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New Worklife Estimates



U.S. Department of Labor
Bureau of Labor Statistics
November 1982

Special Labor Force Report

Bulletin 2157

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U.S. Department of Labor
Raymond J. Donovan, Secretary

Bureau of Labor Statistics
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November 1982

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Preface

This bulletin on new estimates of working life for men and women is part of the Special Labor Force Report series. It contains, in addition to a discussion of changes in worklife expectancy since 1970—first published in the *Monthly Labor Review* of March 1982—detailed working life tables for 1977, worklife expectancies for 1970, and a technical appendix.

The author, Shirley J. Smith, is a demographic stat-

istician in the Division of Labor Force Studies. Kenneth D. Buckley and Josephyne W. Price, of the Data Services Group, assisted in the preparation of the tables.

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New worklife estimates reflect changing profile of labor force

The worklife expectancy of men continued to level off between 1970 and 1977, while that of women increased significantly

SHIRLEY J. SMITH

The Bureau of Labor Statistics has developed a new set of working life tables based on labor force patterns observed in 1977. On the basis of these patterns, the Bureau estimates that the average man 16 years of age can expect to spend 38.5 years in the labor force while a typical woman of that age can expect 27.7 years of labor force involvement.

Patterns of lifetime labor force attachment for both men and women are constantly changing. Comparisons of labor force participation rates from year to year suggest evolving patterns of labor force entry and withdrawal, as well as significant changes in economic activity at midlife. However, it is difficult to identify the current "lifetime pattern of labor force involvement" from these rates alone.

Working life tables were developed to isolate such lifetime patterns. The results of the model are synthetic. That is, they summarize the behavior of all age groups in the population during a given year, rather than trace the history of any one group through its lifetime. The tables estimate how frequently members of a population would enter and leave the labor force, and how long the average person would remain economically active, if rates of behavior remained as they were in the reference year.

Recent participation trends affect methodology

Of course, these rates do not remain constant over time. In fact, activity rates of men and women have changed substantially since 1970, the reference year of the Bureau's previous working life tables. Between 1970 and 1977, the entire cross-sectional profile of participation for both sexes changed. (See table 1.) Persons age 16 to 24 became increasingly active; those above age 55

showed a weakening attachment to the labor force. The participation rates of younger women showed the most remarkable change, increasing by more than one percentage point per year. The rate for those 25 to 34 increased by 14.5 percentage points in just 7 years. At the same time, rates of older persons were dropping, with that of men 60 to 64 declining by 12.1 percentage points.

In the prime working ages, the labor force attachment of men slackened somewhat, while that of women increased substantially. The net effect was a decline in the mean age of labor force members, reinforcing the drop related to the age structure of the population itself. The magnitude and character of these changes have rendered the 1970 worklife estimates obsolete.

Moreover, there is now much evidence that adults, particularly women, move in and out of the labor force repeatedly during their lifetimes. This movement contradicts a basic assumption of conventional worklife methodology, that workers remain in the labor force continuously from age of entry to age of final withdrawal. The growing conflict between model and reality appears to have adversely affected estimates published for the years 1950-70.

Table 1. Civilian labor force participation rates by sex and age, annual averages, 1970 and 1977

Age	Men		Change	Women		Change
	1970	1977	1970-77	1970	1977	1970-77
16-19	56.1	61.0	4.9	44.0	51.4	7.4
20-24	83.3	85.7	2.4	57.7	66.5	8.8
25-34	96.4	95.4	-1.0	45.0	59.5	14.5
35-44	96.9	95.7	-1.2	51.1	59.6	8.5
45-54	94.2	91.2	-3.0	54.4	55.8	1.4
55-59	89.5	83.2	-6.3	49.0	48.0	-1.0
60-64	75.0	62.9	-12.1	36.1	32.9	-3.2
65 and over ...	26.8	20.1	-6.7	9.7	8.1	-1.6

Shirley J. Smith is a demographic statistician in the Division of Labor Force Studies, Bureau of Labor Statistics.

The new worklife estimates for 1977 are drawn from a dynamic new model known as the increment-decrement working life table. This model is markedly different from the original (or conventional) worklife technique used to produce the estimates previously published by the Bureau. The new values are not entirely comparable with previously published figures,¹ because they reflect not only changes in the behavior of American adults, but also several fundamental changes in modeling procedures.²

The key feature of this model is that it rests on observed probabilities of movement into and out of the labor force—a flow variable, rather than labor force participation rates, which are a measure of stocks. In the new tables, persons are assumed to pass through life, at each age facing the “probabilities of transition” observed for that age group in the base population during the reference year. Worklife expectancies summarize the length of time the average adult would spend in the labor force during his or her lifetime, if these probabilities did not change. Rates of labor force accession and separation summarize the volume of labor turnover which would occur within each age group if mobility patterns remained constant.

Unlike previously published estimates for women, the new tables do not spell out expectancies separately by marital or parental status. Such tables imply a fixed status for life. Instead, the new model presents a summary table for all women. The transition probabilities underlying this table reflect the impact of normal life cycle changes on labor force attachment at each age.

For purposes of comparison, 1970 estimates have been reestimated using the new increment-decrement methodology. Selected revised values are included in this report.

¹ Previous BLS publications on this subject include Howard N Fullerton, Jr. and James J. Byrne, “Length of working life for men and women, 1970,” *Monthly Labor Review*, February 1976, pp. 31–35; Howard N Fullerton, Jr., “A new type of working life table for men,” *Monthly Labor Review*, July 1972, pp. 20–27; Howard N Fullerton, Jr., “A table of expected working life for men, 1968,” *Monthly Labor Review*, June 1971, pp. 49–55; Stuart H. Garfinkle, *Work life expectancy and training needs of women*, Manpower Report No. 12 (Bureau of Labor Statistics, 1967); Stuart H. Garfinkle, “Table of working life for men, 1960,” *Monthly Labor Review*, July 1963, pp. 820–23; Stuart H. Garfinkle, *The length of working life for males, 1900–60*, Manpower Report No. 8 (Bureau of Labor Statistics, 1963); Stuart H. Garfinkle, *Tables of working life for women, 1950*, Bulletin 1204 (Bureau of Labor Statistics, 1957); and Seymour L. Wolfbein and Harold Wool, *Tables of working life: the length of work life for men*, Bulletin 1001 (Bureau of Labor Statistics, 1950).

² They are comparable with estimates published by Robert Schoen and Karen Woodrow in “Labor Force Status Life Tables for the United States, 1972,” *Demography*, August 1980, pp. 297–322. The technical details of the increment-decrement model are described in a forthcoming BLS report. For other discussions of multistate working life tables, see Jan Hoem and Monica Fong, “A Markov Chain Model of Working Life Tables,” Working Paper 2 (Laboratory of Actuarial Mathematics, University of Copenhagen, 1976), and Frans Willekens, “Multistate Analysis: Tables of Working Life,” *Environment and Planning*, Vol. 12, pp. 563–88.

New estimates and trends in worklife expectancy

Tables of working life for 1977, estimated by the increment-decrement method, indicate that given a continuation of mortality and labor force behavior observed at that time, a boy born in 1977 was likely to spend 37.9 years in the labor force and a girl, 27.5 years. (See table 2.) Those surviving to age 16 would have slightly higher average worklife expectancies—38.5 and 27.7 years, respectively. At age 50, the average man could anticipate 11.7 more years of labor force involvement, the average woman, 7.5 years.

Within any age group, persons currently active have a higher worklife expectancy than those not in the labor force. Although previous studies have hinted at this relationship, the new estimates for the first time spell out the magnitude of the differential. Among teenagers it is relatively small; most are likely to enter and leave the labor force repeatedly before settling into adult roles. However, at midlife the active and inactive groups are no longer so similar. For those not in the labor force, the probability of reentry declines with age. At age 45 the active group is expected to work about 4 years longer than its inactive counterpart.

Historic comparisons of the worklife index are impeded by the fact that patterns of labor force attachment have changed, forcing a revision in methodology. During the first half of this century, when worklives tended to be more continuous, the conventional model gave relatively unbiased estimates of their duration. However, as work patterns became increasingly irregular after World War II, the quality of the estimates declined. The problem was greatest for groups having high rates of labor turnover. For such groups, the conventional model tended to underestimate the size of the labor force, and to overstate the average worklife duration. Estimates for women workers were especially tenuous, growing increasingly biased from 1950 to 1970. Only the 1970 values have been reestimated using the increment-decrement model. Conventional estimates for 1950

Table 2. Worklife expectancies of the population and of active and inactive persons by age and sex, 1977

Age	Men			Women		
	Total	Active	Inactive	Total	Active	Inactive
At birth	37.9	—	37.9	27.5	—	27.5
16	38.5	39.6	38.1	27.7	28.8	27.4
20	36.8	37.3	35.9	26.0	26.7	25.2
25	33.4	33.7	32.0	23.0	23.7	21.7
30	29.2	29.3	27.2	19.9	20.9	18.2
35	24.7	24.9	21.7	16.8	17.9	14.8
40	20.3	20.4	16.9	13.7	14.9	11.4
45	15.9	16.2	12.0	10.5	11.9	8.0
50	11.7	12.2	7.2	7.5	9.3	4.9
55	7.8	8.5	3.6	4.8	6.8	2.5
60	4.3	5.2	1.9	2.5	4.4	1.2
65	1.9	3.4	1.1	1.1	3.1	.6
70	.9	2.6	.6	.5	2.4	.2

through 1970 seriously overstate work durations for women in the labor force during that period. When these data are excluded, however, the results of previous models give a credible picture of the evolution of labor force attachments in this century. (See table 3.)

In 1900, the life and worklife expectancies of men were very similar. At age 20, the average man could expect to spend only 4.4 years outside of the labor force. During the next 77 years, men's life span increased by 23 years, with the bulk of the increase—about 17 years—going into nonlabor force activities. The growth in worklife expectancy was less than 6 years. Between 1970 and 1977, virtually the entire increase in life expectancy (2.2 years) went to nonlabor force activities. At the turn of the century, the average man spent 69 percent of his lifetime in the labor force, but by 1977, this figure had dropped to about 55 percent.

In contrast, the formal worklife of women has increased dramatically during this century. In 1900, women averaged little more than 6 years of formal labor force involvement. Over the next 77 years, their average life span increased by almost 29 years, of which 21 were allocated to labor market activities. The shift has been especially pronounced in recent years. Between 1970 and 1977, worklife durations rose by 5 years, while life

expectancy increased by only 2.3 years. This was accomplished by a reallocation of time—nearly 3 years per woman—from home to labor market activities. At the turn of the century, women spent an average of 13 percent of their lifetimes in the labor force, compared to nearly 36 percent in 1977.

