

Older Workers (1957)

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THE LENGTH OF WORKING LIFE; paper delivered at

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This paper asks and suggests some answers to the following three questions:

I. What are the one or two really overriding fundamental, long term trends which affect the gerontological field in all its ramifications?

In this connection we describe and allude to some of the major implications of what has happened to the expectation of life and working life in the U. S. A. since the beginning of the 20th century. Presented in this connection is a series of new Tables of Working Life for the United States, for both men and women, which depict the changing length and patterns of work activity in the U. S. A. during the past fifty odd years.

II. Is there some general, unified theory which encompasses and puts into overall context the work we attempt to do and the goals we strive to achieve in the gerontological field?

Here we suggest an approach based on an operating hypothesis that a major criterion of successful adaptation of a Nation to the problem posed by rising numbers of older persons lies in the degrees of freedom of choice permitted by the social, economic and institutional forces prevailing in the Nation. Presented in this connection is a unified theory of choice based on the fact that personal, social and psychological factors point to guidance and counseling as a developmental process over a lifetime, aiding in the problems of choice which the individual makes from youth to old age.

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III. Taking all factors into account, what can be said of the outlook for the older worker in the immediate years ahead?

For an answer we describe recent studies of the manpower future in the U. S. A. during the next decade and the role the older worker is expected to play in meeting the expected labor requirements of the economy. Presented in this connection is an analysis of how the long term trends and the unified theory of choice discussed above can be related to and tested by the events of the forthcoming decade.

A. LONG TERM TRENDS

1. LENGTH OF LIFE

The expectation of life is the ranking index of a Nation's well being. It is the key to measuring man's progress in controlling his biological environment; it is certainly the key determinant of at least the quantitative dimensions of the problem we are considering.

In this respect the record in the United States is almost overwhelming. As we all know, there has been tremendous improvement in mortality experience in this country--with the following dramatic results:(1)

Out of groups of 100,000 persons born alive in the United States the following would still be alive under mortality conditions prevailing at the time of their birth:

At :	MEN					::	WOMEN				
age::	1900	1940	1950	1955	2000 a/	::	1900	1940	1950	1955	2000 a/
60	45,895	65,142	71,246	73,136	84,659		50,155	73,093	80,890	83,168	91,105
65	38,736	55,776	61,566	63,415	78,575		43,246	65,523	74,119	76,827	87,496
70	30,217	44,588	49,950	51,063	70,449		34,721	55,449	64,873	67,188	81,951
75	21,076	31,864	36,756	37,845	59,060		24,992	42,425	52,111	55,302	72,870
80	12,084	18,995	23,237	24,391	43,127		15,129	27,524	36,486	40,052	57,620
85	5,179	8,693	11,750	12,505	25,473		7,063	13,972	20,668	23,165	37,535

a/ Under assumption of low mortality.

The figures practically speak for themselves. Because of legislation and collective bargaining arrangements, for example, age 65 has become an important landmark in terms of retirement. Under 1900 mortality experience only

less than 2 out of every five men even survived to age 65; under current experience the ratio is more than 3 out of 5. For women, of course, the situation is even more striking: 3 out of every 4 will survive to age 65 under 1955 mortality experience.

Age 65, however, has and will apparently become a relatively young age. Observe the figures for age 85 in the above summary, for example. Under current conditions 1 out of every 8 men will survive to their eighty-fifth year of life (2-1/2 times the 1900 figure). With any kind of breakthrough medically in diseases of old age, the projection is for 1 out of every four men surviving to age 85 in 2000. The amazing fact is that one out of every four women are already now experiencing this kind of longevity--more than triple the 1900 figure.

The implications of these trends are enormous--and represent a good part of the substantive matters to be discussed at these meetings. In terms of the individual, he has had to--and must in the future--look at his education and training, guidance and counseling, work activity, migration and mobility, possible adult retraining and skill development, pre-retirement counseling and readiness and retirement activities from almost a completely different vantage point of a markedly different expectation of life. In terms of government, industry and business these very same factors are underscored--if only from the point of view of the problem of providing the facilities for their consummation in a manner best calculated to further the standard of living and national security. It is almost gratuitous to point out some of the implications for individual disciplines: In medicine, for example, where a major share of the credit goes for these developments, the great problems include crossing the threshold in the fight against causes of death among the old as well as against morbidity associated with age.

But the increasing expectation of life has already presented us with one fait accompli: We have long passed the time when these problems referred to a relatively small, almost unique group in the population. In terms of sheer numbers, these problems are already all-pervasive.

2. LENGTH OF WORKING LIFE

Next to the expectation of life, there is perhaps no other more important index of a Nation's social and economic welfare than the expectation of working life. Here, of course, we deal with the duration of that part of a person's total life span spent in labor force activity. Involved here are such key factors as the age at which young people enter the working force; the time they spend on education and training preparing themselves for labor force activity; the age at which men and women exit from the working force, and the changing duration of the period of retirement that ensues. The length of working life is also, of course, a major determinant of the manpower potential of a population. All in all, just as the expectation of life is the key to measuring man's progress in controlling his biological environment, so is the expectation of working life the key to measuring man's progress in controlling his economic environment--for one of the hallmarks of a Nation's standard of living is the progress it makes towards increasing the amount of goods and services per capita while permitting later ages of entry into and earlier voluntary exits from the labor force. More about this later.

The concept of working life is, of course, not a novel one. Since the 18th century, at least, actuaries, economists, sociologists and others have made explicit and implicit estimates of the duration of productive life. One of the pioneering systematic studies in this general area known to this writer was done in 1908 by Georgio Mortara in Italy (2). Forty-three years later Dr. Mortara presented data on the relationship between total life span and work life span in 34 countries in his "Durée de la Vie Economiquement Active suivant la Mortalité" (3). Concern with the measurement and analysis of the structure of working life has become practically world wide in more recent times and has received valuable treatment by authors in many countries (4).

Seven years ago, this writer constructed a series of Tables of Working Life designed to depict the changing length and pattern of working life in the United States (5). These Tables of Working Life are very similar to the familiar standard life tables. The life table is a statistical or actuarial device for summarizing the mortality experience of a population of some particular period of time (6). For this purpose, the life table starts with a group of persons--usually 100,000--born alive and follows it through successive ages as it experiences the attrition caused by death. A number of significant measures can be obtained from such a table, the most familiar of which is "life expectancy"--the average number of years of life remaining after each specified age. The Tables of Working Life also follow through successive ages the experience of an initial cohort of 100,000 at birth. In addition to showing attrition caused by mortality, however, they also show the number who may be expected to work or seek work over their life span. From these materials, it is possible to find the rates at which persons enter and exit from the labor force and to calculate a "work life expectancy"--the average years of labor force activity remaining after each specified age. The juxtaposition of the life and work-life expectancies also, of course, yields an important measure of the interaction of these two primary variables. In adopting the life table technique from the actuarial and demographic disciplines, we have apparently achieved a more perceptive and sounder assessment of this highly important dimension in the gerontological field. Other countries already have or are in the process of constructing similar Tables (7) and international comparisons of working life (permitted by standard life table construction) are becoming possible on a more extensive basis.

This paper presents the newest Tables of Working Life for both men and women for selected periods 1900 to 1955. The major significant points they show for our discussion here now follow. The Tables themselves and a brief technical note on their development are presented at the end of the paper.

