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THE FUTURE OF WORK AND HEALTH

The Institute for Alternative Futures

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*Chapter 2***POPULATION AND
WORKFORCE FORECASTS**

In this chapter, we set forth some basic data on the size and nature of the population, including major demographic trends relevant to considering the future of work, and basic, largely extrapolative forecasts for the workforce through 2010 used by the Bureau of the Census and the Social Security Administration. Divergent trends which might alter these basic forecasts are considered elsewhere in this book.

Population

The Census Bureau's middle series projections forecast a total U.S. population of 283 million persons by 2010, up from 236 million in 1984. The projection assumes net immigration to be 450,000 per year, slow gains in life expectancy (to age 81 by 2080), and fertility of 1.9 births per woman. Table 2-1 provides the results to 2080 for the middle series, as well as the Census Bureau's high and low estimates. Major demographic uncertainties that might alter that 283 million figure or affect work within that range include mortality and fertility patterns, immigration trends, the racial and ethnic mix, and the geographic distribution of the population.

Worker Demographics

A variety of demographic factors will affect the supply and type of workers over the next twenty-five years, including the basic age distribution, family structure, mortality and morbidity patterns, immigration, the role of minorities, and geographic shifts.

More Women, More Older Workers

Figure 2-1 graphically illustrates probable future changes in the age distribution of the United States, given recent historical fertility and mortality trends. As we move toward 2010, the numbers of women and the elderly (especially elderly women) will increase, and there is reason to believe that older citizens will seek work as they never have before, especially if morbidity patterns continue shifting toward the very late years of life (this is due to the "squaring of the survival curve" trend, reviewed in Chapter 4). However, it would be a mistake to assume that simple numbers alone are an adequate guide. Thus far, even with a larger number of older, and presumably healthier, people, there has been little, if any, measurable pressure on the labor market.

Further, the demands women will place on the labor market may be focused more on the quality of work—the form, style and conditions of their employment—rather than merely on finding jobs. The current trends suggest that women (and men) are seeking to balance career with family and that the pressure for more flexible working arrangements will therefore grow, including demands for company-sponsored day-care, part-time work, and child-birth leave for both parents.^{1,2}

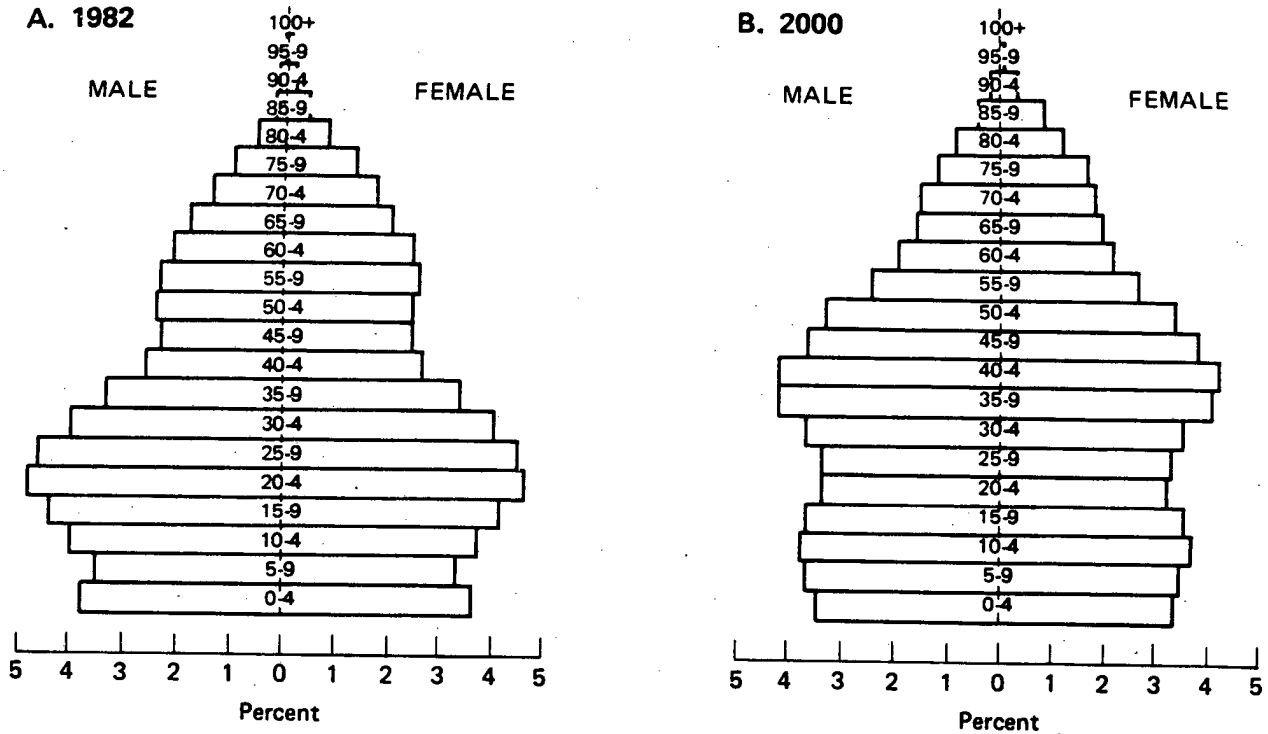
As noted in Table 2-2, in 1980 there were about 3 million persons over 65 in the workforce; the Social Security Administration forecasts that by 2010 there will be about 5

Table 2-1. Population and Age Structure in the United States, 1950-2080 (Population in thousands. Includes armed forces overseas.)