Because of these countervailing trends, the worklife durations of men and women have been converging. It is estimated that in 1940, the average expectation of working life for young women was just 30 percent of that for men. By 1970, it was 57 percent and by 1977, it represented 71 percent that for men. While these figures do not take account of differences in hours worked, an important distinction, they do illustrate how fundamentally the roles of men and women have changed.

Measures of labor force mobility

A second function of the working life table is to quantify movements into and out of the labor force. The conventional model derived aggregate estimates of these flows from age-to-age comparisons of labor force participation rates. The results, taken to describe net flows, gave little insight into the process of labor turnover. The new model rests on observed probabilities of labor force entry and exit at each age. It estimates both

Table 3. Changes in life and worklife expectancies, by sex, 1900-77

Worklife model, sex, and year	Life expectancy		Worklife expectancy			Inactive years (total population)		Percent of lifespan active		Ratio of female to male worklife expectancies
	At birth	At age 20	All persons		Workers	From birth	From age 20	From birth	From age 20	At age 20
			At birth	At age 20	At age 20					
Men										
Conventional model:										
1900	46.3	42.2	32.1	37.8	39.4	14.2	4.4	69.3	89.6	(¹)
1940	61.2	48.6	38.1	39.7	41.3	23.1	7.1	62.3	84.8	(¹)
1950	65.5	48.9	41.5	41.4	43.1	24.0	7.5	63.4	84.7	(¹)
1960	66.8	49.6	41.1	40.9	42.9	25.7	8.7	61.5	82.5	(¹)
1970	67.1	49.6	40.1	39.4	41.5	27.0	10.2	59.8	79.4	(¹)
Increment-decrement model:										
1970	67.1	49.6	37.8	37.3	38.0	29.4	12.3	56.3	75.2	(¹)
1977	69.3	51.3	37.9	36.8	37.3	31.5	14.5	54.7	71.7	(¹)
Change:										
1900-77 ²	23.0	9.1	5.7	-1.0	-2.1	17.3	10.1	-14.8	-17.9	(¹)
1970-77 ³	2.2	1.7	0.1	-0.5	-0.7	2.1	2.2	-1.7	-3.5	(¹)
Women										
Conventional model:										
1900	48.3	43.8	6.3	(⁴)	(⁴)	42.0	(⁴)	13.0	13.7	(⁴)
1940	65.7	50.4	12.1	11.9	(⁴)	53.6	38.5	18.4	23.6	30.0
1950	71.0	53.7	15.1	14.5	(⁴)	55.9	39.2	21.3	27.0	35.0
1960	73.1	55.7	20.1	18.6	37.3	53.0	37.1	27.5	33.4	45.0
1970	74.8	56.7	22.9	22.0	40.6	51.9	34.7	30.6	38.8	55.8
Increment-decrement model:										
1970	74.8	56.7	22.3	21.3	22.1	52.4	35.4	29.8	37.6	57.1
1977	77.1	58.6	27.5	26.0	26.7	49.7	32.6	35.7	44.4	70.7
Change:										
1900-77 ²	28.8	14.8	21.1	(³)	(³)	7.7	(³)	22.5	30.7	(⁴)
1970-77 ³	2.3	1.9	5.0	4.7	4.6	-2.7	-2.8	5.6	6.8	13.6

¹Not applicable.

²Based on conventional model estimates for 1900 and increment-decrement model estimates for 1977.

³Based on the increment-decrement model.

⁴Data not available.

Table 4. Selected indexes of working life by sex, 1970 and 1977

Worklife measure	Men		Women	
	1970	1977	1970	1977
Median age at first labor force entry	16.5	16.4	16.8	16.6
Mean age of all first and repeat labor force entrants	26.6	26.9	29.2	28.7
Worklife expectancy (in years):				
At birth	37.8	37.9	22.3	27.5
At age 25	34.4	33.4	19.0	23.0
Number of labor force entries per:				
Person born	2.9	3.0	4.6	
Person age 25	1.2	1.1	2.8	4.5
Expected duration in labor force per entry remaining (in years):				2.7
At birth	13.0	12.6	4.8	6.1
At age 25	29.4	29.1	6.8	8.6
Number of voluntary exits from labor force per:				
Person born	2.6	2.7	4.5	4.4
Person age 25	1.9	2.0	3.3	3.3
Percent of workers expected to die while in the labor force	36.3	27.0	10.8	9.5
Mean age of all persons leaving the labor force:				
Total first and repeat exits	38.7	38.7	33.5	33.9
Voluntary withdrawals	36.1	37.0	32.9	33.4
Deaths of workers	57.3	55.6	58.1	56.3
Median age of persons leaving labor force at age 50 and above	65.0	63.4	61.4	60.6

net and gross rates of mobility, and provides information on the frequency and timing of these movements in the average person's life.

The new estimates indicate that most people establish their first contact with the labor force as teenagers. In the 1977 life table population, half of all young men had become members of the labor force by age 16.4. (See table 4.) The median age of first entry for women was marginally higher, 16.6 years. Because entries and reentries occur at all ages, the mean age of male labor force entrants was 26.9 years, and that of female entrants was even higher, 28.7 years.

Given a continuation of the work life patterns observed in 1977, it is estimated that the average man would enter the labor force 3 times in his lifetime. The average woman would do so 4.5 times. Men are likely to complete the phase of intermittent work more quickly than women. At age 25, they would anticipate an average of just 1.1 more labor force entries, while women could look forward to 2.7 additional entries.

According to the 1977 tables, men would average 12.6 years of labor force involvement for every entry during their lifetime. The average duration per entry for women was expected to be less than half this figure, or 6.1 years. Because most men were firmly attached to the job market by age 25, they would spend an average of 29.1 years in the labor force for every entry beyond that

age, but the typical woman would engage in several shorter periods of activity, averaging just 8.6 years per entry.

Working life tables show two forms of labor force withdrawal: voluntary separation and death. Given the work and mortality patterns of 1977, the average young man could expect to leave the labor market voluntarily 2.7 times. About 27 percent of men would die before reaching retirement. The average young woman was likely to leave the labor force voluntarily 4.4 times, and fewer than 1 in 10 were likely to die before retiring.

Because the age distribution of labor force withdrawals is bimodal, with heavy outflows at both ends of the age spectrum, the mean age of all exits (38.7 years for men and 33.9 years for women) tells us little about final retirement. It is very difficult to identify retirement norms, because the retiree can and often does reenter the labor force. However, the 1977 tables indicate that among persons leaving the labor market at or beyond the age of 50, the life table median age of exit was 63.4 years for men, and 60.6 years for women. It appears that the age at retirement has dropped for both sexes since 1970. This may help to explain the concurrent drop in proportions likely to die as members of the labor force.

At the aggregate level, the new tables show a much greater volume of movement in and out of the labor force than has been quantified in the past. Although men and women in their teens have roughly comparable rates of labor force entry and withdrawal, the retention of young men exceeds that of women in this age group. (See table 5.) The pace of labor force entries for both sexes slows by age 20. However, as men begin to settle into their role as workers—as evidenced by a drop in their separation rate—female labor force exits actually rise. By age 25, the share of all men in the labor force substantially exceeds that of all women. Because a larger proportion of the female population remains outside the job market but may enter at any time, the accession rates of women are greater than those of men throughout midlife. Net retirements peak between the ages of

Table 5. Population-based rates of labor force accession and separation by age and sex, 1977

[Per 1,000 persons in the stationary population]

Age	Accessions		Separations		Net flow	
	Men	Women	Men	Women	Men	Women
16-19	211.6	207.2	124.3	127.9	87.3	79.3
10-24	136.3	158.3	93.9	142.0	42.5	16.2
25-29	54.4	109.6	38.6	116.0	15.8	-6.5
30-34	23.8	88.4	23.0	84.1	0.8	4.3
35-39	14.9	75.2	17.6	73.5	-2.7	1.7
40-44	15.5	66.3	21.6	69.0	-6.1	-2.7
45-49	16.4	57.9	28.2	68.1	-11.8	-10.2
50-54	17.1	46.8	37.1	63.7	-20.0	-16.9
55-59	19.1	37.4	59.3	66.2	-40.2	-28.8
60-64	30.8	32.0	113.1	77.8	-82.3	-45.8
65-69	44.5	27.8	92.9	52.2	-48.4	24.4
70-74	35.7	16.1	56.3	27.1	20.6	-11.1

60 and 64. Thereafter, men are more likely than women to reenter the labor force. The rise in male entry rates at age 60 highlights the fact that retirement is often a temporary state.

The separation rates shown in table 5 are expressed as a ratio of withdrawals to population. A more common form is the ratio of withdrawals to labor force members. (See table 6.) Changing the denominator in this way has little effect on the rates of separation for prime working-age men, because most members of this population are also in the labor force. However, because of the disparity between population and labor force counts for other groups, the change to a labor force base inflates the rates of these other groups. This gives a better illustration of their relative propensities to leave the job market. Among persons working in the prime ages, women are as much as five times more likely than men to withdraw from economic activity. Only at age 65 and above do working men show a greater propensity to retire.

Trends in mobility rates

The pace of net labor force entries for young people increased markedly between 1970 and 1977. (See table 7.) Although the gross accession rates of teenagers rose slightly during this period, they had less bearing on the net influx than did the drop in labor force withdrawals. As young people showed increasing reluctance to leave the job market, the process of labor force expansion with age became more efficient. At the same time, the pace of net labor force withdrawals among persons age 45 and older accelerated. The separation rates of men 45 to 64 increased sufficiently to outweigh (and perhaps to have caused) slight increases in labor force entries. The increased frequency of retirement in these age groups contributed to a drop in participation rates.