The experience in the U. S. A. can be presented in summary fashion as follows:

Expectancy of life and working life at birth
in the United States, 1900-1955

Year:	MEN			WOMEN		
	Life expectancy	Work life expectancy	Years outside labor force	Life expectancy	Work life expectancy	Years outside labor force
1900	48.2	32.1	16.1	50.7	6.3	44.4
1940	61.2	38.3	22.9	65.9	12.1	53.8
1950	65.5	41.9	23.6	71.0	15.2	55.8
1955	66.5	42.0	24.5	72.9	18.2	54.7

Fifty years ago there was very little difference between total life span and working life among men--for most workers there was no real sharp break from employment into retirement as we know it now. Exits from the labor force today, however, have a quite different and distinctive pattern. Among men, for example, retirements more than double between 55-59 and 60-64 years of age and reach their peak in the age group 65-69 years. This concentration of retirements during the sixties has become an institutionalized feature of our economy, tied to prevailing conventional retirement plans, both private and public.

Increasing life expectancy coupled with this pattern of labor force exits has, of course, increased the years of life spent in retirement. Actually, the average number of years spent by men in retirement has more than doubled since 1900, and current trends point toward a tripling of this figure by the year 2000.

For example, here is the situation for say, a young man of 20:

Under 1900 conditions

A man of 20 had a life expectancy of 42.2 years
And a work life expectancy of 39.4 years
Thus, his outlook was for a period of retirement of 2.8 years

Under 1955 conditions

A man of 20 has a life expectancy of 49.5 years
And a work life expectancy of 43.0 years
Thus, his outlook is for a period of retirement of 6.5 years

It will be noted that part of the increased longevity of the man of 20 has gone into an increase in the number of years he spends in the labor force and part to an increase in the years spent outside the labor force (retirement). This, as can be seen from the summary figures for all men and women presented above, has been the case for the population as a whole since 1900. This leads us to another very important point:

The increasing amount of time spent in retirement has, in a sense, been matched in this country by an equally significant development at the lower end of the age scale: a very marked and important increase in the age at which young men make their first full time entry into the labor force. At current levels, the average American male makes his first full time entry into the labor force between his 18th and 19th year of life. At the turn of the century more than one out of every five youths 10-15 years of age were already workers.

Now, this double-edged trend has meant a reduction in the number of years of working life in the beginning (later entry into the labor force) and similar reductions at the end (earlier retirements) during the first half of this century. The point is therefore often made that with protracted periods of education and training during youth and higher rates of retirement in older age, more and more of our years are being spent in "nonproductive" or "non-economic" status and that a smaller and smaller population group must provide for these non-worker activities. Our studies indicate that this is not quite the case--that, in fact, these developments might better be viewed as follows:

In the first place, the available data indicate that during the first half of this century in the United States, just the opposite took place: (8)

Number of Workers Per 100 Population in the U. S. A.

1900	36.4
1920	38.1
1930	38.6
1940	40.5
1950	39.9
1956	41.5
1960	41.3
1965	41.8

In trying to assess the relationship between the so-called "productive" and "nonproductive" segments of the population, the critical question is this: What has happened to the proportion of the total population which is in the labor force? Has the great growth among the young (and their later labor force entry) and the great growth among the old (and their earlier exits from labor force activity) caused a diminution in the proportion of the population at work? For the U. S. A. the answer is apparently quite decidedly in the negative. As the above summary tabulation indicates, in 1900 this country had about 36 workers for every 100 in the population. By 1950, the ratio had gone up to about 40 per 100 population. And despite the tremendous growth in the numbers in the dependent groups (especially among the very young because of the high birth rate) in the U. S. A. during the present decade, the ratio of workers to total population has risen slightly and is expected to remain at a level of about 41 or 42 percent through 1965.

The reasons why we have been able to maintain and even increase the ratio of workers to total population are quite complex and cannot be explored at this juncture. Perhaps it will suffice to say at this point that the primary reason for this development is the great increase which has occurred in labor market participation among women.

There is, in addition, another very important dimension to this story as shown by the Labor Force Life Tables. Despite the marked delay in entry into the working status by young people and earlier exits from the labor force by older people, men today put in many more years of work than did their counterparts 50 years ago. And further, despite more years of labor force activity, men today spend more of their lives in retirement than did their 1900 counterparts--the answer to this seeming paradox being the added years of total life we have today. The summary figures presented at the beginning of this section and the illustration for a man of 20 years of age show these points very specifically. Men today put in a decade more of work during their lives than did their 1900 counterparts. In fact the manpower potential of, say, a group of 100,000 men living and working under current conditions in literally thousands of man years more than a similar group operating under 1900 conditions (see next section). At the same time, the data show that men today really do not spend a much greater proportion of their lives outside the labor force than they did in 1900; the longer life afforded them permits both more time as workers and more time for education and training at one end of the age scale and more retirement at the other.

This situation has held true even for women who have experienced an enormous increase in labor force activity since the turn of the century--the average number of years of working life among women has tripled between 1900 and 1955. Yet, as the summary tabulation shown above indicates, the 22 years of additional life expectancy available to women in this country since the turn of the century has been divided almost equally between labor force and non-labor force activity: 12 more years being added to their working lives, 10 more to education and training, marriage and motherhood--and, of course, retirement.

B. A GENERAL THEORY OF CHOICE

1. THE MANPOWER POTENTIAL

The confluence of these two great long term trends in the U. S. A. affecting the life and work life expectancy of the population may point the path toward a general or unified approach to some of the main issues in the gerontological field.

In a free and democratic society, one of the hallmarks of progress is the extent to which an individual can exercise choice--in his choice of an educational career, a work career, a place to live, a place to work, the distribution of his income, the expenditure of his leisure time, etc., etc. Throughout a lifetime, literally hundreds of these important choices are made and to the population in general and the practitioners in the related disciplines in particular, it is of compelling importance that these choices be made in such a manner as to 1) make maximum utilization of the individual's aptitudes, talents, interests, motivations and aspirations and 2) serve, at the same time and in a compatible way, to further the standard of living and national security of the society.

Broadly speaking, these developments have characterized the U. S. A. throughout this century. The gross national product per capita in constant dollars has about tripled since the turn of the century--a technical way of saying that the goods and services available for every man, woman and child--or our standard of living--has grown enormously. We have been able to achieve these goals with only a very small increase in the proportion of the population in the labor force--all of them working many less hours today than even a generation or so ago. At the same time, as we already have indicated, the number and proportion of young people able to exercise the fundamental choice of pursuing an education beyond grade school has advanced tremendously, matched in almost similar magnitude by the opportunities for some years of retirement.

These achievements can be traced to a wide variety of factors, paramount among which is the series of technological advances which resulted in the great productivity increases we have witnessed in the past fifty years. But it is difficult to see how these factors would have operated without the two long term trends we have described above--that is, without the manpower potential of our population at least approximately keeping pace with the other factors of growth. That it did was already pointed out, but perhaps can be made more specific as follows:

A group of 100,000 persons born alive in the United States would produce the following number of man-years of work during their lifetimes

	<u>Men</u>	<u>Women</u>
1900	3,211,943	628,619
1940	3,825,580	1,214,481
1950	4,191,202	1,523,118
1955	4,204,794	1,819,496

Thus, a group of 100,000 boys born and experiencing the mortality and labor force conditions existing today will put in about a million more man-years of work during their lifetimes than their counterparts operating under 1900 conditions--an increase of almost one-third. A comparable group of girls today is expected to triple the performance of its 1900 counterparts. Here, then, in as few figures as possible, is a specific indication of the increasing manpower potential of our population over the first half of this century.

Now to come to the point of this particular section. It is doubtful, indeed, if the kind and degree of choices now available could be present without these developments in our manpower potential (and various other related factors, of course). What these developments have made possible is the endowment of our society with the maneuverability, the flexibility, the capacity to afford these kind of choices. For an extreme contrast note the situation in a primitive society where the manpower potential and productivity are low. Labor force activity (to use our modern terms) is extremely high, with very little in the way of education and training of the young and very little place for the old, to say nothing of "retired" persons. All are needed in the battle for subsistence. As the civilization or society progresses we can begin to afford more in terms of later entry into the work force, more women able to remain out of labor force for marriage and child-bearing and rearing, more retirement from work activity in the older years. Apparently, we have come a long way along this road.

