980 period, as the baby-boom generation and women entered the labor market. During the next decade, the ratio should be unchanged despite the "echo" of the baby boom, that is, the increase in the population attributed to the children of the baby-boom generation. The ratio for older workers is expected to rise slightly over the next decade, and should continue to rise into the middle of the next century; currently, their ratio is the lowest of the three groups.

These projected economic dependency ratios have several implications. There will be fewer children per labor force participant in the future, hence providing for primary and secondary education should be less of a burden. On the other hand, there will be more older persons not in the labor force per labor force participant, therefore, providing for retirement and the care of older workers should be slightly more of a burden.

Alternative assumptions

The middle scenario just discussed reflects underlying assumptions and could be significantly affected by changes in these assumptions. BLS developed alternative projections to examine the range of outcomes attached to any projection. Two sets of alternative projections were developed for the current projection: demographic alternatives and economic alternatives. The following tabulations show the size of the civilian labor force during 1970, 1980, and 1982

	Civilian labor force (in millions)		
	1970	1980	1982
Total	82.8	106.9	110.2

and the projected size under each scenario for 1990 and 1995:

	Civilian labor force (in millions)	
	1990	1995
High demographic ..	131.3	141.0
High economic	125.3 to 125.4	131.9 to 132.8
Middle	125.0	131.4
Low economic	123.7 to 124.9	130.0 to 131.0
Low demographic ...	120.3	125.1

Demographic alternatives. One assumption in the middle scenario is that the growth in participation rates of women ages 20 to 44 will accelerate in the near term (that is, recover from the effects of the 1980 and 1981–82 recessions) before tapering off. If the rate of female labor force participation continues to accelerate through the late 1980's (rather than

only through the mid-1980's) the 1995 participation rate and labor force for these women would be considerably higher than in the middle scenario, about 9.6 million *more* persons, or 7.3 percent. (See table 3.)

On the other hand, it is possible that the participation rates for women ages 20 to 44 will not accelerate and instead will continue the modest upward trend shown during the 1979–82 period. If this occurs, there would be 6.3 million *fewer* persons (4.8 percent) in the 1995 labor force.

The two differences between the low, middle, and high assumptions concerning female participation rates, are substantial. The high scenario reflects female participation rates nearly converging to the higher male participation rates. The low scenario reflects a sharp deceleration from the trends of the 1970's. Over the 1979–82 period, the growth of female rates slowed, possibly in response to the 1980 and 1981–82 recessions. However, it might also reflect a change in the long-run trend. The low scenario, in essence, assumes that the recent trends reflect new secular trends for women.

The low-growth path assumes a more modest growth which is *not* a reversal of the upward growth in female participation rates or shifts in marital status. For example, regardless of which scenario is used, women should account for 65 to 66 percent of increases in the labor force. This stability occurs because increases in female participation will be the greatest source of labor force growth over the next decade.

A second demographic assumption in the middle scenario concerns the relative trends in black-white participation. Over the past two decades, the rates for black and white men have been diverging. (The rates for black and white women, on the other hand, appear to have converged, if not crossed.) The low and middle scenarios assume these respective trends will continue. The high scenario assumes that the rates for black and white men will converge to the higher white male rates. In the low scenario, black and other minorities account for 25.8 percent of the increase in the labor force over the 1982–95 period; in the high scenario, 23.9 percent; and in the middle scenario, 23.3 percent.

Economic alternatives. Labor force projections are only one segment of the BLS projections program. The program includes gross national product projections, in total and by major demand and income components; industry output and employment projections; and occupational requirements projections. To emphasize the uncertainty of these varied projections, BLS traditionally develops several scenarios which cover a number of alternative assumptions yielding a reasonably broad span of employment and gross national product level. The alternative projections of the economy as a whole use different assumptions for fiscal policy, productivity growth, the unemployment rate, and the price level.

At issue in these alternatives is the relationship between earnings and unemployment rates and labor force trends. Would alternative economic trends imply substantially or

modestly different labor force trends? According to the models, modest changes in the unemployment rate for all workers and in real earnings of workers lead to relatively small changes in the total labor force. (See table 4.)

Alternative projections of labor force trends have been made with two econometric models. One, labeled the marital status model, focuses on the behavior of detailed labor force trends.⁶ The second model, labeled the macro labor force model, focuses solely on total labor force trends in the context of a broader economic model.⁷ The methodology for these economic scenarios is substantially different from that used in other BLS labor force projections. The assumptions here are based on econometric models, while the other alternatives were based on a demographic methodology.