The situation for women was more complex. They too showed a rise in net labor force separations between the ages of 45 and 64. However, the increased net outflow of those 45 to 54 was evidence of a tightening, rather than a loosening of female labor force attachments. Below the age of 55, working women showed a

Table 7. Comparison of labor force mobility rates by age and sex, 1970 and 1977

[Life table rates per 1,000]

Sex and age	Accessions in population		Separations in labor force		Net flows in population	
	1970	1977	1970	1977	1970	1977
Men:						
16-19	191.9	211.6	299.0	254.7	66.9	87.3
20-24	145.7	136.3	160.6	125.0	41.7	42.5
25-29	72.0	54.4	47.1	42.7	32.4	15.8
30-34	27.6	23.8	20.5	24.3	8.0	0.8
35-39	14.8	14.9	20.6	18.5	-5.1	-2.7
40-44	13.5	15.5	24.3	22.9	-9.5	-6.1
45-49	14.6	16.4	27.6	30.5	-11.0	-11.8
50-54	14.5	17.1	35.3	42.1	-17.3	-20.0
55-59	18.8	19.1	58.7	74.6	-31.1	-40.2
60-64	32.2	30.8	137.5	209.7	-64.9	-82.3
65-69	38.2	44.5	264.2	376.2	-75.1	-48.4
70-74	36.7	35.7	343.1	441.9	-38.1	-20.6
Women:						
16-19	204.1	207.2	455.7	290.5	54.3	79.3
20-24	164.6	158.3	321.0	226.3	14.5	16.2
25-29	102.2	109.6	231.2	182.9	-7.6	-6.5
30-34	90.7	88.4	206.3	134.7	-1.1	4.3
35-39	83.7	75.2	162.6	112.8	7.2	1.7
40-44	72.3	66.3	132.7	105.3	4.7	-2.7
45-49	60.3	57.9	121.9	107.7	-2.9	-10.2
50-54	49.7	46.8	115.4	110.8	-8.7	-16.9
55-59	43.3	37.4	131.5	136.2	-17.4	-28.8
60-64	38.9	32.0	200.8	251.9	-33.0	-45.8
65-69	29.4	27.8	308.9	369.7	-33.4	-24.4
70-74	16.0	16.1	402.8	388.7	-19.9	-11.1

drop in propensity to leave the job market. The slowdown of youthful separations limited the size of the labor reserve from which to draw older entrants. Hence, entries at midlife also declined. The decrease in labor turnover led to higher participation rates for women 45 to 54. Nonetheless, the share of women attached to the labor force, and at risk of leaving, had increased. Between 1970 and 1977, the ratio of withdrawals to population increased, and with it net labor force losses for women in this age range. Only among women over 55 is there evidence that intentions to retire were becoming stronger. Within this group, an increase in separation rates was accompanied by a drop in rates of labor force reentry.

THE WORKLIFE EXPECTANCIES of men and women in the United States have been converging since the end of World War II. This trend accelerated between 1970 and 1977, primarily because of the strengthening of female labor force attachments. Although the average worklife duration of men remained nearly constant, that for women increased by about 12 years. There remained significant differences in time allocation by sex; women were far more likely than men to withdraw from and reenter the labor force at midlife. Nevertheless, by 1977, women spent an average of 70 percent as many years in the labor force as did men.

The new worklife model quantifies a substantial flow of persons into and out of the labor force for both sexes at every age. The pace of entries for teenagers increased between 1970 and 1977. For men 20 to 34, and for

Table 6. Labor force based rates of separation by age and sex, 1977

[Per 1,000 workers in the stationary labor force]

Age	Men	Women
16-19	254.7	290.5
20-24	125.0	226.3
25-29	42.7	182.9
30-34	24.3	134.7
35-39	18.5	112.8
40-44	22.9	105.3
45-49	30.5	107.7
50-54	42.1	110.8
55-59	74.6	136.2
60-64	209.7	251.9
65-69	376.2	369.7
70-74	441.9	388.7

most women above age 20, entries actually slowed. However, a greater drop in withdrawals brought about the net expansion of the labor force seen as increased participation rates for many age groups during this period.

A detailed description of the new worklife meth-

odology and a comparison with earlier procedures and results are available in *Tables of Working Life: The Increment-Decrement Model*, Bulletin 2135 (Bureau of Labor Statistics, 1982). Order from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Table A-1. Expectation of life and of economically active and inactive years remaining at each age by current labor force status: Men, 1977

(In years)

Age x	Expectation of life e _x	Current labor force status					
		Total population		In the labor force		Not in the labor force	
		Expectation of active life a e _x	Expectation of inactive life i e _x	Expectation of active life a a e _x	Expectation of inactive life a i e _x	Expectation of active life i a e _x	Expectation of inactive life i i e _x
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
16	55.0	38.5	16.4	39.6	15.4	38.1	16.8
17	54.0	38.2	15.8	39.2	14.9	37.5	16.5
18	53.1	37.8	15.3	38.5	14.6	37.1	16.0
19	52.2	37.3	14.9	37.9	14.3	36.6	15.6
20	51.3	36.8	14.5	37.3	14.0	35.9	15.4
21	50.4	36.2	14.2	36.7	13.7	35.2	15.2
22	49.5	35.6	13.9	36.0	13.5	34.4	15.0
23	48.6	34.9	13.7	35.2	13.3	33.7	14.9
24	47.7	34.2	13.5	34.5	13.2	32.9	14.8
25	46.8	33.4	13.4	33.7	13.1	32.0	14.8
26	45.9	32.6	13.3	32.8	13.1	31.1	14.8
27	45.0	31.8	13.2	32.0	13.0	30.2	14.8
28	44.1	30.9	13.1	31.1	13.0	29.3	14.8
29	43.1	30.1	13.1	30.2	12.9	28.2	14.9
30	42.2	29.2	13.0	29.3	12.9	27.2	15.0
31	41.3	28.3	13.0	28.4	12.9	26.1	15.2
32	40.4	27.4	13.0	27.5	12.8	25.0	15.4
33	39.4	26.5	12.9	26.7	12.8	23.9	15.5
34	38.5	25.6	12.9	25.8	12.8	22.8	15.7
35	37.6	24.7	12.9	24.9	12.7	21.7	15.9
36	36.7	23.8	12.9	24.0	12.7	20.7	16.0
37	35.8	22.9	12.8	23.1	12.7	19.7	16.1
38	34.9	22.0	12.8	22.2	12.7	18.8	16.1
39	34.0	21.2	12.8	21.3	12.7	17.8	16.2
40	33.1	20.3	12.8	20.4	12.6	16.9	16.2
41	32.2	19.4	12.8	19.6	12.6	16.0	16.2
42	31.3	18.5	12.8	18.7	12.6	15.0	16.3
43	30.4	17.6	12.8	17.8	12.6	14.0	16.4
44	29.5	16.8	12.8	17.0	12.5	13.0	16.6
45	28.7	15.9	12.8	16.2	12.5	11.9	16.7
46	27.8	15.0	12.8	15.3	12.5	10.9	16.9
47	27.0	14.2	12.8	14.5	12.4	9.9	17.1
48	26.1	13.3	12.8	13.7	12.4	8.9	17.2
49	25.3	12.5	12.8	12.9	12.4	8.0	17.3
50	24.5	11.7	12.8	12.2	12.3	7.2	17.3
51	23.7	10.9	12.8	11.4	12.3	6.3	17.4
52	22.9	10.1	12.8	10.7	12.2	5.5	17.4
53	22.1	9.3	12.8	9.9	12.2	4.8	17.4
54	21.4	8.5	12.8	9.2	12.2	4.2	17.2
55	20.6	7.8	12.8	8.5	12.1	3.6	17.0
56	19.9	7.0	12.8	7.8	12.1	3.2	16.7
57	19.1	6.3	12.8	7.1	12.0	2.8	16.4
58	18.4	5.6	12.8	6.4	12.0	2.4	16.0
59	17.7	4.9	12.8	5.8	11.9	2.1	15.6
60	17.0	4.3	12.8	5.2	11.8	1.9	15.2
61	16.4	3.7	12.7	4.7	11.6	1.7	14.7
62	15.7	3.1	12.6	4.3	11.4	1.5	14.2
63	15.1	2.7	12.5	4.0	11.2	1.4	13.8
64	14.5	2.3	12.3	3.6	10.9	1.2	13.3
65	13.9	1.9	12.0	3.4	10.5	1.1	12.8
66	13.3	1.6	11.7	3.2	10.1	1.0	12.3
67	12.8	1.4	11.3	3.0	9.7	.9	11.9
68	12.2	1.2	11.0	2.9	9.3	.8	11.4
69	11.6	1.1	10.6	2.7	8.9	.7	10.9
70	11.1	.9	10.2	2.6	8.5	.6	10.5
71	10.6	.8	9.8	2.4	8.1	.6	10.0
72	10.1	.7	9.4	2.2	7.8	.5	9.6
73	9.6	.6	9.0	2.0	7.6	.5	9.2
74	9.2	.6	8.6	1.7	7.5	.4	8.7
75	8.7	.5	8.2	1.2	7.5	.4	8.3

Table A-2. Age-specific transition probabilities and rates of transfer between states: Men, 1977