At this point, then, we submit the following proposition:

That a primary criterion for measuring the social health of older populations in many if not all its aspects is the degree to which they can exercise the maximum amount of choice in their relationships to their social and economic milieu.

Choice, of course, is by no means a fixed or stable phenomenon in any society. Rather, it changes significantly over time--both in the qualitative sense (in terms of its acceptance and support in a given milieu) and in the quantitative sense (in terms of the degrees of freedom and provision for its exercise available to the individual).

Thus, in the short run, the degrees and kinds of choices available vary significantly with the level of economic activity. In a depression, we may tend to get restrictive; in very high levels of economic activity the profusion of choice may actually get to be a problem, in terms of pressures and needs exercised by an economy in want of manpower. This ebb and flow in opportunities for choice, of course, affects not only opportunities in relation to the work place, but interacts with other social and economic phenomena e.g. note the rules during the 1930's in some States restricting and even prohibiting the employment of married women as teachers.

Over the long run, many factors also operate to change the degree and kinds of choices available. In this country, we have already noted how changes in the length and pattern of life and working life had a critical impact. Contrast, too, the kinds and varieties of choices available in the U. S. as an agrarian society several generations ago and in today's industrial society; or the changes generated by such institutional forces as legislation (old Age and Survivor's Insurance) or collective bargaining (private pension plans).

As we have pointed out, however, it is fair to say that for a long time now, the opportunities for choice making, the spectrum of choices available and the provision of resources for helping the individual in this process have all increased substantially and significantly in this country. This, of course, is not to say that all of these variables have become limitless or infinite in their application. To the extent that limitations on employment by age and sex prevail, for example, choices are restricted; an industrial society brings its own restrictions as a way of life; and even the operation of more advanced mechanisms e.g. pension plans, may generate such problems as mandatory retirement at fixed chronological ages. (9)

Although we are focusing here on the problems of the older person in relation to his conditions of work and their ramifications, we might also at this point suggest that the dimension of choice as we have outlined it here may very well serve as an important part of the framework for consideration of allied problems in the gerontological field. Thus: Is not the current issue of mandatory vs. permissive retirement, in part at least, one of maximizing the individual's freedom of choice in this important phase of decision-making in his lifetime? When we talk about the major concern with economic security of the older person, are we not emphasizing in a very important manner the provision of resources for the aged so that they can exercise some of the choices we consider so important to them? For example, the problem of work vs. retirement very often gets to be quite a theoretical exercise in the absence of the basic economic means to even consider such a choice in the first place (10). The same, of course, applies to education, recreation, etc. In a fundamental sense, the critical factors of physical health and mental health also become an integral part of this picture, if only because the provision of institutional resources which generate declines in mortality and morbidity are a sine qua non for making the choices and reaching the goals we set up for achievement.

2. THE GENETIC OR DEVELOPMENTAL APPROACH

If we accept the primary importance of choice, we underline in a very critical way the specific role of guidance and counseling as an institutional force in maximizing its effectiveness. We emphasize guidance and counseling because among the various facets of this very broad problem, it may point to an approach toward a unified operating context into which we can fit the older person.

For many years most of our resources were put into the guidance and counseling process in the secondary school systems of the U. S. A. where some of the more overt choices in regard to an educational and work career had to be made. In more recent years, much effort has been expended in developing resources in guidance and counseling in the elementary schools, because of the recognition of the almost obvious but very vital fact that many of the problems exposed in the secondary schools had their roots way back in the early years. It has been done, too, because of the perhaps equally obvious but very vital fact that mental and psychological, as well as physical growth is a developmental process--a continuum--over the lifetime of a person; that this growth and experience and learning do not come as discrete episodes attendant on achieving some chronological age or grade in school.

Following the logic of this development, exactly the same factors apply to the experience and learning and adjustments and readjustments that occur after high school or college--whether it be in the need to change a job when young, the need for education and guidance in retraining and skill development of an older person or the need for pre-retirement counseling or the need for help when already retired. Here again, it is difficult to view these as discrete episodes and the person who deals with the adult making a job change or the older person in quest of advice on preparing for retirement or the geriatrician dealing with chronic illness of the elderly finds many roots of the problem way back in the early years.

For those of us in this general area, then--whether it be in government, business or school situations--counseling, guidance, testing, placement, provision of occupational information for the adult and elderly becomes a part of the unified and general and developmental process over a lifetime, aiding the individual in the many situations of choice available to him in a society which permits and affords to an increasing extent these very processes of choice--again with the two-pronged aim of the maximum development of the person in accord with the maximum development of the standard of living and national security.

C. THE OUTLOOK

The role of the older worker in the labor market is subject to significant changes with the ebb and flow of social and economic developments, war and peace, prosperity and depression. In other words, short range changes do take place around the secular or longer term trends described in the first section and often give perception of some of the factors which affect the length and pattern of working life.

A very good example is the contrasting work life patterns which developed during the 1940's, as can be seen from the appended Tables of Working Life. In 1940, after a decade of severe depression, worker rates at both ends

of the age scale were very low. But after a war and continued high levels of economic activity in the postwar period, worker rates moved up very sharply. For example: The retirement rate for men 55-59 years of age fell from 96 per thousand to 45 per thousand between 1940 and 1947--more than a 50% drop. Thus, a sharp change in economic climate actually resulted in a reversal of the long time trends: age of exit from the labor force actually went up. By 1950, however, the employment situation had changed sufficiently so that worker rates among the older persons were down close to their 1940 levels, with a return to the observed secular trends.

In general, therefore, changes in working life in the short run appear to correspond very closely to alternations in economic activity, especially as they are reflected in changing employment opportunities.

What, then, of the immediate years ahead?

The Labor Department staff has recently completed a systematic analysis of future manpower requirements through a study of industrial employment trends and the changing occupational composition of each industry. Such work, of course, is in a sense always subject to change as new information on levels and trends becomes available. However, for our present purposes, we have asked ourselves the following question:

In the absence of war and with generally high levels of economic activity, what will the manpower demands of the U. S. look like in 1965, based on a continuation of the basic trends that have been operating in this country during the first half of this century? (11)

Well, we find first that the expectation is for an increase of about 25 millions in the population of the United States over the next 10 years. This expansion is expected to generate advanced demands for additional consumer goods, housing, highways and capital investment.

Second, we project about a 50% increase in the gross national product by the middle 60's assuming productivity increases of the kind we have had up to now. This would amount to an increase of about 25 percent in the gross national product per capita. Assumed too is about a 6% decline in hours of work, generated not by any dramatic change in the structure of the workweek, but by evolutionary extension of such factors as paid vacations, paid holidays, etc.

Third, we note that these developments call for an expansion of about 10 million jobs between 1955 and 1965.

Can we meet these needs? Where will the additional workers come from?

Our figures show that the expected 10 million increase in the labor force by 1965 will be distributed as follows:

4-1/2 millions are expected to be young persons 14-24 years of age
 1/2 millions are expected to be in the age group 25-44
 5 millions are expected to be 45 years of age and older

And, half of this total increase will be represented by women.

The following table gives the details.