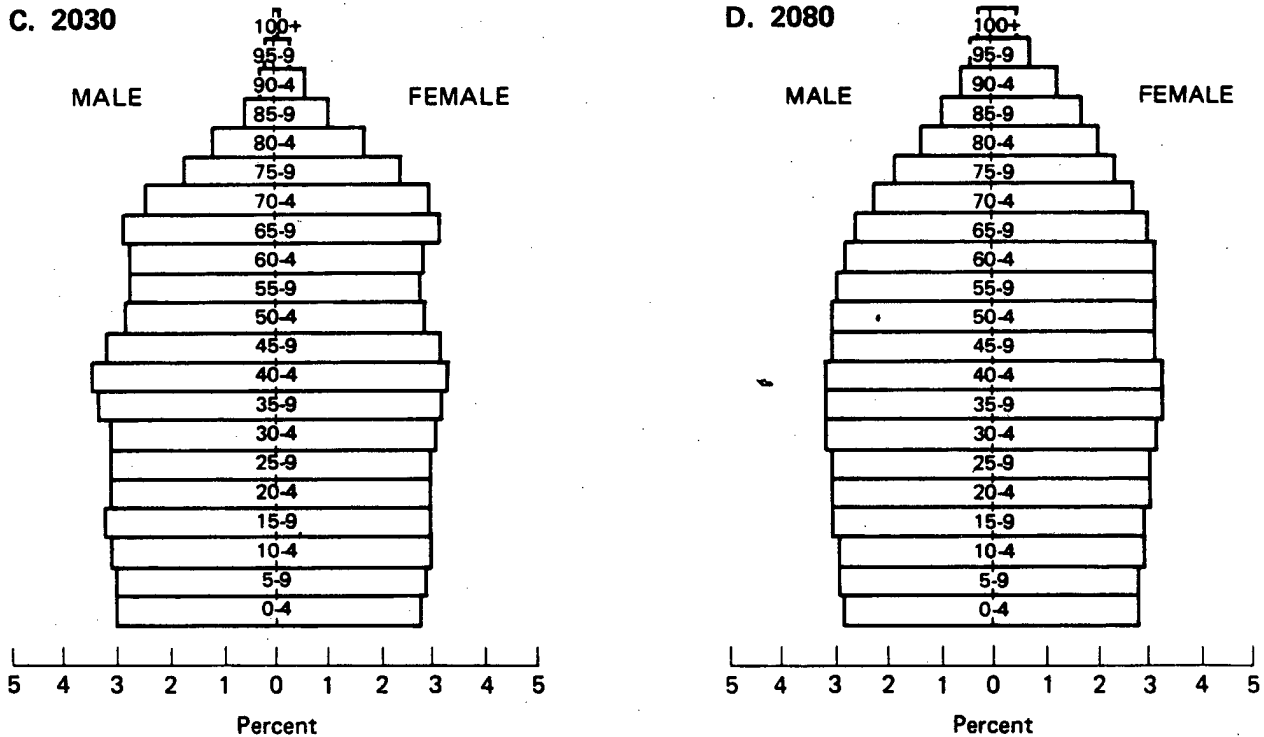
Year	Total population	Age (years)									
		Under 5	5-13	14-17	18-24	25-34	35-44	45-64	65 and over	85 and over	100 and over
ESTIMATES											
1950	152,271	16,410	22,424	8,444	16,075	24,036	21,637	30,849	12,397	590	(NA)
1955	165,931	18,566	27,925	9,248	14,968	24,283	22,283	33,507	14,527	776	(NA)
1960	180,671	20,341	32,965	11,219	16,128	22,919	24,221	36,203	16,675	940	(NA)
1965	194,303	19,824	35,754	14,153	20,293	22,465	24,447	38,916	18,451	1,082	(NA)
1970	205,052	17,166	36,672	15,924	24,712	25,323	23,150	41,999	20,107	1,430	(NA)
1975	215,973	16,121	33,919	17,128	28,005	31,471	22,831	43,801	22,696	1,821	(NA)
1980	227,704	16,457	31,080	16,139	30,347	37,593	25,881	44,493	25,714	2,271	25
1982	232,057	17,372	30,431	14,963	30,367	39,481	28,144	44,574	26,824	2,445	32
PROJECTIONS											
Lowest series:											
1985	237,605	18,046	29,581	14,691	28,628	41,662	31,913	44,555	28,528	2,673	36
1990	245,753	17,515	31,638	12,848	25,547	43,147	37,570	46,136	31,353	3,202	50
1995	251,876	16,193	32,193	13,932	23,347	39,887	41,500	51,699	33,127	3,811	66
2000	256,098	14,942	30,364	14,587	24,157	35,596	42,972	59,859	33,621	4,444	84
2010	261,482	14,298	26,525	12,814	24,605	35,511	35,554	75,626	36,547	5,486	140
2030	257,443	12,136	23,686	11,369	20,454	30,434	34,679	66,600	58,085	6,490	233
2050	232,222	10,553	20,437	9,573	17,391	27,337	29,537	61,057	56,336	11,088	408
2080	191,118	8,479	16,360	7,725	14,107	21,919	23,863	49,630	49,035	10,085	551
Middle series:											
1985	238,631	18,453	29,654	14,731	28,739	41,788	32,004	44,652	28,608	2,696	37
1990	249,657	19,198	32,189	12,950	25,794	43,529	37,847	46,453	31,697	3,313	54
1995	259,559	18,615	34,436	14,082	23,702	40,520	41,997	52,320	33,887	4,073	77
2000	267,955	17,626	34,382	15,381	24,601	38,415	43,743	60,886	34,921	4,926	108
2010	283,238	17,974	31,888	14,983	27,655	36,978	36,772	77,794	39,196	6,551	221
2030	304,807	17,695	33,018	15,153	26,226	37,158	40,168	70,810	64,580	8,611	492
2050	309,488	17,665	35,583	14,600	25,682	38,383	38,844	74,319	67,412	16,034	1,029
2080	310,762	17,202	31,650	14,316	25,296	37,237	38,222	73,748	73,090	18,227	1,870
Highest series:											
1985	239,959	18,888	29,801	14,796	28,881	42,092	32,104	44,748	28,650	2,697	37
1990	254,122	20,615	32,935	13,120	26,137	44,329	38,229	46,767	31,989	3,379	57
1995	268,151	20,815	36,626	14,364	24,233	41,672	42,870	52,953	34,618	4,289	88
2000	281,542	20,530	38,128	16,306	25,326	37,850	45,128	62,025	36,246	5,387	136
2010	310,006	22,910	38,407	17,201	30,624	39,318	38,801	80,680	42,067	7,755	340
2030	369,775	26,562	46,999	20,567	34,190	45,739	46,278	76,854	72,587	11,417	1,016
2050	427,900	30,940	54,242	23,158	39,085	55,136	52,196	90,399	82,744	23,415	2,485
2080	531,178	37,439	65,466	28,236	47,911	66,393	63,744	112,094	109,896	32,456	5,932

Note: NA = Not Available.

Source: U.S. Bureau of Census, *Projections of the Population of the United States, by Age, Sex, and Race: 1983-2080*, Series P-25, No. 952 (Washington, D.C.: GPO), Table E, p. 7.



The Future of Work and Health



Population and Workforce Forecasts

Figure 2-1 Changes in Age Distribution, 1980-2080. Source: Bureau of the Census, *Projections of the Population of the United States by Age, Sex, and Race: 1983 to 2080*, Series P-25, No. 952 (Washington, D.C.: GPO, 1984), p. 5.

million. For 65- to 69-year-olds, this represents an increase from 21 percent to 26 percent in their participation in the workforce. In the years ahead, more and more elderly persons will realize they are not "elderly" and do not have the opportunity to retire. The uncertainty of pension or social security income, and the value changes described in the following section, facilitate this trend. Hence, greater numbers are likely to stay in the labor force—the formal and/or the informal economy. There is likely to be ongoing pressure by those over 65 to remain working, particularly if public programs or the informal economy (including families) do not provide adequate support.