Age x	Probability of transition between specified states					Rates of transfer between states (per 1,000 in original status)		
	Living to dead	Inactive to inactive	Inactive to active	Active to inactive	Active to active	Living to dead	Inactive to active	Active to inactive
	d p_x	$i i$ p_x	$i a$ p_x	$a i$ p_x	$a a$ p_x	d m_x	$i a$ m_x	$a i$ m_x
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
16	0.00130	0.70257	0.29613	0.26333	0.73537	1.30	411.77	366.17
17	.00152	.73158	.26690	.16377	.83471	1.52	340.73	209.08
18	.00168	.68082	.31750	.17157	.82675	1.68	421.10	227.55
19	.00179	.63115	.36706	.17734	.82087	1.79	505.42	244.18
20	.00190	.60351	.39459	.13862	.85948	1.90	539.24	189.43
21	.00200	.59326	.40474	.11331	.88469	2.00	547.50	153.27
22	.00207	.59247	.40546	.09116	.90677	2.07	540.69	121.57
23	.00208	.58035	.41757	.07084	.92708	2.08	553.83	93.96
24	.00205	.56979	.42816	.05506	.94289	2.05	565.92	72.77
25	.00201	.56253	.43546	.04323	.95476	2.01	573.81	56.97
26	.00197	.56219	.43584	.03490	.96313	1.97	571.30	45.75
27	.00193	.56209	.43598	.02942	.96865	1.93	569.47	38.43
28	.00190	.56534	.43276	.02571	.97239	1.90	562.70	33.43
29	.00188	.58105	.41707	.02382	.97430	1.88	536.15	30.62
30	.00186	.59900	.39914	.02088	.97726	1.86	506.32	26.49
31	.00186	.61817	.37997	.01914	.97900	1.86	475.70	23.97
32	.00189	.65287	.34524	.01785	.98026	1.89	422.70	21.85
33	.00197	.67166	.32637	.01702	.98101	1.97	394.88	20.59
34	.00208	.68396	.31396	.01583	.98209	2.08	376.82	18.99
35	.00222	.70656	.29122	.01452	.98326	2.22	344.61	17.18
36	.00239	.73058	.26703	.01397	.98364	2.39	311.49	16.30
37	.00257	.75729	.24014	.01352	.98391	2.57	275.79	15.53
38	.00277	.75239	.24484	.01286	.98437	2.77	281.89	14.81
39	.00300	.75525	.24175	.01367	.98333	3.00	278.04	15.72
40	.00325	.75589	.24086	.01518	.98157	3.26	277.19	17.46
41	.00355	.75147	.24498	.01606	.98039	3.56	282.83	18.54
42	.00388	.75617	.23995	.01603	.98009	3.89	276.31	18.46
43	.00425	.76275	.23300	.01698	.97877	4.26	267.50	19.49
44	.00467	.76568	.22965	.01821	.97712	4.68	263.46	20.88
45	.00512	.77441	.22047	.01879	.97609	5.13	251.81	21.46
46	.00562	.78118	.21320	.01930	.97508	5.64	242.70	21.97
47	.00618	.80524	.18858	.02150	.97232	6.20	212.09	24.18
48	.00681	.81482	.17837	.02383	.96936	6.83	199.87	26.70
49	.00751	.82414	.16835	.02452	.96797	7.54	187.80	27.36
50	.00828	.83035	.16137	.02590	.96582	8.31	179.60	28.82
51	.00910	.83867	.15223	.02764	.96326	9.14	168.88	30.66
52	.00995	.85595	.13410	.02856	.96149	10.00	147.50	31.41
53	.01081	.87234	.11685	.03049	.95870	10.87	127.58	33.28
54	.01171	.88380	.10449	.03378	.95451	11.78	113.62	36.73
55	.01263	.88826	.09911	.03807	.94930	12.71	107.82	41.42
56	.01366	.89527	.09107	.04152	.94482	13.75	98.93	45.10
57	.01491	.89801	.08708	.04936	.93573	15.02	94.92	53.80
58	.01647	.90035	.08318	.06484	.91869	16.61	91.38	71.24
59	.01826	.91071	.07103	.08345	.89829	18.43	78.46	92.18
60	.02026	.91865	.06109	.11228	.86746	20.47	68.33	125.59
61	.02231	.91958	.05811	.14231	.83538	22.56	66.12	161.95
62	.02429	.91755	.05816	.16971	.80600	24.59	67.36	196.58
63	.02611	.91666	.05723	.19580	.77809	26.46	67.39	230.57
64	.02783	.91727	.05490	.22547	.74670	28.22	65.82	270.31
65	.02958	.91484	.05558	.25680	.71362	30.02	68.05	314.42
66	.03154	.91715	.05131	.27466	.69380	32.05	63.48	339.80
67	.03388	.91926	.04686	.28195	.68417	34.46	58.23	350.35
68	.03675	.91874	.04451	.29215	.67110	37.44	55.75	365.94
69	.04013	.91945	.04042	.29252	.66735	40.95	50.71	366.96
70	.04377	.91996	.03627	.29690	.65933	44.75	45.69	374.03
71	.04761	.91783	.03456	.30124	.65115	48.77	43.80	381.78
72	.05184	.91535	.03281	.30748	.64068	53.22	41.90	392.65
73	.05649	.91348	.03003	.31581	.62770	58.13	38.68	406.84
74	.06156	.91254	.02590	.31562	.62282	63.51	33.47	407.85
75	.06703	.89659	.03622	.32675	.60606	69.35	47.75	430.75

Table A-3. Stationary population and labor force, status transfers, and transfers remaining at each age: Men, 1977

Age x	Stationary population surviving to exact age x by labor force status at that age			Number of transfers occurring between specified states during age interval x to x+1				Expected number of transfers remaining per person aged x	
	Total l_x	Inactive l_x^i	Active l_x^a	Accessions		Separations		Accessions $i a E_x$	Voluntary separations $a i E_x$
				Inactive to active	Inactive to dead	Active to inactive	Active to dead		
				$i a t_x$	$i d t_x$	$a i t_x$	$a d t_x$		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
16	97,598	70,539	27,059	26,194	83	12,422	44	2.6	2.7
17	97,471	56,684	40,787	17,860	80	9,405	68	2.4	2.5
18	97,323	48,149	49,174	18,816	75	11,960	88	2.2	2.4
19	97,159	41,217	55,942	19,497	69	14,284	105	2.0	2.3
20	96,985	35,935	61,050	17,817	63	12,095	121	1.8	2.2
21	96,801	30,150	66,651	15,217	56	10,562	138	1.6	2.1
22	96,607	25,439	71,168	12,706	49	8,875	151	1.5	1.9
23	96,407	21,560	74,847	10,903	41	7,199	160	1.4	1.9
24	96,207	17,815	78,392	9,134	33	5,819	164	1.2	1.8
25	96,010	14,466	81,544	7,497	26	4,720	167	1.1	1.7
26	95,817	11,663	84,154	6,044	21	3,896	168	1.1	1.7
27	95,628	9,494	86,134	4,945	17	3,338	168	1.0	1.6
28	95,444	7,871	87,573	4,100	14	2,944	167	1.0	1.6
29	95,263	6,701	88,562	3,406	12	2,720	167	.9	1.6
30	95,084	6,003	89,081	2,901	11	2,364	166	.9	1.6
31	94,907	5,456	89,451	2,507	10	2,146	167	.9	1.5
32	94,730	5,085	89,645	2,115	9	1,959	170	.8	1.5
33	94,551	4,920	89,631	1,925	10	1,844	177	.8	1.5
34	94,365	4,829	89,536	1,799	10	1,700	186	.8	1.5
35	94,168	4,720	89,448	1,612	10	1,536	199	.8	1.5
36	93,958	4,634	89,324	1,443	11	1,454	213	.8	1.5
37	93,734	4,634	89,100	1,289	12	1,381	229	.7	1.4
38	93,493	4,714	88,779	1,325	13	1,313	246	.7	1.4
39	93,034	4,679	88,355	1,312	14	1,390	266	.7	1.4
40	92,955	4,752	88,203	1,342	16	1,536	286	.7	1.4
41	92,653	4,930	87,723	1,420	18	1,622	311	.7	1.4
42	92,324	5,114	87,210	1,434	20	1,605	338	.7	1.4
43	91,966	5,265	86,701	1,438	23	1,684	368	.7	1.4
44	91,575	5,488	86,087	1,483	26	1,790	401	.7	1.4
45	91,147	5,769	85,378	1,491	30	1,824	436	.6	1.4
46	90,680	6,072	84,608	1,510	35	1,850	474	.6	1.3
47	90,170	6,376	83,794	1,412	41	2,012	516	.6	1.3
48	89,613	6,936	82,677	1,455	50	2,190	560	.6	1.3
49	89,002	7,622	81,380	1,493	60	2,208	608	.6	1.3
50	88,334	8,277	80,057	1,547	72	2,287	660	.6	1.3
51	87,603	8,946	78,657	1,573	85	2,389	712	.6	1.3
52	86,805	9,677	77,128	1,487	101	2,397	763	.6	1.3
53	85,941	10,486	75,455	1,399	119	2,480	810	.5	1.2
54	85,012	11,447	73,565	1,366	142	2,663	854	.5	1.2
55	84,016	12,602	71,414	1,429	168	2,908	892	.5	1.2
56	82,954	13,913	69,041	1,446	201	3,056	932	.5	1.2
57	81,821	15,322	66,499	1,535	243	3,497	977	.5	1.2
58	80,601	17,042	63,559	1,667	303	4,393	1,024	.5	1.1
59	79,274	19,465	59,809	1,654	389	5,295	1,058	.5	1.1
60	77,826	22,718	55,108	1,700	509	6,548	1,067	.5	1.1
61	76,250	27,057	49,193	1,948	665	7,437	1,036	.5	1.0
62	74,549	31,882	42,667	2,302	840	7,754	970	.4	.9
63	72,738	36,494	36,244	2,595	1,019	7,669	880	.4	.8
64	70,839	40,550	30,289	2,783	1,193	7,450	778	.4	.7
65	68,867	44,024	24,843	3,083	1,361	7,073	675	.4	.7
66	66,830	46,655	20,175	3,013	1,521	6,209	586	.3	.6
67	64,722	48,331	16,391	2,834	1,677	5,230	514	.3	.5
68	62,530	49,050	13,480	2,732	1,834	4,518	462	.3	.4
69	60,232	49,003	11,229	2,466	1,992	3,796	424	.2	.4
70	57,815	48,340	9,475	2,181	2,136	3,263	390	.2	.3
71	55,284	47,284	8,000	2,035	2,266	2,828	361	.2	.3
72	52,652	45,809	6,843	1,879	2,386	2,495	338	.1	.2
73	49,923	44,035	5,888	1,662	2,498	2,214	316	.1	.2
74	47,103	42,085	5,018	1,371	2,601	1,879	293	.1	.2
75	44,203	39,988	4,215	1,841	2,673	1,767	284	.0	.1

Table A-4. Person years of life lived by the stationary population at and beyond exact age x: Men, 1977