Population and Labor Force, By Age and Sex
 Actual 1955 Projected 1965
 (000)

Age	Population			Labor force			Worker rates (%)		
	: 1955	: 1965	:Change:	: 1955	: 1965	:Change:	: 1955	: 1965	:Change:
All persons									
14 years and over	<u>118.8</u>	<u>137.2</u>	<u>13.4</u>	<u>68.9</u>	<u>79.3</u>	<u>10.4</u>	<u>58.0</u>	<u>57.8</u>	- .2
Men									
14 years and over	<u>58.3</u>	<u>66.8</u>	<u>8.5</u>	<u>48.1</u>	<u>52.9</u>	<u>4.8</u>	<u>82.4</u>	<u>79.2</u>	-3.2
14-19	6.9	10.6	3.7	3.4	5.0	1.6	49.0	46.9	-2.1
20-24	5.4	6.8	1.4	4.9	6.0	1.1	89.8	88.3	-1.5
25-34	11.9	11.2	- .7	11.5	10.7	- .8	96.5	96.5	--
35-44	11.2	11.8	.6	10.8	11.4	.6	96.9	96.9	--
45-54	9.3	10.7	1.4	8.9	10.2	1.3	95.1	95.1	--
55-64	7.1	8.1	1.0	6.1	7.0	.9	86.3	86.3	--
65 and over	6.5	7.6	1.1	2.5	2.6	.1	38.5	33.5	-5.0
Women									
14 years and over	<u>60.5</u>	<u>70.4</u>	<u>9.9</u>	<u>20.8</u>	<u>26.4</u>	<u>5.6</u>	<u>34.5</u>	<u>37.5</u>	<u>3.0</u>
14-19	6.7	10.2	3.5	2.0	3.0	1.0	29.7	29.6	- .1
20-24	5.4	6.7	1.3	2.4	3.1	.7	45.8	46.8	1.0
25-34	12.2	11.1	-1.1	4.3	4.2	- .1	34.8	37.6	2.8
35-44	11.6	12.3	.7	4.8	5.7	.9	41.4	46.7	5.3
45-54	9.6	11.4	1.8	4.1	5.8	1.7	43.4	50.8	7.4
55-64	7.4	9.0	1.6	2.4	3.5	1.1	32.2	38.6	6.4
65 and over	7.6	9.7	2.1	.8	1.1	.3	10.3	11.2	.9

The composition of this labor supply tells a pretty obvious but very important story. The increase among the teenagers, although significant, has to be tempered by the fact that a large proportion of them will not be full time members of the labor force. Many will also be attending schools, continuing the trend toward a higher and higher proportion graduating from high school and going on to college. The increase among the 25-44 age group is comparatively quite small when we remember that they represent the prime working ages where career development normally takes place. In fact, the outlook is actually for a decline in the important age group 25-34. Persons who will be 25-34 years of age in 1965 represent the births of the 1930's--and a lot of children were not born during that depression decade.

All of this adds up to the fact that persons 45 years of age and over are going to be the major suppliers of labor for the additional jobs in prospect in the U. S. under continuing high levels of economic activity in the immediate years ahead.

It should be noted immediately that the prospects for 1965 as outlined here do not call for any sudden resurgence of labor market activity among the older persons of the U. S. As a matter of fact, as the above table indicates, we project a continuation of the secular trend toward decreasing worker rates among older men calling for a drop of fully 5 percentage points in the labor market participation rates of men 65 years of age and over between 1955 and 1965. What makes the position of the older workers so important in the economy of the next decade is, first, a substantial increase in their very numbers; second, a significant increase in adult women workers; and third--and most importantly--their strategic relative position on the population curve whose unique conformation is generated by the high birth rates of the past decade and the very low birth rates of the 1930's.

If the basic assumptions upon which the outlook presented in this section are granted--and in terms of the role of the older person the demographic boundaries are firmly enough fixed so that there is not much latitude for gross error--then we are going to get in the decade we are now living (1955-65) a prime opportunity to apply (and perhaps test) the basic unified theory of choice and the action it suggests which we have submitted in this paper. In terms of the quantitative dimensions of the manpower future, in terms of the operating thesis we have developed, and in terms of assessing some criteria of the successful adoption of a Nation to the problems posed by growing numbers of older persons, consideration might be given to at least the following specific actions: Provision of guidance and counseling facilities and education, training and retraining facilities specifically oriented to the needs of the adult and older person; a re-examination of the policy of mandatory retirement at fixed chronological age; an elimination of maximum age policies in hiring.

In this paper we have placed major stress on the fundamental concept of the genetic or developmental approach to our problem and have selected the matter of choice for a principal role in this approach. We have done this because the overriding trends of the past half of the century and more in the expectation of life and working life have brought us to the point where such considerations are socially and economically feasible and because they are based on a sound psychological foundation. In ending this paper we return full circle to this basic idea, as follows:

It is fair to say that perhaps the real crux of the historical development in the U. S. A. and many other countries in the gerontological field stems from the changing role and status of the older person in a new social and economic milieu, generated by the transition from an agrarian to industrial society, the tremendous medical advances we have achieved, etc., etc. A primary goal, therefore, is providing the older person with a meaningful independent status in this transition and beyond. Our theme and thesis is that

this really cannot be done in a discrete and separate manner, divorced from what develops in the younger years, especially from what occurs in a person's role in relation to the work place. To put it positively, it is suggested that a primary criterion for assessing a Nation's adaptation to the problems of aging is represented by the adequacy of the resources it provides for maximizing opportunities for choice from the earliest possible point of decision. In the generation to come, both in the U. S. A. and many other countries of the world where population developments are quite similar, this will become an especially important feature because of the importance of the older person to the national work force--and, of course, as a significant proportion of the total population upon completion of his working life.

TABLES OF WORKING LIFE

Tables of Working Life For Men are shown in detail in the following pages. In common with the conventional life table, the table of working life begins with an initial group of 100,000 born alive and follows it through life, subject to a pattern of attrition determined by a specified set of mortality rates. Since the focus here is on the span of working life, the table begins with age 14, the age at which labor force measurement begins in the U. S. A. At age 14, for example, the stationary population (L_x) had already been reduced in 1950 from 100,000 to 95,411.

Beginning with age 14, the life table population is also subject to two other factors: the probability of accession to and of separation from the labor force at different ages. Unlike mortality data, however, no "vital statistics" are available as to the number of different persons entering or exiting from the labor force each year. In fact, no comparably precise measurement of labor force "births" or "deaths" is feasible, if only because labor force status of an individual may change a number of times, especially during the marginal or intermittent employment characteristic at both ends of the age scale.

However, for purposes of work-life table construction, the solution turns out to be conceptually and technically straightforward. Net changes in labor force activity over age are used as a basis for estimating entries and withdrawals, with accessions and separations being derived from differences in successive worker rates. Thus, under a given pattern of worker rates for a specified period of time, a cohort of male workers 60 years of age would acquire the lower worker rates of persons aged 61 as they become one year older. From the difference in successive worker rates in combination with mortality data, it is possible to derive the probabilities of separation due either to death or retirement--the latter term being used to cover all exits from the labor force for causes other than death.

The following is a very brief description of each of the columns appearing in the accompanying Tables of Working Life for Men. Some of the functions normally included in the standard life table e.g. q_x -- the mortality rate, l_x -- number living at beginning year of age, d_x -- number dying are omitted in the interest of compactness. They can readily be derived from the Tables.

(1) Year of age (x to x + 1)

All of the variables in the Tables are expressed in terms of the exact birthday (x) or of the interval between successive birthdays (x to x + 1) in accordance with standard life table practice.

(2) Number living in year of age (L_x)

This is the "stationary population" or number of persons who would be living in any age interval under the assumption of 100,000 live births annually, subject throughout life to the specified mortality rates. Under

these fixed conditions, if births were distributed evenly throughout each year and if there were no migration, a census taken at any time would always show the same total population and the same number of persons in each age interval.

(3) Number in labor force in year of age (Lw_x)

This is the "stationary labor force" similar in concept to the stationary population and shows the number in labor force status in each year of age under conditions of labor force participation prevailing in the reference year. In accordance with U. S. Bureau of Census concepts, the labor force generally includes the noninstitutional population 14 years of age and over employed or actively seeking employment. For each of the years shown, the labor force level is taken as of April which is fairly typical of the annual average level.