Changing Family Structure

The "typical family," with a husband wage earner, a wife homemaker, and two or more dependent children, now accounts for less than 10 percent of all households. Morton Darrow, in a study of trends shaping the family, argues:³

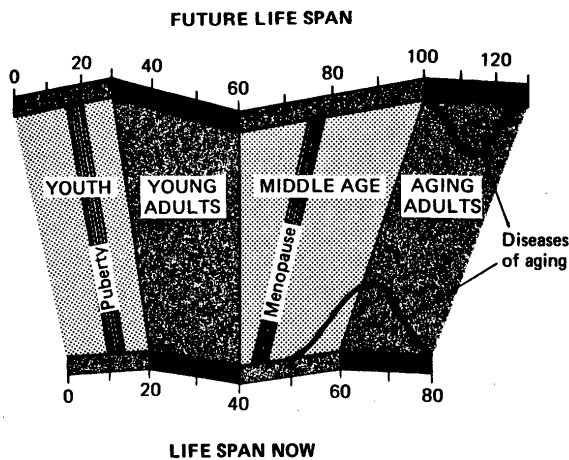
... though over 90 percent of Americans presently marry, by 2000 this may drop to 85 percent as many of the recent changes take hold. Stemming from the weakening of religious, social, and legal taboos, greater sexual freedom will promote continued growth of cohabitation, single-person households, unwed single-parent families, and homosexual couples. Over the next few years, despite the moral objections [of those with more traditional values], there will be widespread recognition of a family as consisting of two or more people joined together by bonds of sharing and intimacy. To these two bonds is added the bond of commitment through the marriage contract, no matter how easy divorce is made.

The prevalence of sexually transmissible diseases, particularly AIDS, has already begun to affect the freedom of sexual relations. However, it is likely that family structure will be more varied, including the possibility of even greater "feminization of poverty" as more women with low-paying jobs carry responsibility as heads of single-parent households.

Table 2-2. Labor Force and Labor Force Participation Rate by Age, 1980-2010 (in thousands)

Age	1980			1990			2000			2010		
	Labor Force	Labor Force Participn. Rate	Labor Force	Labor Force Participn. Rate	Labor Force	Labor Force Participn. Rate	Labor Force	Labor Force Participn. Rate	Labor Force	Labor Force Participn. Rate	Labor Force	Labor Force Participn. Rate
16-19	9549	57.7	8513	61.6	10035	67.1	10654	68.0				
20-24	16192	78.1	15127	81.6	14731	84.7	16921	84.6				
25-29	15114	80.6	17866	85.5	15605	87.9	17483	88.1				
30-34	13719	79.9	17686	84.6	15569	87.3	14810	87.6				
35-39	11171	80.1	16527	84.6	18082	87.5	15207	87.4				
40-44	9335	80.2	15197	85.2	18949	88.2	16570	88.2				
45-49	8498	77.3	11520	83.2	16698	86.4	17678	86.1				
50-54	8465	73.0	8882	77.7	14280	81.9	17126	81.4				
55-59	7269	64.4	6985	67.7	9161	70.3	12554	68.8				
60-64	4488	46.3	5063	49.0	5537	54.3	8405	54.0				
65-69	1811	21.1	2395	24.6	2248	25.9	2920	26.3				
70+	1210	7.9	2030	10.3	2204	9.6	2130	9.0				
Total > 16	106821	64.2	127796	68.3	143101	71.0	152460	69.7				

Source: U.S. Social Security Administration, *Economic Projections for OASDI Cost Estimates, 1983*, Publication Number 11-11537, Actuarial Study No. 90, Washington, D.C.: SSA, 1984. Labor force estimates are from Alternative I, Table 12D, p. 70. Labor force participation rates are from Alternative I, Table 10E, page 56.



Extending maximum life span will stretch out the young-adult and middle-aged periods, probably with less extension of the period of decline. Longer youth period and later menopause will allow greater leeway in family planning. The diseases of old age will be delayed, and exposure to them will cover proportionately fewer years of the life span than they now do.

Figure 2-2 Comparison of Present and Future Life Spans. Source: Roy L. Walford, *Maximum Life Span* (New York: W.W. Norton and Co., Inc.), p. 190. Copyright © 1983 by Roy L. Walford.

The role of families and homes in education, including health and promotion of health, is likely to be aided by the variety of information devices that will become available over the next twenty-five years. Also, the ways in which families relate to the informal economy will be important determinants of their role in the formal workforce. Men are taking a more active role in parenting, and some of the caring functions which were taken from the extended family, put in the nuclear family, and then into the single-parent family may be reextended to neighborhoods and com-

munity and other local networks. (Forecasts for revitalization of the local informal economy are described in Chapter 3.)

Morbidity and Mortality

Developments around two important issues related to mortality and morbidity trends could affect the basic U.S. population forecast of 283 million by 2010. The first is life extension—the capacity to extend life beyond its natural limits. The second is the “compression of morbidity”—the capacity to ensure that most people live in a healthy condition until the natural limit of life. Life extension has received much popular attention, although there is a great deal of debate about its feasibility and, for some, its desirability as a goal of public policy. In Figure 2-2, Roy Walford⁴ identifies how life span might be extended, including our sense of what constitutes youth and aging. Similar issues will be raised for work and promotion of health in the workplace more immediately in the consideration of the compression of morbidity.

Will the “compression of morbidity,” assessed in more depth in Chapter 4 as a health trend, that has occurred in recent decades continue or even accelerate over the next twenty-five years? Briefly, the argument is that if personal behavior and certain allocations of resources were altered to emphasize prevention of premature death and disability, there would be significantly greater numbers of elders living relatively healthier lives up to a point much closer to their death. If this occurred, not only would there be an increase in elders relative to other age cohorts, as all current forecasts predict, but many more of these elders would be healthier. Hence, they would be more fit and able for work, and very possibly much more motivated to do so.

Immigration

Immigration patterns in this century have varied widely, as indicated by Figure 2-3. While the Census Bureau forecasts