The *marital status model* relates participation rates for 16 age, sex, and marital status groups to real earnings of full-time workers by sex, and the overall unemployment rate. The model was estimated with Standard Metropolitan Statistical Area data for 34 cities during the 1973–80 period. The data are constructed from the micro files of the Bureau of the Census' Current Population Survey. The following tabulation shows the unemployment rate and annual earnings data used in the model.

	1982	1990	1995
Unemployment rate:			
All workers			
High	9.7	5.4	5.2
Middle	9.7	6.3	6.0
Low	9.7	6.5	6.8
Real annual earnings (1972 dollars):			
Men			
High	\$7,497	\$8,698	\$9,074
Middle	7,497	8,905	9,804
Low	7,497	8,941	10,148
Women			
High	4,441	5,152	5,375
Middle	4,441	5,275	5,807
Low	4,441	5,296	6,011

Developing the alternative scenarios with the marital status model required two steps. First, a middle scenario of labor force growth was developed for the 16 groups. This middle scenario for the 16 marital status groups was constrained to replicate the middle scenario described earlier. It was developed as in previous projections—extrapolating historical trends. Second, the differences in the two explanatory variables among scenarios were multiplied by the

Table 3. Projections of the civilian labor force in 1995, by alternative demographic scenarios

Labor group	Labor force (in thousands)			Participation rate		
	High scenario	Middle scenario	Low scenario	High scenario	Middle scenario	Low scenario
Total, age 16 and over	140,973	131,387	125,058	72.7	67.8	64.5
Men	73,005	69,970	67,541	79.4	76.1	73.5
16 to 24	11,321	10,573	10,013	79.8	74.5	70.6
25 to 54	52,545	51,358	50,130	95.5	93.4	91.2
55 and over	9,139	8,039	7,398	40.1	35.3	32.5
Women	67,968	61,417	57,517	66.7	60.3	56.5
16 to 24	11,155	10,557	9,792	75.7	71.6	66.4
25 to 54	49,525	44,852	41,964	86.9	78.7	73.6
55 and over	7,288	6,008	5,761	24.2	19.9	19.1
White	119,560	112,393	107,170	72.5	68.1	65.0
Men	62,451	60,757	58,839	79.2	77.0	74.6
16 to 24	9,463	9,271	8,755	80.8	79.1	74.7
25 to 54	44,815	44,232	43,406	95.7	94.5	92.7
55 and over	8,173	7,254	6,678	40.2	35.6	32.8
Women	57,109	51,636	48,331	66.4	60.0	56.2
16 to 24	9,330	9,025	8,316	77.9	75.4	69.5
25 to 54	41,384	37,433	35,097	87.0	78.7	73.8
55 and over	6,395	5,178	4,918	24.1	19.5	18.6
Black and other	21,413	18,994	17,889	74.8	65.1	61.9
Men	10,554	9,213	8,709	80.0	70.2	66.7
16 to 24	1,858	1,302	1,253	75.9	52.7	50.9
25 to 54	7,730	7,126	6,725	94.6	87.1	82.3
55 and over	966	785	722	40.3	32.8	29.9
Women	10,859	9,781	9,182	68.7	61.2	58.0
16 to 24	1,825	1,532	1,471	65.7	55.4	53.2
25 to 54	8,141	7,419	6,863	86.8	78.7	72.9
55 and over	893	830	847	24.5	22.9	23.1
Black	16,517	14,833	13,984	72.5	65.6	61.7
Men	8,125	7,297	6,775	79.4	70.7	66.4
16 to 24	1,432	1,055	984	73.9	54.3	50.4
25 to 54	5,974	5,549	5,246	93.4	87.1	82.2
55 and over	719	583	549	38.2	31.0	29.1
Women	8,392	7,646	7,217	67.0	61.7	57.8
16 to 24	1,407	1,180	1,148	63.8	53.8	51.8
25 to 54	6,311	5,805	5,413	85.7	78.1	73.2
55 and over	674	661	650	23.6	22.3	22.7

Table 4. Civilian labor force by alternative economic scenarios, 1982 and projected to 1995