Age x	Person years lived in each status during age x			Person years lived in each status beyond exact age x		
	Total	Inactive	Active	Total	Inactive	Active
	L_x	L_x^i	L_x^a	T_x	T_x^i	T_x^a
(1)	(2)	(3)	(4)	(5)	(6)	(7)
16	97,536	63,613	33,923	5,363,872	1,604,555	375,931
17	97,398	52,417	44,981	5,266,336	1,540,942	372,539
18	97,242	44,684	52,558	5,168,938	1,488,525	368,041
19	97,073	38,576	58,497	5,071,696	1,443,841	362,785
20	96,892	33,042	63,850	4,974,623	1,405,265	356,935
21	96,704	27,794	68,910	4,877,731	1,372,223	350,550
22	96,506	23,499	73,007	4,781,027	1,344,429	343,659
23	96,307	19,687	76,620	4,684,521	1,320,930	336,359
24	96,108	16,140	79,968	4,588,214	1,301,243	328,697
25	95,913	13,065	82,848	4,492,106	1,285,103	320,700
26	95,723	10,579	85,144	4,396,193	1,272,038	312,415
27	95,536	8,683	86,853	4,300,470	1,261,459	303,901
28	95,353	7,286	88,067	4,204,934	1,252,777	295,215
29	95,173	6,352	88,821	4,109,581	1,245,491	286,409
30	95,002	5,730	89,272	4,014,408	1,239,138	277,527
31	94,824	5,271	89,553	3,919,406	1,233,408	268,599
32	94,647	5,003	89,644	3,824,582	1,228,138	259,644
33	94,464	4,875	89,589	3,729,935	1,223,135	250,680
34	94,272	4,775	89,497	3,635,471	1,218,260	241,721
35	94,065	4,677	89,388	3,541,199	1,213,485	232,771
36	93,849	4,634	89,215	3,447,134	1,208,808	223,832
37	93,616	4,674	88,942	3,353,285	1,204,174	214,911
38	93,366	4,701	88,665	3,259,669	1,199,500	206,016
39	93,097	4,720	88,377	3,166,303	1,194,799	197,150
40	92,801	4,841	87,960	3,073,206	1,190,078	188,312
41	92,486	5,022	87,464	2,980,405	1,185,238	179,516
42	92,142	5,189	86,953	2,887,919	1,180,216	170,770
43	91,768	5,376	86,392	2,795,777	1,175,027	162,075
44	91,358	5,628	85,730	2,704,009	1,169,651	153,435
45	90,904	5,920	84,984	2,612,651	1,164,023	144,862
46	90,415	6,224	84,191	2,521,747	1,158,103	136,364
47	89,882	6,655	83,227	2,431,332	1,151,879	127,945
48	89,298	7,278	82,020	2,341,450	1,145,224	119,622
49	88,658	7,949	80,709	2,252,152	1,137,946	111,420
50	87,976	8,612	79,364	2,163,494	1,129,997	103,349
51	87,212	9,312	77,900	2,075,518	1,121,385	95,413
52	86,380	10,082	76,298	1,988,306	1,112,072	87,623
53	85,484	10,968	74,516	1,901,926	1,101,990	79,993
54	84,522	12,026	72,496	1,816,442	1,091,023	72,541
55	83,459	13,253	70,206	1,731,920	1,078,997	65,292
56	82,361	14,613	67,748	1,648,461	1,065,744	58,271
57	81,185	16,177	65,008	1,566,100	1,051,131	51,496
58	79,911	18,247	61,664	1,484,915	1,034,954	44,996
59	78,523	21,084	57,439	1,405,004	1,016,707	38,829
60	77,024	24,883	52,141	1,326,481	995,623	33,085
61	75,386	29,465	45,921	1,249,457	970,740	27,871
62	73,625	34,180	39,445	1,174,071	941,275	23,279
63	71,775	38,515	33,260	1,100,446	907,096	19,335
64	69,839	42,278	27,561	1,028,671	868,581	16,009
65	67,811	45,314	22,497	958,832	826,303	13,252
66	65,740	47,467	18,273	891,021	780,988	11,003
67	63,589	48,662	14,927	825,281	733,521	9,176
68	61,344	48,997	12,347	761,692	684,859	7,683
69	58,986	48,640	10,346	700,348	635,862	6,448
70	56,454	47,731	8,723	641,362	587,222	5,414
71	53,873	46,464	7,409	584,908	539,491	4,541
72	51,192	44,838	6,354	531,035	493,026	3,800
73	48,417	42,975	5,442	479,843	448,188	3,165
74	45,557	40,950	4,607	431,426	405,213	2,621
75	42,644	38,542	4,102	385,869	364,262	2,160

Table A-6. Age-specific transition probabilities and rates of transfer between states: Women, 1977

Age x	Probability of transition between specified states					Rates of transfer between states (per 1,000 in original status)		
	Living to dead	Inactive to inactive	Inactive to active	Active to inactive	Active to active	Living to dead	Inactive to active	Active to inactive
	p_x^d	$p_x^{i i}$	$p_x^{i a}$	$p_x^{a i}$	$p_x^{a a}$	m_x^d	$m_x^{i a}$	$m_x^{a i}$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
16	0.00053	0.73236	0.26711	0.30562	0.69385	0.53	374.54	428.54
17	.00059	.75581	.24360	.17867	.82074	.59	309.00	226.64
18	.00062	.71538	.28400	.19546	.80392	.62	373.81	257.27
19	.00063	.67869	.32068	.21170	.78767	.63	437.33	288.70
20	.00064	.66272	.33664	.19141	.80795	.64	457.75	260.28
21	.00065	.66480	.33455	.17455	.82480	.65	449.13	234.33
22	.00066	.67447	.32487	.16531	.83403	.66	430.68	219.16
23	.00066	.69094	.30840	.16111	.83823	.66	403.31	210.70
24	.00067	.70834	.29099	.16039	.83894	.67	376.09	207.29
25	.00068	.72338	.27594	.15667	.84265	.68	352.38	200.06
26	.00069	.74021	.25910	.15198	.84733	.69	326.39	191.45
27	.00071	.76015	.23914	.14597	.85332	.71	296.41	180.92
28	.00073	.77631	.22296	.14114	.85813	.73	272.80	172.70
29	.00076	.78934	.20990	.13622	.86302	.76	254.04	164.87
30	.00080	.79668	.20252	.12935	.86985	.80	243.02	155.22
31	.00084	.80077	.19839	.12011	.87905	.84	236.19	142.99
32	.00089	.79942	.19969	.11070	.88841	.89	236.60	131.17
33	.00095	.80139	.19766	.10508	.89397	.95	233.15	123.95
34	.00103	.80447	.19450	.09908	.89989	1.03	228.22	116.26
35	.00111	.80776	.19113	.09690	.90199	1.11	223.56	113.34
36	.00121	.81138	.18741	.09746	.90133	1.21	218.83	113.80
37	.00132	.81302	.18566	.09655	.90213	1.32	216.47	112.57
38	.00146	.81589	.18265	.09475	.90379	1.46	212.40	110.19
39	.00162	.82036	.17802	.09266	.90572	1.62	206.24	107.36
40	.00180	.82135	.17685	.09144	.90676	1.80	204.65	105.81
41	.00199	.82523	.17278	.09075	.90726	1.99	199.43	104.75
42	.00219	.82888	.16893	.08934	.90847	2.19	194.44	102.82
43	.00240	.83601	.16159	.08883	.90877	2.40	185.20	101.81
44	.00263	.84272	.15465	.08795	.90942	2.63	176.49	100.37
45	.00287	.84581	.15132	.09038	.90675	2.87	172.65	103.13
46	.00314	.85081	.14605	.09107	.90579	3.14	166.26	103.67
47	.00343	.85729	.13928	.09144	.90513	3.44	158.02	103.74
48	.00375	.86181	.13444	.09320	.90305	3.76	152.31	105.59
49	.00409	.87281	.12310	.09353	.90238	4.10	138.65	105.35
50	.00446	.88348	.11206	.09416	.90138	4.47	125.54	105.48
51	.00486	.89035	.10479	.09449	.90065	4.87	116.99	105.49
52	.00528	.89458	.10014	.09534	.89938	5.29	111.61	106.26
53	.00570	.90099	.09331	.09523	.89907	5.72	103.64	105.78
54	.00614	.90811	.08575	.09472	.89914	6.16	94.87	104.78
55	.00659	.91553	.07788	.09756	.89585	6.61	85.96	107.68
56	.00710	.92168	.07122	.10308	.88982	7.13	78.61	113.77
57	.00771	.92796	.06433	.11402	.87827	7.74	71.20	126.20
58	.00847	.93094	.06059	.12784	.86369	8.51	67.49	142.41
59	.00934	.93496	.05570	.14252	.84814	9.38	62.44	159.77
60	.01033	.93936	.05031	.16694	.82273	10.38	57.07	189.35
61	.01135	.94498	.04367	.18998	.79867	11.41	50.05	217.74
62	.01228	.94921	.03851	.21580	.77192	12.36	44.70	250.53
63	.01304	.95159	.03537	.23774	.74922	13.13	41.55	279.26
64	.01373	.95223	.03404	.25932	.72695	13.82	40.49	308.48
65	.01443	.95367	.03190	.27737	.70820	14.53	38.34	333.34
66	.01532	.95469	.02999	.29003	.69465	15.44	36.31	351.14
67	.01650	.95654	.02696	.29913	.68437	16.64	32.80	363.96
68	.01807	.95792	.02401	.30155	.68038	18.23	29.25	367.42
69	.02001	.95890	.02109	.29901	.68098	20.21	25.67	363.92
70	.02209	.95875	.01916	.30904	.66887	22.34	23.49	378.85
71	.02433	.95840	.01727	.31371	.66196	24.63	21.26	386.18
72	.02701	.95825	.01474	.30212	.67087	27.38	18.04	369.84
73	.03023	.95920	.01057	.27706	.69271	30.69	12.76	334.47
74	.03392	.95764	.00844	.25970	.70638	34.51	10.11	311.18
75	.03798	.95900	.00299	.37001	.59199	38.72	3.84	474.73

Table A-7. Stationary population and labor force, status transfers, and transfers remaining at each age: Women, 1977