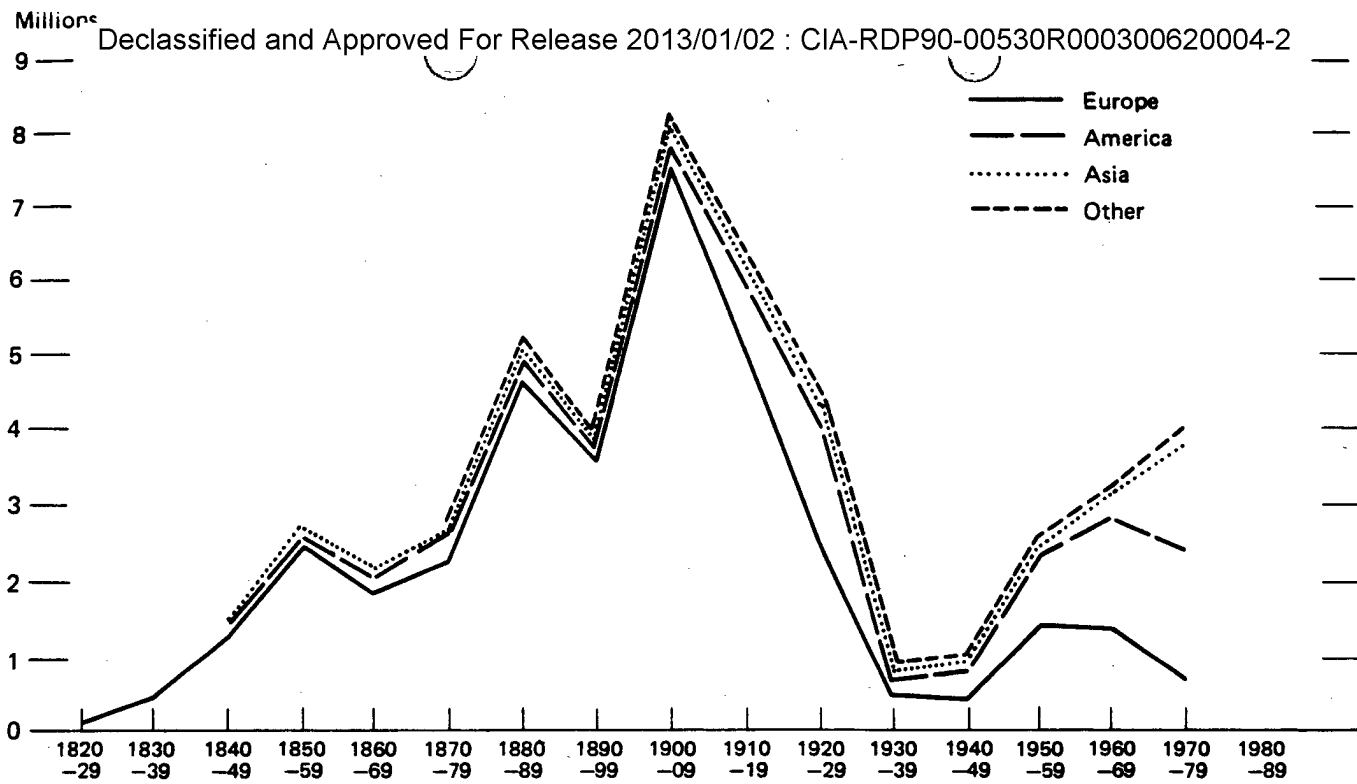


Figure 2-3 Immigration Patterns, 1820-1970. Source: U.S. Bureau of the Census, *Statistical Abstract of the United States: 1984*, 104th Edition (Washington, D.C.: GPO, 1983), p. 89.

between 450,000 and 750,000 per year, many argue that the influx is more likely between 1 and 1½ million immigrants per year. At these higher figures, whites become a minority in the late part of the twenty-first century. Based on these data, and given the long-term decrease in fertility (taking into account the present "echo" of the baby boom, which is causing a short-term increase in the fertility rate), it is clear that the bulk of the projected population growth in the United States, at least in the near term, will arise from immigration, and most of that from Asian and Latin American countries. During the next ten years, Hispanics, as a group, will come close to becoming the largest minority, replacing blacks. Brown and Weiner note that "historically, immigrants have provided the backbone of change, innovation, and revitalization in the United States."⁵

It can be argued that the Census Bureau's forecasts are already too low and that pressures for immigration from Latin American countries are likely to increase because the percentage of young people in Latin American populations will dramatically increase. Without equally dramatic economic growth, there will be too few jobs in Third World economies to absorb the large numbers of younger people, which could increase immigration even more. The formulation of public policy affecting immigration laws is likely to have some impact on future immigration, but if recent history is a guide, illegal immigration into the Southwest is likely to persist, notwithstanding public policy. Also, conflicts and disruptions in other parts of the world might result in substantially greater demand for admission by immigrants, demands which this country has historically honored. Alternatively, the United States might choose and be able to effectively close its borders.

The Underclass

The future minorities in the United States and its labor force will be affected by immigration and differential fertility patterns. One of the major issues in the literature on work is the

Table 2-3. Females and Blacks Continue to Be Employed in Low-Paid Occupations

Occupation	Percentage of Total Who Are Female		Percentage of Total Who Are Black	
	1960	1984	1960	1984
Total labor force	33	44	11	10
White-collar	42	55	4	7
Professional and technical	36	48	4	7
Managers, officials, and proprietors	16	34	3	5
Sales	40	48	2	5
Clerical	68	80	5	10
Blue-collar	15	18	12	11
Craftworkers and foremen	3	9	5	7
Operatives	28	26	12	14
Nonfarm laborers	2	18	27	15
Service workers	65	61	27	18
Private household	98	96	50	30
Farm workers	18	16	16	8

Sources: Sar A. Levitan and Clifford M. Johnson, *Second Thoughts on Work* (Kalamazoo: The W.E. Upjohn Institute for Employment Research, 1982), p. 136, based on Employment and Earnings Report, January 1982, pp. 165-166 and 1981 Employment and Training Report of the President, pp. 149 and 151; and U.S. Department of Labor, *Employment and Earnings*, January 1985.

istence of racial problems and inequities for blacks, particularly in two areas: a disproportionate and continuing low level of jobs, and unemployment. Sar Levitan provides Table 2-3 to show that between 1960 and 1981 there was slight change in the percentage of blacks in higher-paying jobs. Although some gains were made by women, blacks and women continue to be employed in low-paying occupations. "The distribution of jobs in the economy remains skewed to the detriment of blacks and women Blacks, though comprising only 11 percent of the labor force, hold 15 percent of all operative, 18 percent of laborer, and 20 percent of service jobs."⁶ Brown and Weiner note that while official figures show a steady climb in earnings by black males as a percentage of white male earnings, these

figures leave out the unemployed, masking a growing black male underclass.⁷ Thus, lingering problems among blacks may worsen in the years ahead, as immigrants repeat the experience of recent decades: taking over the lowest-paying jobs and driving a corresponding increase in black unemployment.

Geographic Shifts

Much has been made of the so-called shift to the sun belt. Factors shaping this shift include better climate and lifestyle possibilities, lower wage rates, lower taxes, and other favorable economic conditions. These may be the central reasons for the documented shifts, but projections for the future based on these assessments are problematic, primarily because vital resources, especially water, are likely to decrease in quality and/or availability. Hence, the range in assumptions about the geography of work should be fairly wide, including, as some suggest, a renaissance of parts of the frost belt or rust bowl because of competitive wages, availability of water, and lower density than formerly desirable areas in the sun belt.⁸

Workforce Size

How many people will be working in 2010? The formal labor force projections from the Bureau of Labor Statistics (BLS) go through 1995 in published form⁹ and to the year 2000 for total labor force in unpublished draft form.¹⁰ Under the middle growth path forecast, the civilian labor force aged 16 and over increases from 110.3 million in 1981 to 137.8 million in 2000, as shown in Table 2-4.