Labor group	Labor force (in thousands)				Participation rate			
	1982	High scenario	Middle scenario	Low scenario	1982	High scenario	Middle scenario	Low scenario
Marital status model:								
Total	110,204	131,887	131,387	130,977	64.0	68.0	67.8	67.6
Men	62,450	70,101	69,970	69,867	76.6	76.2	76.1	75.9
16 to 19	4,470	4,032	4,043	4,047	56.7	62.8	62.9	63.0
20 to 34	21,385	24,647	24,635	24,619	90.8	90.5	62.9	90.4
Married	14,212	11,071	11,071	11,062	97.1	95.6	90.4	95.6
Other	12,185	13,576	13,564	13,557	85.3	86.7	95.6	86.6
35 to 44	12,781	19,497	19,446	19,401	95.3	95.5	86.6	95.1
Married	10,321	14,971	14,956	14,937	96.8	97.0	95.3	96.8
Other	2,460	4,527	4,490	4,463	89.4	90.9	96.9	89.6
45 to 54	9,784	13,847	13,807	13,784	91.2	91.4	90.2	90.9
Married	8,320	11,553	11,531	11,523	93.4	93.8	91.1	93.5
Other	1,464	2,295	2,276	2,261	80.8	81.0	93.6	79.8
55 and over	9,019	8,076	8,039	8,017	43.8	35.5	80.3	35.2
							35.3	
Women	47,755	61,786	61,417	61,110	52.6	60.7	60.3	60.0
16 to 19	4,056	3,777	3,761	3,749	51.4	58.5	58.3	58.1
20 to 34	17,128	23,224	23,096	22,975	68.8	82.3	81.8	81.4
Married	10,592	11,160	11,087	11,021	61.6	80.8	80.3	79.8
Other	10,279	12,064	12,009	11,954	77.7	83.6	83.2	82.9
35 to 44	9,651	17,526	17,427	17,350	68.0	83.2	82.8	82.4
Married	6,723	11,968	11,932	11,902	64.1	81.8	81.5	81.3
Other	2,928	5,557	5,495	5,448	79.0	86.5	85.6	84.8
45 to 54	7,105	11,282	11,125	11,015	61.6	70.5	69.5	68.8
Married	4,993	7,927	7,798	7,708	57.9	68.4	67.3	66.5
Other	2,111	3,356	3,327	3,307	72.3	76.0	75.3	74.9
55 and over	6,073	5,976	6,008	6,017	22.7	19.9	20.0	20.0
Macro labor force model:								
Total	110,204	132,800	131,387	130,000	64.0	66.9	67.8	67.1

respective coefficients; then the products were added to obtain the differences from the middle scenario.

For the marital status model, the range between the high and low scenarios is only 900,000 persons in the total labor force and .4 percentage points in participation rates. (See table 4.) The groups most affected by the changes between the scenarios are married women ages 45 to 54, nonmarried women ages 35 to 44, married women ages 20 to 34, and nonmarried men ages 45 to 54 and ages 35 to 44. The finding that these groups are more sensitive than others to the changes in economic trends is consistent with the slower trends in participation rates during the 1979–82 period. The projected labor force participation rates for these five groups are all projected to change by between 1.0 and 1.7 percentage points between the high and low economic scenario.

The *macro labor force model* relates the labor force participation rate of all workers to the unemployment rate and real wages. As noted, the macro labor force model is part of a large-scale quarterly macroeconomic model that allows for interaction of labor force trends with employment, labor productivity, and other trends.

For the macro labor force model, the range between the high and low scenarios is 2.8 million persons and 1.4 percentage points in the total participation rates. The difference between the high and low scenarios for the macro labor force model, when compared to the marital status model, reflects, in part, the interaction of labor force trends with economic trends in the context of a macroeconomic model

and, in part, the structural differences between the two labor force models.⁸

A comparison of the low and high economic scenarios with the middle scenario indicates that changes in economic assumptions do not result in substantial changes in labor force projections.

The most important finding across the four economic scenarios is that projections with two strikingly different labor force models yield *small* differences between the scenarios. By contrast, the difference between the high and low demographic scenarios is 15.9 million in 1995. Thus, the key factors in the size of the future labor force are demographic in nature.

Revisions reflect 1980 census

Several factors necessitated updating the projections published in 1980: revisions in the historical labor force estimates, revisions in the projected population (which are used in determining the size of the future labor force), and availability of labor force participation rates for the 1979–82 period.⁹ The historical labor force data were revised to incorporate the 1980 census. The revised population projections reflect incorporation of the 1980 population estimates and new, *higher* assumptions about life expectancy and net migration, and new, *lower* assumptions about fertility levels. These changes resulted in a larger projected population for 1995, with 8.8 million more persons over age 16. The new population projection alone would have raised the 1995

labor force projections by 5.3 million persons (after accounting for population shifts by age, sex, and race).