(4) Percent of population in labor force in year of age (w_x)

This, the worker rate, has the same critical relationship to the estimates of work-life expectancy as the mortality rate has to total life expectancy. Unlike the mortality function which describes a rate during a specified time interval, the worker rate is based on a cross section as of a given point in time. As already indicated, we assume here that the differences between successive single-year worker rates at a given time serve as a reasonable approximation of the net annual rates of labor force entries and exits, after allowing for mortality.

(5) Accessions to labor force (A_x)

This column shows the net accessions to the life table labor force between successive year of age as a ratio to the life table population (L_x) in the base year. It is calculated from the net increase between successive worker rates up to maximum age 32 (point of peak worker rate), after accounting for losses to the labor force due to death during the year:

$$A_x = (W_{x+1} - W_x) (1 - Q_x^d)$$

$$\text{Thus, for age 20 in 1950: } 1000 A_x = (87.2 - 85.1) (1 - .0018) = 2.1 \times .9982 = 20.9$$

(6) Probability of separations due to all causes ($1000 Q_x^S$)

The probability of separations is defined as the net separations from the life table labor force between successive years of age of those in the stationary labor force in the base year. For age 32 and above, the annual probability of labor force separations for persons in the labor force in a given year of age is computed as a ratio of the difference between the stationary labor force in successive years to the labor force in the base year:

$$Q_x^S = \frac{Lw_x - Lw_{x+1}}{Lw_x}$$

Thus, for age 30 in 1950: $1000 Q_x^s = \frac{87,653 - 87,225}{87,653} = \frac{428}{87,653} = 4.9$

For age 14-31, the assumption is that net separations were due entirely to death or $\frac{L_{x+1} - L_x}{L_x}$

(7) Probability of separations due to death (Q_x^d)

(8) Probability of separations due to death (Q_x^r)

In deriving the probabilities of separation due to death or retirement after age 32 it was assumed, in the absence of differential mortality rates separately for workers and nonworkers, that the age-specific death rates for men in the labor force approximated those for the population as a whole. The probability of death is defined as the ratio of the number of separations from the labor force because of death during a year to the number of persons in the stationary labor force at the beginning of the year. On the assumption that retirements are distributed evenly within each year of age, the average person retiring is exposed to death, as a worker, for only half a year. The total number of workers exposed to death during the year would then be the number at the beginning of the year less half those retiring.

Knowing $Q_x = \frac{L_x - L_{x+1}}{L_x}$ and the separation rate $Q_x = \frac{Lw_x - Lw_{x+1}}{Lw_x}$

we solve algebraically to get

$$Q_x^d = \frac{Q_x (2 - Q_x^s)}{2 - Q_x}$$

$$Q_x^r = Q_x^s - Q_x^d$$

(9) Average number of remaining years of life (e_x^o)

The total life expectancy function is identical with that shown in the conventional life tables and is computed by dividing the cumulative man-years of life in the given year and all succeeding years by the number living at the exact year of age (l_x). The population living at exact year of age (l_x) was estimated by linear interpolation from the L_x values, making the assumption of an even distribution of deaths within each year of age.

The formula used is:

$$e_x^o = \frac{\sum_{s=x}^w L_s}{l_x}$$

(10) Average number of remaining years of working life (\bar{ew}_x)

This function for ages 32 and above was similarly derived by dividing the cumulative man-years in the labor force in the given year and all succeeding years, by the number in the labor force at the beginning year of age (lw_x). The labor force at the exact age interval was also estimated by linear interpolation from corresponding LW_x values on the assumption of an even distribution of retirements within each year of age.

The formula used is:

$$\bar{ew} = \frac{\sum_{s=x}^w LW_s}{lw_x}$$

Since work life expectancy has been defined in these tables as the average number of years of working life remaining to a group of persons in the labor force at a given age, a modification of the above formula is needed for ages 14-31, to eliminate the effect of entries into the work force in the following years. For this purpose Lw_x values were estimated by assuming that the same percentage of the population was in the labor force at all ages under 32 as at age 32, and that the labor force at age 32 was smaller than that at age 14 by the number of deaths between these years: ($Lw_{14-31} = L_{14-31} (w_{32})$)

Table of Working Life, Males, 1940

2.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Number living of 100,000 born alive	Accessions to the labor force	Separations from the labor force	Average number of remaining years of:					
Years of age:	In population	Percent of population	Due to all causes	Due to death	Due to retirement	Due to participation			
x to $x + 1$:	L_x	Lw_x	w_x	1000 A_x	1000 Q_x	1000 Q_d	1000 Q_r	e_x	ew_x
	(In year of age)			(Between years of age)				(At beginning of year of age)	
40	84,268	79,849	94.8	-	8.6	6.4	2.2	29.5	23.7
41	83,729	79,162	94.5	-	9.1	6.8	2.3	28.7	22.9
42	83,160	78,442	94.3	-	9.7	7.3	2.4	27.9	22.1
43	82,553	77,681	94.1	-	10.5	7.9	2.6	27.1	21.3
44	81,901	76,865	93.9	-	11.3	8.5	2.8	26.3	20.5
45	81,205	75,996	93.6	-	12.2	9.2	3.0	25.5	19.7
46	80,458	75,069	93.3	-	13.2	9.9	3.3	24.8	18.9
47	79,661	74,078	93.0	-	14.2	10.7	3.5	24.0	18.2
48	78,809	73,026	92.7	-	15.3	11.6	3.7	23.2	17.4
49	77,895	71,909	92.3	-	16.5	12.5	4.0	22.5	16.7
50	76,921	70,723	91.9	-	17.7	13.5	4.2	21.8	15.9
51	75,883	69,471	91.6	-	19.1	14.5	4.6	21.0	15.2
52	74,783	68,144	91.1	-	20.7	15.6	5.1	20.3	14.5
53	73,616	66,733	90.7	-	22.6	16.8	5.8	19.6	13.8
54	72,379	65,225	90.1	-	24.6	17.9	6.7	18.9	13.1
55	71,076	63,620	89.5	-	27.0	19.2	7.8	18.3	12.4
56	69,704	61,902	88.8	-	29.8	20.6	9.2	17.6	11.7
57	68,261	60,057	88.0	-	33.4	22.0	11.4	17.0	11.0
58	66,752	58,051	87.0	-	38.3	23.4	14.9	16.3	10.3
59	65,177	55,828	85.7	-	46.8	25.0	21.8	15.7	9.7
60	63,528	53,215	83.8	-	51.6	26.9	24.7	15.1	9.1
61	61,800	50,469	81.7	-	58.6	28.9	29.7	14.5	8.6
62	59,989	47,512	79.2	-	68.2	30.9	37.3	13.9	8.0
63	58,099	44,272	76.2	-	80.6	33.1	47.5	13.3	7.5
64	56,129	40,704	72.5	-	105.1	35.2	69.9	12.7	7.1