The forecasts in Table 2-4 assume a steady pattern of U.S. economic growth, increasing 3.2 percent per year through 1990, and 2.5 percent per year after that, coupled with about 3.1 percent annual growth among the other nations of the world, a rebound in U.S. manufacturing productivity, and a

Table 2-4. Civilian Labor Force Participation Rate and Employment for Those Aged 16 and Over

	1981	1985	1990	1995	2000
Civilian labor force (in millions)	110.3	118.6	126.5	131.4	137.8
Participation rate	64.2%	65.9%	67.3%	67.8%	68.0%

Source: BLS/Norwood, Letter from BLS Commissioner Janet L. Norwood, September 20, 1984, pp. 2, 3, 36, 36.

slowing of the rate of growth of the service sector because of "maturation" (demand slackens with saturation). Loosening of tight government budgets allows more hiring; high-tech electronic fund transfer lowers employment in banking; and strong demand emerges for aerospace products and machinery in general. "Trends discussed in other chapters, particularly the health of the economy, the state of the informal economy, new technologies, and patterns of values, could significantly adjust these forecasts.

In tracking the basic federal government assumptions for labor force size, the Social Security Administration's forecasts go out further and also include a range of alternative forecasts. Table 2-2, based on assumptions most favorable to social security (higher labor force participation with slightly delayed retirement), indicates an increase in the labor force to 152.5 million by 2010 (the lowest estimate of the four developed in this Social Security Report was a labor force of 141.1 million by 2010). Thus, the current "official assumptions" see a labor force between 141 and 153 million in 2010.

Workforce by Sector

Given a workforce of a certain size, how will it be distributed in the future? In Table 2-5 the New York Stock Exchange has taken BLS data and separated the goods-producing sector from the service sector, showing that between 1962 and

Table 2-5. Distribution of Civilian Jobs, 1962-1995

Percent Distribution	1962	1967	1972	1977	1982	1985	1990	1995
Goods Producing Sector	57.3	52.8	50.2	47.9	45.7	45.0	44.3	42.8
Agricul., Forestry, Fisheries	7.8	5.3	4.3	3.6	3.5	2.8	2.4	2.0
Mining	.8	.7	.6	.7	.7	.7	.8	.9
Construction	5.6	5.1	5.5	5.3	5.4	5.9	6.2	6.2
Manufacturing	25.7	25.1	22.6	21.1	19.2	17.9	16.7	15.3
Non-Durables	11.2	10.3	9.5	8.7	7.7	6.8	5.7	4.8
Durables	14.5	14.8	13.1	12.4	11.5	11.1	11.0	10.5
Wholesale and Retail Trade	17.4	16.6	17.2	17.2	16.9	17.7	18.2	18.4
Total	57.3	52.8	50.2	47.9	45.7	45.0	44.3	42.8
Services Sector	42.7	47.2	49.8	52.1	54.3	55.0	55.7	57.2
Transportation	4.0	3.6	3.3	3.2	3.1	2.8	2.5	2.2
Communications	1.2	1.2	1.3	1.3	1.4	1.2	1.0	.8
Utilities	1.0	1.0	.9	.9	1.0	1.0	.9	.9
Finance, Insurance and Real Es.	4.7	4.5	5.0	5.2	5.6	5.9	6.0	6.2
Personal and Business Services	17.8	21.8	23.1	25.2	27.7	29.0	31.0	33.0
Civilian Government	14.0	15.1	16.2	16.4	15.5	15.1	14.3	14.1
Federal Government	1.1	1.1	1.0	.9	.8	.7	.6	.6
Enterprises								
State & Local Government	10.2	11.3	12.8	13.3	12.7	12.3	11.7	11.5
(1)								
Federal Government-Civilian	2.7	2.7	2.3	2.2	2.0	2.1	2.0	2.0
Total	42.7	47.2	49.7	52.2	54.3	55.0	55.7	57.2
TOTAL	100.0	100.0	99.9	100.1	100.0	100.0	100.0	100.0

NOTES

1. In the NYSE report, the projections for 1985 to 1995 for State & Local Government and the Federal Government were reversed. They are shown corrected, here.

Source: New York Stock Exchange, *U.S. International Competitiveness: Perception and Reality* (New York: NYSE, August 1984), pp. 32-44. Used with permission.

Table 2-6. Occupational Distribution of the Personal and Business Services Sector (millions of jobs)

	1982	Percent Change	Absolute Change	1995
Professional and technical managers, officials, proprietors	16.8	+36.3%	+6.0	22.8
Sales workers	9.5	+33.4	+3.2	12.7
Clerical workers	7.1	+32.0	2.3	9.4
Craft workers	19.1	+31.8	+6.0	25.1
Operatives	12.0	+28.8	+3.4	15.4
Service workers	12.9	+9.7	+1.2	14.1
Farmers and farm workers	16.8	+35.4	+5.9	22.7
Total	6.0	+19.1	+1.1	7.1
	2.8	-27.0	-0.8	2.0
Total	102.8	+27.9%	+28.7	131.5

Details may not add due to rounding.

Source: New York Stock Exchange, *U.S. International Competitiveness: Perception and Reality* (New York: NYSE, August 1984), p. 46, Table 23. Used with permission.

1995 they reverse their positions (the goods-producing sector has 57.3 percent of the jobs in 1962, the service sector will have 57.2 percent in 1995). The NYSE definition of the service sector, unlike some others, excludes wholesale and retail trade on the argument that they are selling goods rather than the more intangible services. However, most of the change has already taken place in this area, so there is a slight adjustment between now and 1995 among the two. Again, Table 2-5 makes several assumptions that will be challenged in the following pages, but it does serve as a valuable starting point.

Job Classification and Types of Jobs in the Future

A critical question about the future of work concerns the nature or stature of the jobs that will exist. In Tables 2-6 and 2-7, the New York Stock Exchange had the University of Maryland break up the BLS data shown above by job type.

Table 2-7. Job Growth by Occupation, 1982 vs. 1995 (percentage of jobs)

	1982	1985
Professional and technical managers, officials, proprietors	27.6%	28.7%
Sales workers	7.7	8.1
Clerical workers	1.7	1.8
Craft workers	17.3	17.7
Operatives	5.8	5.8
Service workers	4.4	4.2
Laborers	33.0	31.1
Farmers and farm workers	2.5	2.6
Total	0.0	0.0
	100.0%	100.0%

Source: New York Stock Exchange, *U.S. International Competitiveness: Perception and Reality* (New York: NYSE, August 1984), p. 47, Table 22. Used with permission.