Age x	Stationary population surviving to exact age x by labor force status at that age			Number of transfers occurring between specified states during age interval x to x+1				Expected number of transfers remaining per person aged x	
	Total l_x	Inactive i_x	Active a_x	Accessions		Separations		Accessions $i_a E_x$	Voluntary separations $a_i E_x$
				Inactive to active	Inactive to dead	Active to inactive	Active to dead		
				$i_a t_x$	$i_d t_x$	$a_i t_x$	$a_d t_x$		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
16	98,210	73,943	24,267	25,378	36	13,040	16	4.3	4.4
17	98,158	61,569	36,589	17,712	34	9,249	24	4.0	4.3
18	98,100	53,072	45,028	18,661	31	12,388	30	3.8	4.2
19	98,039	46,768	51,271	19,541	28	15,396	34	3.6	4.1
20	97,977	42,595	55,382	18,636	26	14,897	37	3.4	3.9
21	97,915	38,829	59,086	16,833	24	14,155	39	3.3	3.8
22	97,851	36,127	61,724	15,224	23	13,691	41	3.1	3.6
23	97,787	34,571	63,216	13,842	23	13,365	42	2.9	3.5
24	97,722	34,071	63,651	12,865	23	13,160	43	2.8	3.4
25	97,656	34,342	63,314	12,176	24	12,618	43	2.7	3.2
26	97,589	34,761	62,828	11,431	24	11,972	43	2.5	3.1
27	97,521	35,279	62,242	10,550	25	11,199	44	2.4	3.0
28	97,452	35,903	61,549	9,884	26	10,567	45	2.3	2.9
29	97,381	36,559	60,822	9,362	28	9,973	46	2.2	2.8
30	97,307	37,143	60,164	9,055	30	9,315	48	2.1	2.7
31	97,230	37,374	59,856	8,797	31	8,571	50	2.0	2.6
32	97,148	37,117	60,031	8,687	33	7,921	54	1.9	2.5
33	97,061	36,318	60,743	8,371	34	7,575	58	1.9	2.4
34	96,969	35,487	61,482	8,002	36	7,191	64	1.8	2.3
35	96,869	34,640	62,229	7,674	38	7,083	69	1.7	2.2
36	96,761	34,011	62,750	7,410	41	7,151	76	1.6	2.2
37	96,644	33,712	62,932	7,273	44	7,090	83	1.5	2.1
38	96,516	33,484	63,032	7,092	49	6,948	92	1.5	2.0
39	96,375	33,292	63,083	6,852	54	6,771	102	1.4	2.0
40	96,219	33,157	63,062	6,769	60	6,671	114	1.3	1.9
41	96,046	33,000	63,046	6,576	66	6,596	125	1.3	1.8
42	95,855	32,954	62,901	6,405	72	6,458	138	1.2	1.8
43	95,645	32,934	62,711	6,115	79	6,364	150	1.1	1.7
44	95,416	33,104	62,312	5,866	88	6,228	163	1.1	1.6
45	95,165	33,378	61,787	5,800	97	6,335	177	1.0	1.6
46	94,892	33,816	61,076	5,665	107	6,289	191	1.0	1.5
47	94,594	34,333	60,261	5,473	119	6,203	205	.9	1.5
48	94,269	34,944	59,325	5,375	133	6,208	221	.8	1.4
49	93,916	35,644	58,272	5,005	148	6,070	236	.8	1.3
50	93,532	36,561	56,971	4,659	166	5,929	251	.7	1.3
51	93,115	37,665	55,450	4,471	186	5,767	266	.7	1.2
52	92,662	38,775	53,887	4,386	208	5,644	281	.6	1.2
53	92,176	39,826	52,350	4,181	231	5,454	295	.6	1.1
54	91,648	40,867	50,781	3,927	255	5,236	308	.6	1.1
55	91,085	41,921	49,164	3,657	281	5,193	319	.5	1.0
56	90,484	43,176	47,308	3,452	313	5,259	329	.5	1.0
57	89,842	44,672	45,170	3,249	353	5,534	339	.4	.9
58	89,149	46,604	42,545	3,220	406	5,846	349	.4	.8
59	88,394	48,824	39,570	3,125	470	6,058	356	.4	.8
60	87,568	51,288	36,280	3,012	548	6,507	357	.3	.7
61	86,663	54,234	32,429	2,795	637	6,610	347	.3	.7
62	85,679	57,411	28,268	2,638	729	6,553	323	.3	.6
63	84,627	60,595	24,032	2,576	814	6,170	290	.3	.5
64	83,523	63,375	20,148	2,611	892	5,701	255	.2	.5
65	82,377	65,573	16,804	2,545	965	5,134	224	.2	.4
66	81,188	67,195	13,993	2,459	1,045	4,518	199	.2	.3
67	79,944	68,209	11,735	2,247	1,140	3,932	180	.1	.3
68	78,625	68,755	9,870	2,013	1,255	3,351	166	.1	.2
69	77,204	68,838	8,366	1,763	1,388	2,824	157	.1	.2
70	75,660	68,511	7,149	1,601	1,522	2,507	148	.1	.2
71	73,989	67,895	6,094	1,432	1,660	2,180	139	.1	.1
72	72,189	66,982	5,207	1,196	1,816	1,790	133	.0	.1
73	70,239	65,759	4,480	829	1,995	1,383	127	.0	.1
74	68,116	64,317	3,799	641	2,187	1,092	121	.0	.1
75	65,805	62,579	3,226	237	2,395	1,263	103	.0	.0

Table A-8. Person years of life lived by the stationary population at and beyond exact age x: Women, 1977

Age x	Person years lived in each status during age x			Person years lived in each status beyond exact age x		
	Total	Inactive	Active	Total	Inactive	Active
	L_x	$i L_x$	$a L_x$	T_x	$i T_x$	$a T_x$
(1)	(2)	(3)	(4)	(5)	(6)	(7)
16	98,185	67,757	30,428	6,133,675	3,411,047	2,722,628
17	98,130	57,321	40,809	6,035,490	3,343,290	2,692,200
18	98,070	49,920	48,150	5,937,360	3,285,969	2,651,391
19	98,008	44,681	53,327	5,839,290	3,236,049	2,603,241
20	97,947	40,712	57,235	5,741,282	3,191,367	2,549,915
21	97,884	37,479	60,405	5,643,335	3,150,655	2,492,680
22	97,820	35,349	62,471	5,545,451	3,113,176	2,432,275
23	97,755	34,321	63,434	5,447,631	3,077,827	2,369,804
24	97,690	34,207	63,483	5,349,876	3,043,506	2,306,370
25	97,625	34,553	63,072	5,252,186	3,009,299	2,242,887
26	97,557	35,021	62,536	5,154,561	2,974,746	2,179,815
27	97,489	35,592	61,897	5,057,004	2,939,725	2,117,279
28	97,419	36,232	61,187	4,959,515	2,904,134	2,055,381
29	97,346	36,852	60,494	4,862,096	2,867,902	1,994,194
30	97,271	37,259	60,012	4,764,750	2,831,050	1,933,700
31	97,191	37,246	59,945	4,667,479	2,793,791	1,873,688
32	97,107	36,718	60,389	4,570,288	2,756,545	1,813,743
33	97,018	35,904	61,114	4,473,181	2,719,827	1,753,354
34	96,921	35,064	61,857	4,376,163	2,683,924	1,692,239
35	96,813	34,325	62,488	4,279,242	2,648,859	1,630,383
36	96,701	33,861	62,840	4,182,429	2,614,534	1,567,895
37	96,578	33,597	62,981	4,085,728	2,580,673	1,505,055
38	96,444	33,388	63,056	3,989,150	2,547,076	1,442,074
39	96,295	33,224	63,071	3,892,706	2,513,688	1,379,018
40	96,128	33,077	63,051	3,796,411	2,480,465	1,315,946
41	95,945	32,975	62,970	3,700,283	2,447,388	1,252,895
42	95,746	32,943	62,803	3,604,338	2,414,413	1,189,925
43	95,526	33,018	62,508	3,508,592	2,381,470	1,127,122
44	95,285	33,239	62,046	3,413,066	2,348,453	1,064,613
45	95,021	33,594	61,427	3,317,781	2,315,214	1,002,567
46	94,736	34,072	60,664	3,222,760	2,281,619	941,141
47	94,424	34,636	59,788	3,128,024	2,247,547	880,477
48	94,085	35,291	58,794	3,033,600	2,212,911	820,689
49	93,717	36,100	57,617	2,939,515	2,177,620	761,895
50	93,320	37,112	56,208	2,845,798	2,141,520	704,278
51	92,885	38,218	54,667	2,752,478	2,104,408	648,070
52	92,414	39,298	53,116	2,659,593	2,066,190	593,403
53	91,907	40,344	51,563	2,567,179	2,026,892	540,287
54	91,363	41,393	49,970	2,475,272	1,986,547	488,725
55	90,764	42,539	48,225	2,383,909	1,945,155	438,754
56	90,143	43,914	46,229	2,293,145	1,902,616	390,529
57	89,475	45,627	43,848	2,203,002	1,858,701	344,301
58	88,752	47,703	41,049	2,113,527	1,813,074	300,453
59	87,960	50,044	37,916	2,024,775	1,765,371	259,404
60	87,137	52,774	34,363	1,936,815	1,715,327	221,488
61	86,192	55,836	30,356	1,849,678	1,662,552	187,126
62	85,174	59,018	26,156	1,763,486	1,606,716	156,770
63	84,097	62,001	22,096	1,678,312	1,547,699	130,613
64	82,971	64,490	18,481	1,594,215	1,485,698	108,517
65	81,795	66,394	15,401	1,511,244	1,421,208	90,036
66	80,578	67,712	12,866	1,429,449	1,354,813	74,636
67	79,297	68,493	10,804	1,348,871	1,287,101	61,770
68	77,927	68,807	9,120	1,269,574	1,218,608	50,966
69	76,445	68,686	7,759	1,191,647	1,149,801	41,846
70	74,768	68,151	6,617	1,115,202	1,081,115	34,087
71	73,033	67,387	5,646	1,040,434	1,012,964	27,470
72	71,157	66,318	4,839	967,401	945,577	21,824
73	69,121	64,985	4,136	896,244	879,259	16,985
74	66,904	63,395	3,509	827,123	814,274	12,849
75	64,531	61,870	2,661	760,219	750,880	9,339

Table A-9. Expectation of life and of economically active and inactive years remaining at each age by current labor force status: Men, 1970

(In years)

Age x	Expectation of life e _x	Current labor force status					
		Total population		In the labor force		Not in the labor force	
		Expectation of active life a e _x	Expectation of inactive life i e _x	Expectation of active life a a e _x	Expectation of inactive life a i e _x	Expectation of active life i a e _x	Expectation of inactive life i i e _x
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
16	53.3	38.7	14.6	39.8	13.4	38.3	15.0
17	52.3	38.4	13.9	39.5	12.8	37.8	14.5
18	51.4	38.1	13.3	39.0	12.4	37.4	14.0
19	50.5	37.7	12.8	38.5	12.0	37.0	13.5
20	49.6	37.3	12.3	38.0	11.6	36.4	13.2
21	48.7	36.8	11.9	37.5	11.2	35.8	12.9
22	47.8	36.3	11.6	36.9	10.9	35.1	12.7
23	46.9	35.7	11.2	36.3	10.6	34.4	12.6
24	46.0	35.1	11.0	35.7	10.4	33.7	12.4
25	45.1	34.4	10.7	34.9	10.2	32.9	12.2
26	44.2	33.7	10.5	34.2	10.1	32.2	12.0
27	43.3	33.0	10.3	33.3	10.0	31.5	11.9
28	42.4	32.2	10.2	32.5	9.9	30.7	11.7
29	41.5	31.4	10.1	31.6	9.9	29.8	11.7
30	40.6	30.6	10.0	30.7	9.9	29.0	11.6
31	39.7	29.7	10.0	29.8	9.9	28.1	11.5
32	38.7	28.8	9.9	28.9	9.8	27.2	11.5
33	37.8	27.9	9.9	28.0	9.8	26.3	11.6
34	36.9	27.0	9.9	27.1	9.8	25.2	11.7
35	36.0	26.1	9.9	26.2	9.8	24.1	11.9
36	35.1	25.2	9.9	25.3	9.8	22.9	12.2
37	34.2	24.3	9.9	24.4	9.8	21.7	12.5
38	33.3	23.4	9.9	23.5	9.8	20.5	12.8
39	32.4	22.6	9.9	22.7	9.8	19.3	13.1
40	31.5	21.7	9.9	21.8	9.7	18.1	13.4
41	30.7	20.8	9.9	21.0	9.7	17.0	13.7
42	29.8	19.9	9.9	20.2	9.7	15.9	13.9
43	28.9	19.1	9.9	19.3	9.6	14.9	14.0
44	28.1	18.2	9.9	18.5	9.6	14.0	14.1
45	27.3	17.4	9.8	17.7	9.5	13.0	14.2
46	26.4	16.6	9.8	16.9	9.5	12.1	14.4
47	25.6	15.8	9.8	16.1	9.5	11.2	14.4
48	24.8	15.0	9.8	15.4	9.4	10.3	14.5
49	24.0	14.2	9.8	14.6	9.4	9.4	14.6
50	23.2	13.4	9.8	13.8	9.4	8.6	14.6
51	22.4	12.6	9.8	13.0	9.4	7.9	14.6
52	21.7	11.8	9.9	12.3	9.4	7.1	14.6
53	20.9	11.0	9.9	11.6	9.4	6.4	14.5
54	20.2	10.3	9.9	10.8	9.3	5.8	14.4
55	19.5	9.5	9.9	10.1	9.4	5.3	14.2
56	18.8	8.8	10.0	9.4	9.4	4.8	14.0
57	18.1	8.1	10.0	8.7	9.4	4.3	13.8
58	17.4	7.4	10.0	8.0	9.4	3.8	13.6
59	16.7	6.7	10.1	7.4	9.4	3.4	13.4
60	16.1	6.0	10.1	6.7	9.4	3.0	13.1
61	15.5	5.3	10.1	6.2	9.3	2.6	12.9
62	14.9	4.7	10.1	5.6	9.2	2.3	12.6
63	14.3	4.1	10.1	5.1	9.1	1.9	12.3
64	13.7	3.6	10.1	4.7	9.0	1.7	12.0
65	13.1	3.1	10.0	4.3	8.8	1.4	11.7
66	12.6	2.7	9.9	4.0	8.6	1.2	11.4
67	12.1	2.3	9.8	3.7	8.3	1.1	11.0
68	11.5	1.9	9.6	3.5	8.1	1.0	10.6
69	11.0	1.7	9.4	3.3	7.8	.8	10.2
70	10.6	1.4	9.1	3.1	7.5	.7	9.8
71	10.1	1.2	8.9	2.9	7.2	.7	9.4
72	9.6	1.0	8.6	2.6	7.0	.6	9.0
73	9.2	.9	8.3	2.3	6.9	.5	8.6
74	8.8	.8	8.0	1.9	6.9	.5	8.2
75	8.3	.6	7.7	1.3	7.0	.5	7.8