Offsetting the population growth is a lower projected change in labor force participation rates. This reflects the 1979–82 changes in participation which were lower than those of 1962–79. The 1979–82 changes reflect both cyclical factors and trend factors, such as an increased fertility after years of steady decline. If the previously projected participation rates were applied to the new population projections, the 1995 labor force would have been 132.4 million persons, 1 million more than the current projection. The most notable change in projected participation rates occurred for women ages 25 to 34, a group for which BLS has consistently underprojected participation. The rate for this group was lowered 2 percentage points in the current projection to 81.7 percent, compared with 83.7 percent in the previous projection. Still, participation for this group is expected to grow 13.7 percentage points over the 1982–95 period, the largest projected increase for any labor group. Projected participation rates for several groups have been revised upward, notably for men ages 35 to 54, and women 35 and older.

The following tabulation compares the previous and the revised projections of the 1995 labor force:

	1980 projection	1983 projection	Difference
Civilian labor force (in thousands)	127,542	131,387	3,845
Men	67,611	69,970	2,359
Women	59,931	61,417	1,486
White	109,292	112,393	3,101
Black and other	18,250	18,994	744

	1980 projection	1983 projection	Difference
Participation rate	68.6	67.8	-.8
Men	76.8	76.1	-.7
Women	61.2	60.3	-.9
White	68.8	68.1	-.7
Black and other	67.0	65.7	-1.3

BASED ON BLS' PROJECTIONS, several significant changes in labor force trends are expected during the next decade:

- The total labor force will grow more slowly during the next decade than during the past decade.
- Women will account for a greater proportion of labor force growth in the decade ahead (nearly two-thirds) than they did over the past decade;
- Blacks and other minority groups will account for a greater proportion of overall labor force growth, about one-quarter during the next decade;
- The younger members of the labor force, ages 16 to 24, will decline in absolute numbers.
- The number of prime-age members of the labor force, those ages 25 to 54, will grow faster than the total labor force, 1.0 percentage point per year faster.

These projections reflect the changing demographic structure of the U.S. population: the aging of the baby-boom generation and the growth of the black population. These general conclusions hold for several scenarios concerning future trends in labor force participation for detailed groups, although the specific projections differ. □

—FOOTNOTES—

¹ These projections replace those in Howard N Fullerton, Jr., "The 1995 labor force: a first look," *Monthly Labor Review*, December 1980, pp. 11–21. For an evaluation of earlier projections, see Howard N Fullerton, Jr., "How accurate were the 1980 labor force projections?" *Monthly Labor Review*, July 1982, pp. 15–21.

² The labor force (civilian labor force and resident Armed Forces) is projected to be 126,577,000 in 1990 and 133,018,000 in 1995. Of these, 57,415,000 will be women in 1990 and 61,582,000 will be women in 1995. Because there is no age or race detail in the resident Armed Forces measure of the labor force, this article is based on the civilian labor force.

³ As with other current BLS presentations of data by race, this article presents data for blacks; however, for historical comparison, data are also presented for the black and other group, which also includes American Indians, Eskimos, and other minorities.

⁴ For a short description of the BLS demographic labor force projection methodology, see *BLS Handbook of Methods*, Bulletin 2134–1 (Bureau of Labor Statistics, 1982), Chapter 18; for a complete description, see *BLS Economic Growth Model System Used for Projections to 1990*, Bulletin 2112 (Bureau of Labor Statistics, 1982), Chapter 2.

⁵ Among the assumptions of the Census Bureau's projections of the population is that the total fertility rate will rise from 1.83 in 1980 to 1.96 in 2000, and then will decrease to 1.90 in 2050; and that life expectancy will rise from 78.3 in 1981 to 81.3 in 2005 for women, 70.7 to 73.3 for men. See *Projections of the Population of the United States: 1982 to 2050*,

Current Population Reports, Series P-25, No. 922 (Bureau of the Census, 1982).

⁶ For illustrations of other uses of the marital status model, see James E. Duggan, "Labor force participation of older workers" *Industrial and Labor Relations Review*, forthcoming; and James E. Duggan, "Relative price variability and the labor supply of married persons." Both papers are available from the Office of Economic Growth and Employment Projections, Bureau of Labor Statistics.

⁷ The macro labor force model is the labor force equation in the Chase Econometric Model. For a description of the model, see Arthur J. Andressen and others, "Economic outlook for the 1990's: three scenarios for economic growth," pp. 11–23, this issue.

⁸ BLS' alternative scenarios of gross national product, industry output and employment trends and occupational requirements use the macro labor force model's projections of total labor force. This was done because of the small differences between the economic scenarios of labor force trends and because the macro labor force is part of the macroeconomic model of the economic projections.

⁹ For a discussion of the revisions in labor force estimates due to the 1980 Census of the Population, see Kenneth D. Buckley, Jennifer Marks, and Ronald J. Statt, "Revisions in the Current Population Survey Beginning in January 1982," *Employment and Earnings*, February 1982, pp. 7–15.