The NYSE results are hopeful. They write that "despite popular notions, more upper-echelon jobs will be added than lower-echelon jobs."¹² The contrasting "gods and clods" view of the future of jobs will be considered in Chapter 3. Table 2-6 provides the number and distribution of job growth between 1982 and 1995; Table 2-7 provides percentages for the same data, indicating relatively little change by 1995. Figure 2-4 portrays this data graphically, showing that there will be almost 6 million new jobs in each of the professional, technical, clerical, and service work fields, providing balanced growth across the job spectrum.¹³ Figure 2-5 is the final aspect of the NYSE report, the percentage of professional and technical jobs in each sector. Expert computer systems and artificial intelligence will be used by and are likely to displace many of these workers, particularly in government and personal and business services.

The NYSE/BLS forecasts make several assumptions about society, the economy, and the nature of work and health. Several forces are addressed in Chapter 3 and 4 to affirm or alter the basic labor force assumptions identified in

Millions of Jobs	Occupation	% Growth
6.0	Professional and Technical Managers, Officials and Proprietors	36.3
3.2	Sales Workers	33.4
2.3	Clerical Workers	32.0
6.0	Craft Workers	31.8
3.5	Operatives	28.8
1.3	Service Workers	9.7
5.9	Laborers	35.4
	Farmers and Farm Workers	19.1
-0.8		-27.0

Figure 2-4 Job Growth by Occupation, 1982 to 1995. Source: New York Stock Exchange, *U.S. International Competitiveness: Perception and Reality* (New York: NYSE, August 1984), Chart 15, p. 47. Used with permission.

the forecasts discussed here. But before turning to other trends in the environment, it is relevant to review what is known about the size of the worksites for the U.S. labor force.

Worksite Size

What is the distribution of worksites by size for the U.S. workforce? There is no single accurate compilation of the data to answer this question fully. What is available are the data given in Table 2-8, which the Bureau of Labor Statistics compiled from state agency reports on unemployment compensation. There are some shortcomings in the data. For example, employers having a number of similar units within a given county are aggregated, including food stores and banks; thus some of the service, retail trade, and finance sector groups might show smaller units. But since the data in Table 2-8 cover about 70 percent of the workforce, focus-

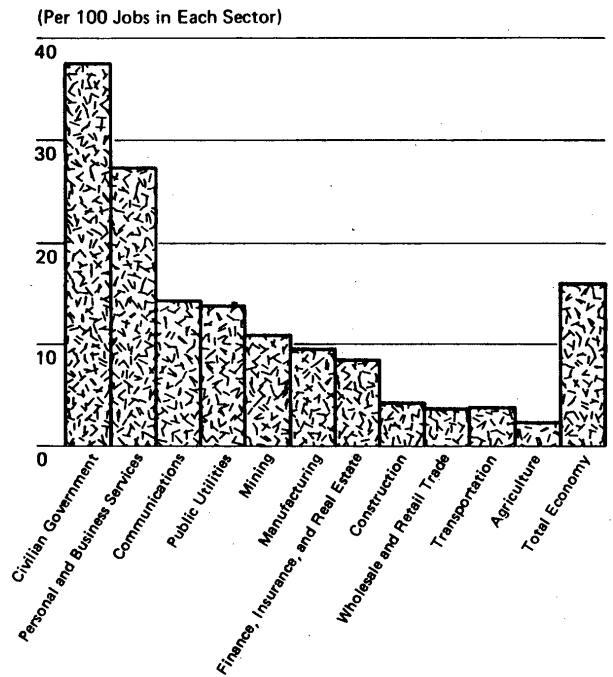


Figure 2-5 Professional and Technical Jobs by Sector, 1982. Source: New York Stock Exchange, *U.S. International Competitiveness: Perception and Reality* (New York: NYSE, August 1984), p. 47, Chart 14. Used with permission.

ing on private industry, it gives a sense of how worksite size is distributed. Thus, it indicates that in March 1983, 52 percent of all reporting units had 0 to 3 workers, even though they accounted for only 5 percent of the private industry workforce. At the same time, 40 percent worked in reporting units of 49 or less, 52 percent in units of 99 or less, and 67 percent in units of 249 or less. In the retail trade sector, 52

Table 2-8. Distribution of the United States Workforce in Private Industry by Size of Worksite, March 1983

Industry	Size of							
	Total		0-3		4-9		10-19	
	Number (1,000s)	Pct. (%)	Number (1,000s)	Pct. (%)	Number (1,000s)	Pct. (%)	Number (1,000s)	Pct. (%)
All industries	4,763	100	2,461	52	1,209	25	520	11
Reporting Units	71,631	100	3,508	5	7,057	10	6,980	10
March Employment								
Agriculture, Forestry, & Fisheries	111	100	61	56	28	26	12	11
Reporting Units	976	100	77	8	166	17	156	16
March Employment								
Manufacturing	44	100	20	46	9	21	6	14
Reporting Units	944	100	25	3	56	6	83	9
March Employment								
Construction	485	100	297	61	109	22	44	9
Reporting Units	3,492	100	324	9	634	18	588	17
March Employment								
Wholesale Trade	342	100	95	28	77	23	55	16
Reporting Units	18,102	100	140	1	473	3	762	4
March Employment								
Transportation, Communications, & Public Utilities	188	100	85	45	46	24	25	13
Reporting Units	4,558	100	120	3	270	6	337	7
March Employment								
Retail Trade	468	100	223	48	124	26	64	14
Reporting Units	5,187	100	320	6	735	14	862	17
March Employment								
Finance, Insurance & Real Estate	1,147	100	501	44	346	30	151	13
Reporting Units	15,053	100	790	5	2,038	14	2,027	13
March Employment								
Other	403	100	245	61	84	21	33	8
Reporting Units	5,294	100	349	7	481	9	443	8
March Employment								
Government	1,544	100	909	59	381	25	128	8
Reporting Units	17,878	100	1,333	7	2,173	12	1,702	10
March Employment								

Percentages may not add to 100 due to rounding.

Source: U.S. Bureau of Labor Statistics. Based on reports from state unemployment insurance agencies.