Table A-10. Expectation of life and of economically active and inactive years remaining at each age by current labor force status: Women, 1970

(In years)

Age x	Expectation of life e _x	Current labor force status					
		Total population		In the labor force		Not in the labor force	
		Expectation of active life a e _x	Expectation of inactive life i e _x	Expectation of active life a a e _x	Expectation of inactive life a i e _x	Expectation of active life i a e _x	Expectation of inactive life i i e _x
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
16	60.6	22.5	38.1	23.5	37.1	22.3	38.3
17	59.6	22.3	37.3	23.4	36.3	21.9	37.7
18	58.7	22.0	36.7	22.9	35.8	21.5	37.1
19	57.7	21.6	36.1	22.5	35.2	21.1	36.6
20	56.7	21.3	35.5	22.1	34.6	20.7	36.1
21	55.8	20.8	34.9	21.7	34.0	20.1	35.7
22	54.8	20.4	34.4	21.4	33.5	19.6	35.3
23	53.9	19.9	33.9	21.0	32.9	19.0	34.9
24	52.9	19.5	33.4	20.6	32.3	18.4	34.5
25	51.9	19.0	32.9	20.2	31.8	17.9	34.1
26	51.0	18.5	32.5	19.8	31.2	17.3	33.7
27	50.0	18.1	32.0	19.4	30.7	16.8	33.2
28	49.1	17.6	31.5	19.0	30.1	16.4	32.7
29	48.1	17.1	31.0	18.6	29.5	15.9	32.2
30	47.2	16.7	30.5	18.2	29.0	15.5	31.7
31	46.2	16.3	29.9	17.8	28.4	15.0	31.2
32	45.3	15.8	29.4	17.5	27.8	14.6	30.7
33	44.3	15.4	28.9	17.1	27.2	14.1	30.2
34	43.4	15.0	28.4	16.7	26.7	13.6	29.7
35	42.4	14.6	27.9	16.3	26.1	13.1	29.3
36	41.5	14.1	27.4	15.9	25.6	12.6	28.9
37	40.6	13.7	26.9	15.5	25.1	12.1	28.4
38	39.6	13.3	26.4	15.1	24.5	11.6	28.0
39	38.7	12.8	25.9	14.7	24.0	11.1	27.7
40	37.8	12.3	25.5	14.2	23.6	10.5	27.3
41	36.9	11.9	25.0	13.8	23.1	10.0	26.9
42	36.0	11.4	24.6	13.3	22.7	9.5	26.5
43	35.1	10.9	24.2	12.8	22.3	8.9	26.2
44	34.2	10.4	23.7	12.4	21.8	8.3	25.8
45	33.3	9.9	23.3	11.9	21.4	7.8	25.5
46	32.4	9.5	22.9	11.5	20.9	7.3	25.1
47	31.5	9.0	22.5	11.1	20.5	6.7	24.8
48	30.7	8.5	22.2	10.6	20.0	6.2	24.4
49	29.8	8.0	21.8	10.2	19.6	5.7	24.1
50	28.9	7.5	21.4	9.7	19.2	5.2	23.7
51	28.1	7.1	21.0	9.2	18.8	4.7	23.4
52	27.2	6.6	20.7	8.8	18.4	4.3	23.0
53	26.4	6.1	20.3	8.3	18.1	3.8	22.6
54	25.6	5.7	19.9	7.9	17.7	3.4	22.1
55	24.8	5.2	19.6	7.4	17.3	3.1	21.7
56	24.0	4.8	19.2	7.0	17.0	2.7	21.2
57	23.2	4.3	18.8	6.5	16.7	2.4	20.8
58	22.4	3.9	18.5	6.0	16.3	2.1	20.3
59	21.6	3.5	18.1	5.6	16.0	1.8	19.8
60	20.8	3.1	17.7	5.2	15.6	1.5	19.2
61	20.0	2.7	17.3	4.7	15.3	1.3	18.7
62	19.3	2.3	16.9	4.4	14.9	1.1	18.1
63	18.5	2.0	16.5	4.0	14.5	.9	17.6
64	17.8	1.7	16.1	3.7	14.1	.8	17.0
65	17.0	1.4	15.6	3.4	13.6	.6	16.4
66	16.3	1.2	15.1	3.2	13.1	.5	15.8
67	15.6	1.0	14.6	3.0	12.6	.4	15.2
68	14.9	.8	14.1	2.8	12.1	.3	14.6
69	14.3	.6	13.6	2.6	11.6	.3	14.0
70	13.6	.5	13.1	2.4	11.1	.2	13.4
71	12.9	.4	12.5	2.2	10.7	.2	12.8
72	12.3	.3	12.0	2.0	10.3	.1	12.2
73	11.7	.2	11.5	1.7	10.0	.1	11.6
74	11.1	.2	10.9	1.4	9.7	.1	11.0
75	10.5	.1	10.4	.8	9.7	.1	10.5

Technical Appendix

The increment-decrement working life table rests on information about the flow of persons between labor force statuses over a 1-year period. The flows in question are outlined in figure 1.

Data input. Movement between these states is estimated from information collected by the Current Population Survey (CPS). Using the records of respondents who were interviewed in two successive January surveys (here either 1970/1971 or 1977/1978), labor force statuses at the beginning and end of the year are compared. Surviving respondents are classified as "actives" or "inactives" if their status is identical at the two points in time, and "entrants" or "exits" if the status changes. The number lost to reinterview through death must be estimated separately, using the standard mortality function q_x (here denoted ${}^o p_x^d$) from annual life tables published by the National Center for Health Statistics.

Life table calculations are performed on single-year-of-age data. The reference period for events in these tables is that between two exact ages, referred to as x and $x+1$. Survey data have a somewhat different age reference, since the average person claiming to be " x " years old is actually halfway between his (x) and his ($x+1$) th birthdays, or $x+1/2$ years of age. Before developing the life table functions, therefore, survey data must be recentered on the appropriate interval. The exact age counts are derived from survey values as follows. Using the example of persons economically active at age " x ":

$$\text{actives}_x = \frac{\text{actives}_{(x-1/2)} + \text{actives}_{(x+1/2)}}{2}$$

The subscripts refer to the age of persons at the beginning of the 1-year interval.

Transition probabilities (${}^1 p_x^2$). These probabilities (shown in tables A-2 and A-6) indicate the likelihood that an individual of a given sex, age, and labor force status at time 1 will appear in each of three possible categories one year later (i.e. active, inactive, or dead). Because these three outcomes exhaust all possibilities, the sum of the probabilities is unity. That is,

$${}^i p_x^i + {}^i p_x^a + {}^i p_x^d = 1$$

$${}^a p_x^a + {}^a p_x^i + {}^a p_x^d = 1$$

where:

i = economically inactive

a = economically active

d = dead

${}^i p_x^2$ = the probability that a person age x and in status 1 at the beginning of the interval will be in status 2 exactly one year later.

Because of the lack of solid information on mortality differentials by labor force status, it has been assumed that:

$${}^i p_x^d = {}^a p_x^d = {}^o p_x^d$$

where:

o = all persons alive

The transition probabilities are computed as row percentages from the age-adjusted data of figure 1. For

Figure 1. Labor force flows identified in the 1970 and 1977 increment-decrement working life tables

State at time 1, age x	State at time 2, age $x+1$			
	Total	In labor force	Not in labor force	Dead
In labor force	Group A	Actives	Exits	Deaths of actives
Not in labor force	Group B	Entrants	Inactives	Deaths of inactives

instance, the probability of entering the labor force over the year's interval from age x to age $x+1$ is computed as:

$${}^i p_x^a = \frac{\text{entrants}_x}{\text{group } B_x}$$

Rates of transfer between statuses (${}^i m_x^2$). These rates (which appear in tables A-2 and A-6) denote the number of transfers from state 1 to state 2 during the interval from exact age x to exact age $x+1$, per thousand persons age x in the stationary population. As a ratio of events to population, these rates make allowance for the fact that a single individual may change his or her status repeatedly during a 1-year period. Transfer rates are computed from transition probabilities as follows:

$${}^a m_x^i = \frac{4 \star {}^a p_x^i}{(1 + {}^a p_x^a)(1 + {}^i p_x^i) - ({}^a p_x^i \star {}^i p_x^a)}$$

and so on. The probability of transition and the rate of transfer for a given age are positively related: the higher the likelihood of changing status over a 1-year interval, the greater the rate of transfer, and the larger the difference between their respective values.