Table of Working Life, Males, 1940

3.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
: Number living of 100,000 born alive: Accessions to : Separations from the labor force: Average number of remaining									
Years of age:	In	In labor force	the labor force	(per 1,000 in	Due to all:	Due to :	Due to :	Due to :	Labor force
: population:	Number :	population :	causes :	death :	retirement:	Life :	participation		
: L_x :	L_x :	$1000 A_x$:	$1000 Q_x^s$:	$1000 Q_x^d$:	$1000 Q_x^r$:	e_x :	e_x :	e_x :	e_x :
x to $x+1$:	(In year of age)	(Between years of age)	(At beginning of year of age)						
65	54,080	36,426	67.4	-	111.8	37.8	74.0	12.2	6.8
66	51,955	32,354	62.3	-	115.9	40.7	75.2	11.6	6.5
67	49,757	28,604	57.5	-	119.8	43.8	76.0	11.1	6.3
68	47,493	25,177	53.0	-	123.9	47.0	76.9	10.6	6.1
69	45,171	22,058	48.8	-	128.8	50.3	78.5	10.1	5.8
70	42,804	19,217	44.9	-	133.5	54.2	79.3	9.6	5.6
71	40,390	16,652	41.2	-	138.8	58.1	80.7	9.1	5.4
72	37,946	14,341	37.8	-	144.7	62.5	82.2	8.6	5.2
73	35,472	12,266	34.6	-	151.3	67.5	83.8	8.2	4.9
74	32,971	10,410	31.6	-	158.7	73.3	85.4	7.7	4.7
75	30,445	8,758	28.8	-	166.9	79.8	87.1	7.3	4.5
76	27,906	7,296	26.1	-	175.9	86.9	89.0	6.9	4.3
77	25,369	6,013	23.7	-	185.7	94.6	91.1	6.5	4.1
78	22,855	4,896	21.4	-	196.3	102.8	93.5	6.1	3.8
79	20,391	3,935	19.3	-	207.7	111.4	96.3	5.8	3.6
80	18,005	3,118	17.3	-	219.9	120.4	99.5	5.5	3.5
81	15,724	2,432	15.5	-	232.9	129.8	103.1	5.2	3.3
82	13,571	1,866	13.7	-	246.7	139.7	107.0	4.9	3.1
83	11,568	1,406	12.2	-	261.3	149.9	111.4	4.6	2.9
84	9,732	1,039	10.7	-	276.7	160.3	116.4	4.3	2.7
85 years and over	36,276	2,304	6.4	-	-	-	-	4.1	2.6

Table of Working Life, Males, 1950

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Number living of 100,000 born alive	Accessions to the labor force	Separations from the labor force	Average number of remaining years of:					
Year of age:	In	In labor force	(per 1,000 in labor force)	Due to all	Due to death	retirement	Life	participation	
x to x + 1	L _x	Number : population	1000 A _x	1000 Q _x ^s	1000 Q _x ^d	1000 Q _x ^r	o _x	e _x	ew _x
	(In year of age)		(Between years of age)						(At beginning of year of age)
14	95,411	19,273	20.2	59.9	1.0	1.0	-	54.5	48.7
15	95,313	24,972	26.2	108.9	1.2	1.2	-	53.6	47.8
16	95,198	35,318	37.1	136.8	1.4	1.4	-	52.6	46.8
17	95,069	48,295	50.8	193.7	1.5	1.5	-	51.7	45.9
18	94,928	66,639	70.2	135.8	1.6	1.6	-	50.8	45.0
19	94,774	78,473	82.8	22.9	1.7	1.7	-	49.8	44.0
20	94,610	80,513	85.1	20.9	1.8	1.8	-	48.9	43.1
21	94,436	82,348	87.2	18.9	1.9	1.9	-	48.0	42.2
22	94,255	83,981	89.1	17.0	2.0	2.0	-	47.1	41.3
23	94,070	85,416	90.8	15.0	2.0	2.0	-	46.2	40.3
24	93,884	86,655	92.3	13.0	2.0	2.0	-	45.3	39.4
25	93,699	87,702	93.6	11.0	2.0	2.0	-	44.4	38.5
26	93,516	88,560	94.7	9.0	2.0	2.0	-	43.4	37.6
27	93,332	89,225	95.6	7.0	2.0	2.0	-	42.5	36.6
28	93,148	89,702	96.3	5.0	2.1	2.1	-	41.6	35.7
29	92,957	89,982	96.8	2.0	2.1	2.1	-	40.7	34.8
30	92,762	89,979	97.0	1.0	2.2	2.2	-	39.8	33.9
31	92,558	89,874	97.1	-	2.3	2.3	-	38.9	32.9
32	92,347	89,669	97.1	-	2.5	2.4	1.0	38.0	32.0
33	92,121	89,449	97.1	-	3.6	2.6	1.0	37.0	31.1
34	91,883	89,127	97.0	-	3.8	2.8	1.0	36.1	30.2
35	91,628	88,788	96.9	-	4.0	3.0	1.0	35.2	29.3
36	91,355	88,432	96.8	-	4.3	3.2	1.1	34.3	28.4
37	91,059	88,054	96.7	-	4.6	3.5	1.1	33.4	27.5
38	90,738	87,653	96.6	-	4.9	3.8	1.1	32.6	26.6
39	90,389	87,225	96.5	-	5.2	4.2	1.0	31.7	25.8

Table of Working Life, Males, 1950

2.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Number living of 100,000 born alive	Accessions to the labor force	Separations from the labor force	Average number of remaining years of age	Due to all	Due to death	Due to retirement	Life expectancy	Participation
Year of age	Population	Number	Population	Population	Causes	Death	Retirement	Life expectancy	Participation
x to x + 1	L_x	L^w_x	w_x	$1000 A_x$	$1000 Q^s_x$	$1000 Q^d_x$	$1000 Q^r_x$	e_x	e^w_x
	(In year of age)				(Between years of age)			(At beginning of year of age)	
40	90,009	86,769	96.4	-	5.7	4.6	1.1	30.8	24.9
41	89,593	86,278	96.3	-	6.1	5.1	1.0	29.9	24.0
42	89,140	85,753	96.2	-	6.6	5.6	1.0	29.1	23.2
43	88,644	85,187	96.1	-	7.1	6.1	1.0	28.2	22.3
44	88,102	84,578	96.0	-	7.7	6.7	1.0	27.4	21.4
45	87,511	83,928	95.9	-	9.5	7.3	2.2	26.6	20.6
46	86,868	83,133	95.7	-	10.2	8.1	2.1	25.7	19.8
47	86,167	82,289	95.5	-	10.9	8.8	2.1	24.9	19.0
48	85,408	81,394	95.3	-	12.8	9.6	3.2	24.1	18.2
49	84,585	80,356	95.0	-	14.7	10.5	4.2	23.4	17.4
50	83,697	79,177	94.6	-	15.6	11.4	4.2	22.6	16.6
51	82,739	77,940	94.2	-	17.7	12.5	5.2	21.8	15.9
52	81,708	76,560	93.7	-	19.9	13.6	6.3	21.1	15.1
53	80,596	75,035	93.1	-	22.2	14.7	7.5	20.4	14.4
54	79,400	73,366	92.4	-	24.7	16.1	8.6	19.6	13.7
55	78,117	71,555	91.6	-	27.2	17.5	9.7	19.0	13.0
56	76,744	69,607	90.7	-	28.8	19.0	9.8	18.3	12.3
57	75,280	67,601	89.7	-	31.5	20.5	11.0	17.6	11.7
58	73,728	65,470	88.6	-	34.4	22.2	12.2	17.0	11.0
59	72,087	63,220	87.4	-	43.9	23.7	20.2	16.3	10.4
60	70,363	60,442	85.9	-	46.2	25.5	20.7	15.7	9.8
61	68,551	57,651	84.1	-	51.9	27.4	24.5	15.1	9.2
62	66,655	54,657	82.0	-	58.1	29.3	28.8	14.5	8.7
63	64,674	51,480	79.6	-	65.9	31.2	34.7	13.9	8.2
64	62,615	48,088	76.8	-	115.9	32.7	83.2	13.3	7.7