Unit	Size of											
	20-49		50-99		100-249		250-499		500-999		1,000 and Over	
	Number (1,000s)	Pct. (%)	Number (1,000s)	Pct. (%)	Number (1,000s)	Pct. (%)	Number (1,000s)	Pct. (%)	Number (1,000s)	Pct. (%)	Number (1,000s)	Pct. (%)
All industries	348	7	123	3	69	1	20	1	8.3	1	5.2	1
Reporting Units	10,549	15	8,459	12	10,451	15	6,858	10	5,656	8	12,115	17
March Employment												
Agriculture, Forestry, & Fisheries	6	6	1	2	.8	1	.2	0	.07	0	.01	0
Reporting Units	187	19	125	13	129	13	76	8	45	5	16	2
March Employment												
Manufacturing	4	11	1	4	1	2	.3	1	.2	0	.07	0
Reporting Units	147	16	125	13	159	17	113	12	109	12	126	13
March Employment												
Construction	25	5	6	1	2	1	.5	0	.1	0	.09	0
Reporting Units	742	21	438	13	356	10	151	4	75	2	185	5
March Employment												
Wholesale Trade	53	16	27	8	21	6	7	2	3.4	1	2.0	1
Reporting Units	1,664	9	1,851	10	3,203	18	2,675	15	2,290	13	5,046	28
March Employment												
Transportation, Communications, & Public Utilities	19	10	6	4	4	2	1	1	.5	0	.5	0
Reporting Units	586	13	464	10	607	13	425	9	357	8	1,392	31
March Employment												
Retail Trade	41	9	11	2	4	1	.9	0	.3	0	.08	0
Reporting Units	1,226	24	755	15	680	13	294	6	181	3	133	3
March Employment												
Finance, Insurance & Real Estate	100	9	31	3	13	1	3	1	1.1	0	.6	0
Reporting Units	3,026	20	3,104	14	1,946	13	1,023	7	772	5	1,327	9
March Employment												
Other	24	6	9	2	5	1	1	0	.6	0	.4	0
Reporting Units	741	14	629	12	768	15	512	10	405	8	967	18
March Employment												
Government	73	5	28	2	17	1	4	0	2.0	0	1.5	0
Reporting Units	2,208	12	1,954	11	2,589	14	1,584	9	1,417	8	2,917	16
March Employment												

percent of employees work in sites of 49 or less. In this sector all units of a particular chain (McDonald's restaurants, for example) in the same county aggregate their employees, so the percentage of workers in small sites in this sector is likely to be higher than these data reflect.

Notes

1. *Business Week*, "A Work Revolution in U.S. Industry," May 16, 1983, pp. 10-110.
2. Fred Best, "Recycling People: Work Sharing Through Flexible Life Scheduling," *The Futurist* (February 1978, pp. 5-16; see also the 1984 and 1985 issues. Published by The World Future Society, 4916 St. Elmo Ave. Bethesda, Md. 20814.
3. Family Service America, *The State of Families 1984-85*, New York, 1984, p. 7.
4. Roy L. Walford, *Maximum Life Span* (New York: Avon, 1984), p. 191.
5. Arnold Brown and Edith Weiner, *Supermanaging* (New York: McGraw-Hill, 1984), p. 29.
6. Sar A. Levitan and Clifford M. Johnson, *Second Thoughts on Work* (Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 1982), p. 140.
7. Brown and Weiner, p. 33.
8. *Ibid.*
9. Bureau of Labor Statistics, *Employment Projections for 1995*, Bulletin 2197 (Washington D.C.: GPO, March 1984).
10. _____, Janet L. Norwood, BLS Commissioner, Correspondence and forecasts to the year 2000 (forecasts unpublished) (Washington, D.C.: Bureau of Labor Statistics).
11. Bureau of Labor Statistics, Bulletin 2197, pp. 22-23.
12. New York Stock Exchange, *U.S. International Competitiveness: Perception and Reality* (New York: NYSE, Office of Economic Research, August 1984), p. 46.
13. *Ibid.*, p. 47.

Workplace Changes

Driving Forces	Flexible hours	Work at home	Support for networks	Stress management	Restructuring of jobs	New recruiting and promotional considerations	New compensation schemes	Professional contacts
Two-wage-earner households	X	X				X	X	
Broadened social and self-awareness	X		X	X	X	X		X
Explosive growth of service economy	X	X	X	X	X		X	X
Economic, demographic, and technological challenges to middle-management positions				X	X	X	X	
Time of rapid change and an uncertain future			X	X	X	X	X	X

Figure 3-7 Responses to Change in the Workplace. Source: Arnold Brown and Edith Weiner, *Supermanaging* (New York: McGraw-Hill, 1984), p. 101. Used with permission.

The Worker and the Workplace

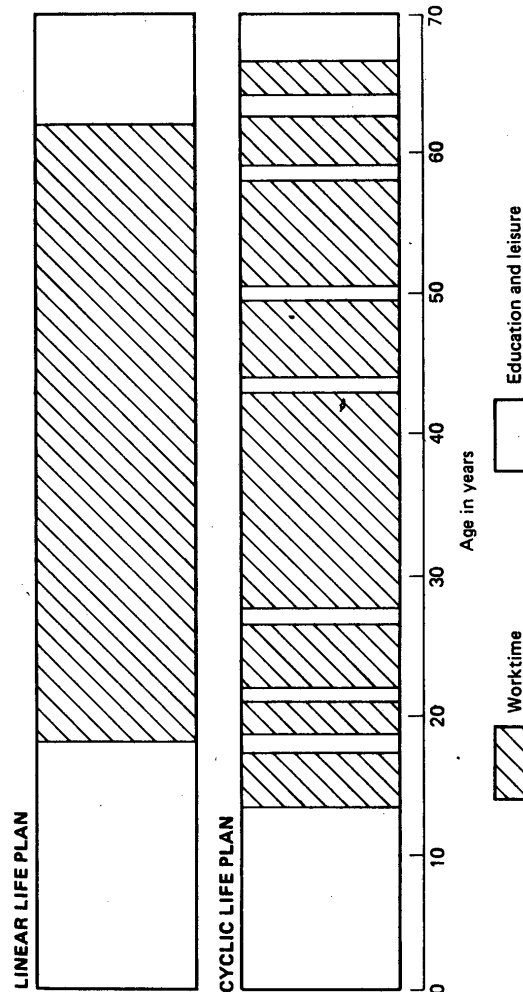
There are a host of trends affecting work and the workplace directly. Arnold Brown and Edith Weiner use Figure 3-7 to

identify some of the driving forces and consequent workplace changes. We have just discussed the changes in the economy, technology, and values. This section deals with some of the changes taking place in the nature of work and workplaces, including work schedules, organizational culture, pensions and social security, workplace safety and health, viewing employees as "human capital," and the future of worker organizations.

Work Schedules

Work schedules are dramatically changing, not only in terms of when the work is done, but also regarding the length of the workweek, its traditional full-time nature, the work schedule's consistency over the lifetime, and even where the hours are put in. The length of the workweek has dropped over the last forty years, and many argue that it will decrease further still. For example, Marvin Cetron argues that "by 1990 the average worker will put in 32 hours a week and 25 hours a week by 2000."³⁸ The Bureau of Labor Statistics concurs but points out that this includes full- and part-time workers—it forecasts for nonfarm workers an average workweek of 33.1 hours by 1995, down from 35.1 in 1982 (based on both a decrease in full-time workers and an increase in part-time workers). Sar Levitan points out that the evidence is not definitive, and in his estimation the bulk of full-time workers have remained on a forty-hour workweek for decades; the overall decline has occurred because of the increase in part-time workers. By 2010, what percentage of full-time workers will be working less than, say, 34 hours a week? If large numbers of jobs are lost, some workers may be more ready to share, while others will not be.