The stationary population (${}^o l_x$), *inactive population* (${}^i l_x$), and *stationary labor force* (${}^a l_x$). These functions denote the number of persons who would remain in each labor force status at successive ages if 100,000 persons of the same sex, born at the same time, were survived through life at the mortality and labor force probabilities existing in the base population during the reference year. The stationary population at any given age x is merely persons alive at the beginning of the previous age, multiplied by the probability of surviving that age:

$${}^o l_x = {}^o l_{x-1} \star {}^o p_{x-1}^o \text{ or } {}^o l_{x-1} \star (1 - {}^o p_{x-1}^d)$$

Transfer rates are used to determine how many persons will be active and inactive at each successive age. For instance, the number of inactives at age x is equal to the stock of inactives one year earlier, plus persons leaving the labor force during the interval, minus those entering the labor force, minus inactives who died.

$${}^i l_x = {}^i l_{x-1} + ({}^a l_{x-1} \star {}^a m_{x-1}^i) - ({}^i l_{x-1} \star {}^i m_{x-1}^a) - ({}^i l_{x-1} \star {}^i m_{x-1}^d)$$

This function can be restated in terms of numbers who transferred between states 1 and 2 during the interval (${}^i t_x^2$), as follows:

$${}^i l_x = {}^i l_{x-1} + {}^a t_{x-1}^i - {}^i t_{x-1}^a - {}^i t_{x-1}^d$$

The number of such transfers is shown in tables A-3 and A-7.

Remaining labor force entries (${}^i E_x^a$) and *exits* (${}^a E_x^i$) per person. The average number of labor force entries and exits remaining per person is computed by summing the relevant transfer values (${}^i t_x^a$ or ${}^a t_x^i$) from a given age to the end of the table and dividing by persons alive at the beginning of the age, ${}^o l_x$

Expectation of life (${}^o e_x^o$), *inactive life* (${}^o e_x^i$), and *working life* (${}^o e_x^a$) for the population. The stationary population values of tables A-3 and A-7 can be read to represent a longitudinal history of a single birth cohort, showing the labor force status of survivors at each successive birthday.

Assuming that changes in status (i.e., deaths and labor force entries and exits) are evenly distributed throughout the year, the total number alive at mid-year (${}^o L_x$) should be precisely half the sum of those alive at the beginning and end of the interval.

$${}^o L_x = \frac{{}^o l_x + {}^o l_{x+1}}{2}$$

This figure should also represent the number of "person years of life" lived by the group as it passes through age x (tables A-4 and A-8). Similarly, "person years of inactivity" can be estimated as:

$${}^o L_x^i = \frac{{}^i l_x + {}^i l_{x+1}}{2}$$

and so on. Summing person years (of life, inactivity, or activity) from age x to the end of the table and dividing by persons alive at exact age x , we derive average years of life, inactivity, or activity per person in the stationary population. For example, the average worklife expectancy is:

$${}^o e_x^a = \frac{\sum_{\text{age}=x}^{\infty} {}^o L_x^a}{{}^o l_x} = \frac{{}^o T_x^a}{{}^o l_x}$$

Labor force status-specific expectations of life (${}^a e_x^i$, ${}^i e_x^a$), *active life* (${}^a e_x^a$, ${}^i e_x^a$), and *inactive life* (${}^i e_x^i$, ${}^i e_x^j$). The expectancy functions for the population as a whole, above, were developed using a Markov chain calculation in which a specific cohort of individuals (i.e., those born at the same time) were traced through a lifetime of labor force entries and exits to quantify total average

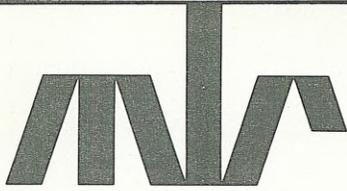
work duration. By the same token, it is possible to identify other cohorts (e.g., those in the labor force at a specific age) and to trace their subsequent worklife patterns. The procedure is the same: at each age survivors of the initial cohort are subjected to the transfer rates appropriate to their current age and status, to determine how many will enter the next age interval in each status group. The resulting stationary population profile is translated into person years of activity or inactivity lived by the group in each interval. These values are summed across ages, then averaged over persons of the relevant sex alive and in a given status at the initial age.

Because there are 2 sexes, 2 labor force statuses, and 60 ages of interest in the tables, this entire procedure must be repeated 240 times to develop the expectancies shown in the last 4 columns of tables A-1 and A-5. The expectancies are denoted ${}^a e_x^a$ (years of activity remain-

ing to persons currently active), ${}^i e_x^a$ (and to those currently inactive), ${}^a e_x^i$ (years of inactivity remaining to persons currently active), and ${}^i e_x^i$ (to those currently inactive) for any age x .

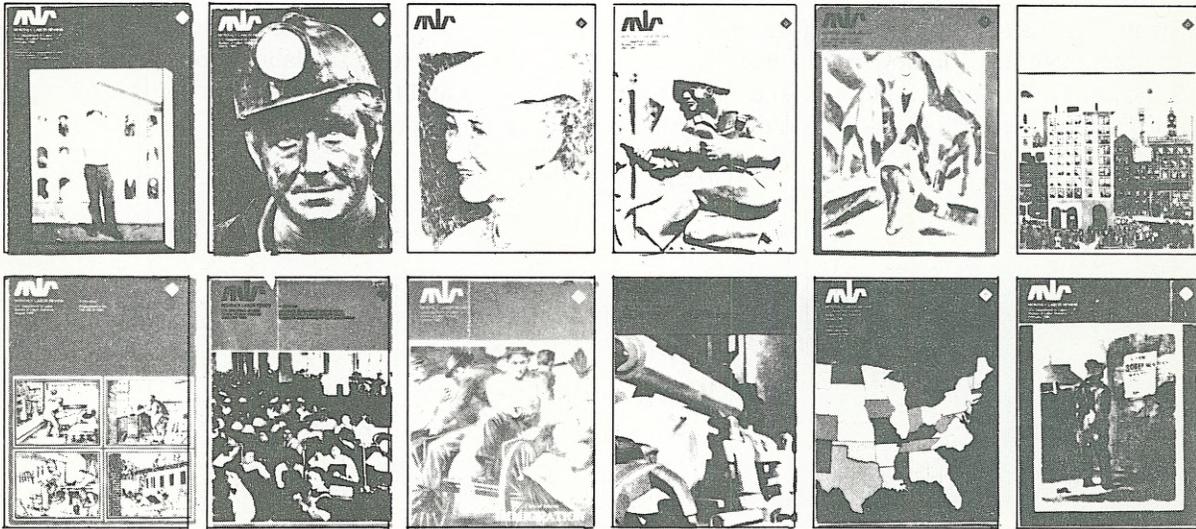
Interpretation of worklife expectancy values. These tables measure movement into and out of the labor force, rather than flows into and out of employment per se. Hence measures of "worklife" actually include periods of unemployment.

These estimates in no way control for differences in hours worked by age or sex. They simply summarize the number of years during which the average individual would be attached to the labor force if prevailing rates of mortality and labor force entry and exit remained in effect throughout a lifetime.



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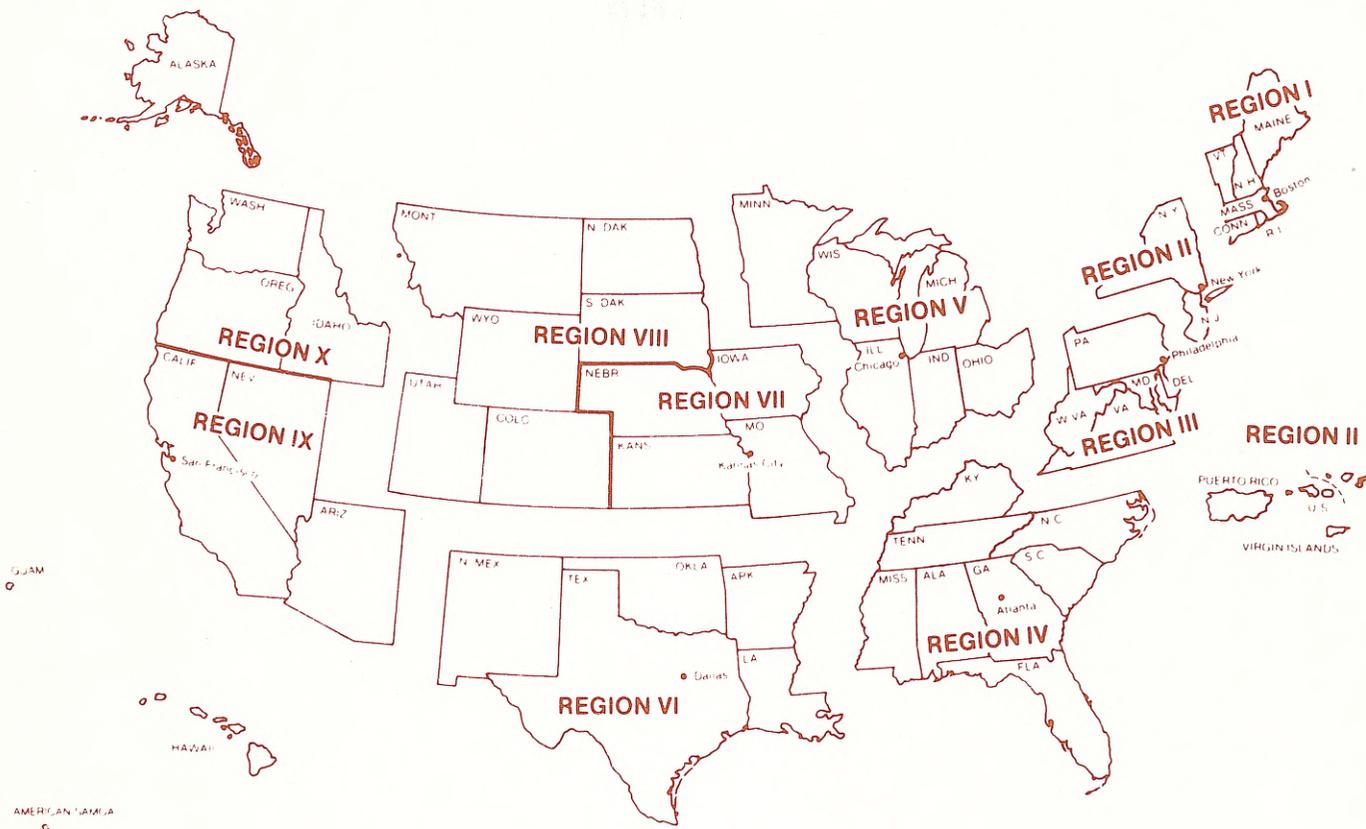
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