Table of Working Life, Males, 1955

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Number living of 100,000 born alive	Accessions to the labor force	Separations from the labor force	Average number of remaining years of					
Years of age	In : population	In labor force	Per cent of : population	the labor force	(per 1,000 in labor force)	Due to : Death	Due to : Retirement	Life : participation	years of : Labor force
x to x + 1 :	L_x :	L_{x+1} :	V_x :	1000 A_x :	1000 Q_x^s :	1000 Q_x^d :	1000 Q_x^r :	e_x :	e_{w_x} :
	(In year of age)				(Between years of age)			(At beginning of year of age)	
14	96,025	16,132	16.8	56.9	.9	.9	-	55.1	48.6
15	95,936	21,586	22.5	131.9	1.1	1.1	-	54.2	47.7
16	95,832	34,212	35.7	141.8	1.3	1.3	-	53.2	46.7
17	95,712	47,760	49.9	181.7	1.4	1.4	-	52.3	45.8
18	95,577	65,088	68.1	111.8	1.6	1.6	-	51.3	44.8
19	95,428	75,674	79.3	49.9	1.7	1.7	-	50.4	43.9
20	95,264	80,308	84.3	28.0	1.9	1.9	-	49.5	43.0
21	95,086	82,820	87.1	20.0	2.0	2.0	-	48.6	42.0
22	94,898	84,554	89.1	19.0	2.1	2.1	-	47.7	41.1
23	94,703	86,180	91.0	15.9	2.0	2.0	-	46.8	40.2
24	94,512	87,518	92.6	14.0	2.0	2.0	-	45.9	39.3
25	94,326	88,666	94.0	10.0	1.9	1.9	-	45.0	38.4
26	94,144	89,437	95.0	8.0	1.9	1.9	-	44.0	37.4
27	93,967	90,020	95.8	7.0	1.9	1.9	-	43.1	36.5
28	93,790	90,507	96.5	5.0	1.9	1.9	-	42.2	35.6
29	93,613	90,805	97.0	3.0	1.9	1.9	-	41.3	34.6
30	93,434	90,911	97.3	1.0	1.9	1.9	-	40.4	33.7
31	93,253	90,828	97.4	-	2.0	2.0	-	39.4	32.8
32	93,065	90,645	97.4	-	2.1	2.1	-	38.5	31.8
33	92,868	90,453	97.4	-	2.3	2.3	-	37.6	30.9
34	92,654	90,338	97.5	-	3.6	2.5	1.1	36.7	30.0
35	92,419	90,016	97.4	-	3.8	2.8	1.0	35.8	29.1
36	92,164	89,676	97.3	-	4.0	3.0	1.0	34.9	28.2
37	91,886	89,313	97.2	-	4.3	3.3	1.0	34.0	27.3
38	91,595	88,929	97.1	-	4.6	3.5	1.1	33.1	26.4
39	91,261	88,523	97.0	-	4.8	3.8	1.0	32.2	25.5

Table of Working Life, Males, 1955

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Number living of 100,000 born alive	Accessions to labor force	Separations from the labor force	Average number of remaining					
Year of age:	In	In labor force	Percent of population	Due to all causes	Due to death	Due to retirement	Due to labor force		
x to x + 1	L _x	L _x	w _x	1000 A _x	1000 Q _x	1000 Q _d	1000 Q _r	e _x	e _w
	(In year of age)				(Between years of age)			(At beginning of year of age)	
10	90,912	88,094	96.9	-	5.2	4.1	1.1	31.3	24.6
11	90,536	87,639	96.8	-	5.5	4.5	1.0	30.4	23.7
12	90,128	87,154	96.7	-	6.0	4.9	1.1	29.6	22.9
13	89,682	86,633	96.6	-	6.5	5.5	1.0	28.7	22.0
14	89,190	86,068	96.5	-	7.1	6.1	1.0	27.8	21.1
15	88,649	85,458	96.4	-	7.8	6.7	1.1	27.0	20.3
16	88,053	84,795	96.3	-	8.4	7.4	1.0	26.2	19.4
17	87,402	84,081	96.2	-	10.2	8.2	2.0	25.3	18.6
18	86,689	83,221	96.0	-	12.1	9.0	3.0	24.5	17.7
19	85,911	82,217	95.7	-	14.0	9.9	4.1	23.8	16.9
20	85,063	81,065	95.3	-	16.0	10.8	5.2	23.0	16.2
21	84,142	79,767	94.8	-	18.1	11.6	6.3	22.2	15.4
22	83,146	78,324	94.2	-	20.2	12.9	7.3	21.5	14.6
23	82,075	76,740	93.5	-	22.4	13.9	8.5	20.7	13.9
24	80,928	75,020	92.7	-	24.7	15.0	9.7	20.0	13.2
25	79,704	73,168	91.8	-	26.0	16.2	9.8	19.3	12.5
26	78,401	71,266	90.9	-	28.5	17.6	10.9	18.6	11.8
27	77,012	69,234	89.9	-	31.2	19.1	12.1	17.9	11.1
28	75,531	67,072	88.8	-	34.1	20.8	13.3	17.2	10.5
29	73,953	64,782	87.6	-	36.1	22.5	13.6	16.6	9.8
30	72,273	62,444	86.4	-	44.9	24.3	20.6	15.9	9.2
31	70,494	59,638	84.6	-	53.2	26.3	26.9	15.3	8.5
32	68,611	56,467	82.3	-	62.1	28.6	33.5	14.7	7.9
33	66,617	52,961	79.5	-	75.6	31.0	44.6	14.1	7.4
34	64,503	48,958	75.9	-	146.6	32.7	113.9	13.5	6.9

Table of Working Life, Males, 1955

3.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	: Number living of 100,000 born alive:		Accessions to		Separations from the labor force:		Average number of remaining		
	: In labor force		: the labor force:		(per 1,000 in labor force)		: years of:		
Year of age:	In	:	Percent of	:	Due to all:	Due to	:	:	Labor force
	population:	Number	population	:	causes	death	:	retirement:	Life
	:	L _x	:	1000 A _x ^s	:	1000 Q _x ^d	:	1000 Q _x ^r	0 e _x
x to x + 1	:	Lw _x	:	w _x	:	1000 Q _x ^d	:	1000 Q _x ^r	0 e _x
	: (In year of age)		: (Between years of age)		: (At beginning of year of age)		: (At beginning of year of age)		
65	62,267	41,781	67.1	-	118.1	36.3	81.8	13.0	6.6
66	59,913	36,846	61.5	-	120.5	39.3	81.2	12.4	6.6
67	57,457	32,406	56.4	-	123.6	42.2	81.4	11.9	6.4
68	54,930	28,399	51.7	-	126.1	44.9	81.2	11.4	6.3
69	52,358	24,818	47.4	-	127.8	47.6	80.2	10.9	6.1
70	49,762	21,646	43.5	-	128.7	50.4	78.3	10.5	5.9
71	47,150	18,860	40.0	-	131.3	53.5	77.8	10.0	5.7
72	44,522	16,384	36.8	-	136.2	57.1	79.1	9.5	5.5
73	41,872	14,153	33.8	-	141.5	61.4	80.1	9.1	5.3
74	39,193	12,150	31.0	-	147.1	66.2	80.9	8.7	5.0
75	36,489	10,363	28.4	-	152.7	71.4	81.3	8.2	4.8
76	33,773	8,781	26.0	-	161.7	77.0	84.7	7.8	4.6
77	31,059	7,361	23.7	-	171.6	82.9	88.7	7.5	4.3
78	28,365	6,098	21.5	-	182.0	89.3	92.7	7.1	4.1
79	25,709	4,988	19.4	-	194.1	96.3	97.8	6.7	3.9
80	23,104	4,020	17.4	-	207.2	104.4	102.8	6.4	3.7
81	20,560	3,187	15.5	-	221.8	113.1	108.7	6.1	3.5
82	18,102	2,480	13.7	-	231.0	122.5	108.5	5.8	3.3
83	15,758	1,907	12.1	-	245.9	131.4	114.5	5.6	3.1
84	13,562	1,438	10.6	-	262.9	141.4	121.5	5.4	3.0
85 years and over	65,518	3,563	5.4	-	-	-	-	5.2	2.9

Stationary female population, labor force participation rates,
and labor force, by marital status, 1950 and 1940