A related matter is the frequency with which a worker changes careers or makes a major job shift. It is now estimated that most workers will perform five or six different jobs over the course of their careers, requiring varying degrees of retraining for each change. Some experts argue that people will alternate between work and "nonwork" on a more regular basis. For example, Fred Best uses Figure 3-8 to support his claim that, rather than a continuous period of work preceded by education and followed by retirement, workers will move in and out of full-time work, education, and leisure. This may fit well with the expressive values already described or with a pattern of recurring involuntary unemployment.



Linear Life Plan (the way life is now organized): An extended period of non-work at the beginning of life is followed by a solid period of work years and then another period of non-work. Under this plan, most increases in non-work are taken in the form of reduced workweeks and expansion of the time for education during youth and leisure during old age. Such expansion reduces the compressions of work into the mid-years of life but maintains the linear progression from school to work to retirement.
 Cyclic Life Plan (the way life may be organized in the future): Non-work time is redistributed through the middle years of life to allow extended periods of leisure or education in mid-life.

Figure 3-8. Alternative Lifetime Patterns. Source: Fred Best, "Recycling People: Work-Sharing Through Flexible Life Scheduling," *The Futurist*, February 1978, p. 8. Used with permission.

Work at home will become a viable option for many, either by working out of their house or having an office but working at home for part of each week or month. For several years now, it has been argued that about 40 percent of what most white-collar workers do could be done at home, and more efficiently, without any electronic or computer equipment. Given electronic workstations, the difference between being down the hall, down the street, or in another town becomes less critical for many occupations.

Organizational Culture

"Organizational culture" is a term which summarizes a number of areas of change in the workplace; it is a principal condition for many of the trends in the workplace. James O'Toole concludes his book, *Making America Work*, with the following argument for paying attention to a changing corporate culture:³⁹

Only changes in the philosophy and organization of work can overcome America's economic decline. And such changes can occur only when managers are willing to identify the values and assumptions that underlie the culture of their organizations, what the cultures should be. Only then will they see the need for change and be able to create in the work place the conditions of diversity, flexibility, choice, mobility, participation, security, and rights tied to responsibilities, which are necessary in making the culture of organizations congruent with the larger culture—conditions that would go a long way towards making America work again.

Given this supposed need, is there a trend toward this more productive organizational culture? *In Search of Excellence* argues for its importance in successful companies, and *Business and Health Magazine* has a regular column on organizational culture. While there is little empirical research which supports the shift, and it is widely acknowledged that cultural change of any kind is difficult to achieve and maintain, there are likely to be interacting factors which will increase the importance of conscious ef-

forts devoted to the development of a new corporate culture.

restructuring. As workers disperse to smaller worksites, promotion of occupational health will be much more difficult (for example, site visits will be more difficult and expensive), and new regulatory structures may be needed. There is likely to be an institutional lag as the regulatory system, created in response to large organizations, adjusts to the greater importance of smaller settings. For example, one evaluation of current research on health and safety issues estimates that 75 percent of the regulatory system's budget is targeted to mature or declining industries, while there is a great need to focus research on job sites in new, growing industries. It has also been pointed out that workers in small plants, especially those without labor unions, are less likely to participate in promoting health and safety issues; there are fewer workers to organize in support of such efforts, and employers may have more leverage in smaller units. Such relationships may embody the crucial aspect of changing corporate structures. The interplay between new structures and the attitudes of employers, workers, and the medical establishment is likely to determine the outcomes of future health problems in new worksites.

Employees as Human Capital

A number of trends are shaping the emerging perception of the employee as a source of capital. The following changes are among the more important trends:

- The shift toward "expressive" values, particularly as employees seek the means to express those values in the workplace.
- For a variety of reasons, more workers will seek increased flexibility in the workplace, including shared jobs, flextime, part-time, and a variety of sabbatical arrangements.
- Many younger workers, in particular, desire a much higher level of participation in the workplace decisions that affect them; they are more willing to follow rules if

they have had something to say about their formulation and are appropriately compensated for their inputs into the production process.

- As the discussion of values shows, many employees are placing a demonstrable value on the quality of products and services.
- The increasing perception by managers that since job retraining and job replacement costs are so high, high turnover rates are unacceptable—just as it is unacceptable to management to incur excessive costs due to poorly maintained facilities and equipment. Hence, there is a growing willingness to invest more in human resource development and training for workers.
- As the nature of work changes, resulting in greater numbers of employees in the knowledge and information sectors of the economy, such employees may demand more discretion in the exercise of their work, and hence more self-autonomy, in order to achieve optimal productivity.

These trends and changing perceptions, *in combination*, are causing many employers to view employees, or at least some of them, as a form of capital for which nurturing, maintenance, improvement, self-enhancement, and self-growth are both needs and opportunities. Economic growth is increasingly tied to the development of human capital, according to a report for The Council of State Planning Agencies:⁴⁶

Human capital is the combination of innate talent, knowledge, skill, and experience that makes each human a valuable contributor to economic production. Learning is the process through which human capital grows. As we proceed through the transition to a new, postindustrial economy, human capital and the learning that generates it are becoming ever more critical to healthy economic development.

Results of this growing management interest in human capital will include new emphasis on promotion of health, wellness, human resource development, training, and quality control. And, as the evidence about the positive rela-

tionship among worker participation, productivity, and quality increasingly becomes available, more companies will experiment with innovative employee-participation schemes, including equity participation.

The Future of Worker Organizations

Worker organizations—particularly unions, but professional associations as well—are facing a variety of contradictory trends. Labor union membership as a percentage of the U.S. workforce has been diminishing for some time. Union jobs in the manufacturing sector are among the ones lost to overseas production, so this aspect of the decline is likely to continue. Alternatively, the fastest growing areas of union membership include white-collar and professional and government service employees.

Our discussion about incentives, the elimination of traditional distinctions or levels within workforces, and the encouragement of risk-taking suggests that union activity in the years ahead will adjust to these new factors in their environment. A step in this direction is the work of the AFL-CIO's Committee on the Evolution of Work. Its 1983 and February 1985 statements recognize the changing environment and many of the trends reviewed in this book.^{47,48} In response, the AFL-CIO committee recommends that unions develop new approaches to collective bargaining, that they address issues such as pay equity and worker participation in workplace decision-making processes, and that they develop union membership forms beyond solely workplace collective bargaining agreements.⁴⁹ Forty-one percent of union members are in white collar jobs; another 20 percent are craftsmen or foremen. From 1971 to 1983, membership in the AFL-CIO by public sector workers grew by over 1 million while membership in the private sector declined by 2 million. About 50 percent of full-time state and local government employees are organized, and the AFL-CIO committee argues that the unions will see a resurgence if they can meet the challenges of the changing work environ-