Year of age	All women		Single		Married, hus- band present		Other marital status	
	1950	1940	1950	1940	1950	1940	1950	1940
Stationary population								
15	96,401	93,944	94,473	92,723	1,490	1,068	438	153
20	96,021	93,204	47,530	59,371	44,030	30,788	4,461	3,045
25	95,529	92,214	15,571	26,097	73,082	60,497	6,876	5,620
30	94,923	91,055	9,018	14,933	78,345	68,890	7,560	7,232
35	94,111	89,655	7,811	10,759	77,584	69,744	8,716	9,152
40	92,963	87,893	7,437	8,789	74,835	68,950	10,691	11,154
45	91,264	85,590	7,301	7,703	70,529	64,802	13,434	13,085
50	88,783	82,466	7,103	7,010	64,936	59,610	16,744	15,846
55	85,280	78,213	6,822	6,335	57,902	52,615	20,556	19,263
60	80,298	72,421	6,424	5,866	49,200	43,793	24,674	22,762
Labor force participation rates								
15	6.4	3.1	6.3	3.1	10.5	0.8	20.8	10.0
20	46.9	47.8	66.0	64.8	25.6	14.7	46.0	51.0
25	35.5	38.6	79.5	79.7	23.5	18.7	56.8	62.0
30	30.6	32.2	79.3	78.8	22.0	18.5	61.2	66.1
35	32.4	29.2	76.6	76.2	24.4	17.0	64.4	66.5
40	35.9	26.7	75.8	73.0	27.6	15.0	66.3	61.8
45	35.7	24.3	74.0	68.6	26.6	12.8	61.8	55.3
50	32.4	22.1	69.9	62.9	22.5	10.8	54.9	46.5
55	27.5	19.5	63.8	56.0	16.0	8.8	47.3	36.8
60	22.4	16.6	55.2	45.7	10.2	7.6	37.1	26.5
Stationary labor force								
15	6,170	2,912	5,923	2,888	156	9	91	15
20	45,034	44,552	31,687	38,462	11,283	4,537	2,052	1,553
25	33,928	35,573	13,139	20,799	16,883	11,333	3,906	3,484
30	29,046	29,320	7,076	11,767	17,365	12,717	4,627	4,783
35	30,492	26,179	5,911	8,198	18,896	11,894	5,613	6,087
40	33,374	23,467	5,637	6,416	20,654	10,158	7,088	6,893
45	32,581	20,798	5,403	5,284	18,761	8,278	8,302	7,236
50	28,766	18,225	4,965	4,409	14,611	6,448	9,192	7,368
55	23,452	15,252	4,352	3,548	9,264	4,615	9,723	7,089
60	17,987	12,022	3,546	2,681	5,030	3,309	9,154	6,032

NOTE.--Basic data from U. S. Bureau of the Census and National Office of Vital Statistics.

**Stationary population, labor force, participation rates,
and labor force for ever-married women, by presence
of children, 1950 and 1940**

Year : of age :	Ever-married women		Never mother		With children under 5 years		With children 5 years and over	
	1950	1940	1950	1940	1950	1940	1950	1940

Stationary population

15	1,928	1,221	1,639	1,033	270	181	19*	7*
20	48,491	33,833	20,069	16,123	26,922	16,747	1,500	932
25	79,958	66,117	19,966	22,408	49,174	35,108	1,818	8,576
30	85,905	76,122	12,814	20,032	49,481	32,656	23,610	23,401
35	86,300	78,896	11,011	17,123	34,520	22,722	40,769	39,090
40	85,526	79,104	11,156	14,594	19,585	13,131	54,785	51,417
45	83,963	77,887	10,952	13,355	7,053	5,296	65,958	59,228
50	81,680	75,456	10,654	13,189	817	-	70,209	62,262
55	78,458	71,878	10,234	12,818	-	-	68,224	59,051
60	73,874	66,555	9,636	11,887	-	-	64,238	54,678

Labor force participation rates

15	12.8	2.0	14.1	1.9	5.6	2.2	5.3	-
20	27.5	18.0	51.5	28.2	12.8	6.8	36.6	41.8
25	26.0	22.4	54.0	39.7	12.6	8.7	36.6	33.4
30	25.6	23.1	52.3	42.1	11.3	7.9	32.8	27.7
35	28.4	22.8	48.9	41.6	11.2	7.3	32.7	23.5
40	32.4	21.6	46.2	40.4	12.0	6.8	32.5	20.0
45	32.4	19.9	42.0	38.5	13.7	6.5	29.8	16.9
50	29.1	18.3	36.2	36.7	-	-	26.4	14.4
55	24.3	16.3	30.0	34.2	-	-	22.6	12.4
60	19.5	14.0	23.8	30.6	-	-	18.3	10.4

Stationary labor force

15	247	24	231	20	15	4	1*	-
20	13,347	6,090	9,637	4,554	3,203	1,146	507	390
25	20,789	14,817	10,706	8,906	6,154	3,049	3,929	2,862
30	21,970	17,500	7,338	8,437	6,130	2,575	8,502	6,488
35	24,509	17,981	5,833	7,123	4,191	1,658	14,485	9,200
40	27,737	17,051	5,658	5,900	2,580	887	19,499	10,264
45	27,178	15,514	4,946	5,138	1,033	344	21,199	10,032
50	23,801	13,816	4,094	4,837	-	-	19,707	8,979
55	19,100	11,704	3,171	4,378	-	-	15,929	7,326
60	14,441	9,341	2,354	3,637	-	-	12,087	5,704

* The estimates shown for women aged 15 with children over 5 are overstated because of the method of computation. See tables of Working Life for Women, 1950, Monthly Labor Review, June 1956, table 1, footnote 1 (p. 654).

NOTE.--Basic data from U. S. Bureau of the Census and National Office of Vital Statistics.

Average remaining lifetime for all women and average number of
years of work remaining, at specified ages,
by marital status, 1950 and 1940

Year of: age	Average remaining lifetime for all women (in years)*		Average number of years of work remaining							
			All women		Single women		Ever married		Other marital status	
	1950	1940	1950	1940	1950	1940	1950	1940	1950	1940
15	58.5	55.0	15.8	12.9	16.0	13.0	13.2	8.8	25.6	23.1
20	53.7	50.4	14.5	11.9	15.1	14.0	12.2	8.5	24.1	22.0
25	49.0	45.9	12.4	9.7	18.3	15.2	10.9	7.5	21.7	19.4
30	44.3	41.4	10.9	8.1	21.6	15.9	9.7	6.5	18.9	16.4
35	39.6	37.0	9.4	6.6	20.6	15.3	8.4	5.4	15.9	13.3
40	35.1	32.7	7.8	5.3	17.6	13.5	7.0	4.4	12.8	10.3
45	30.6	28.5	6.1	4.2	14.1	11.2	5.4	3.5	9.7	7.5
50	26.4	24.4	4.5	3.1	10.8	8.6	4.0	2.6	7.0	5.2
55	22.3	20.5	3.2	2.2	7.8	6.3	2.8	1.9	4.6	3.3
60	18.5	16.9	2.0	1.4	5.1	4.0	1.8	1.2	2.6	1.8

* Data are for all women; similar figures are not available for working women.

NOTE.--Basic data from U. S. Bureau of the Census and National Office of Vital Statistics.

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- (1) Changes in the expectation of life are described in continuing reports from the National office of Vital Statistics, U. S. Department of Health, Education and Welfare.
- (2) Mortara, Georgio "La Durata Media Della Vita" Rivista Italiano Di Sociologia, Anno XII, Fasc. IV-V-Luglio-Ottobre 1908.
- (3) Rio de Janeiro, Servico Grafico do Instituto Brasileiro de Geografia E Estatistica, 1951 Cf. also "A Duracao Media Da Vida Economicamenti Ativa," Revista Brasileira de Estatistica, Ano. XV, No. 58, 1954.
- (4) Cf e.g. Pierre Naville, "La Vie de Travail et Ses Problemes" Paris, Libraire Armand Colin, 1954; John D. Durand "The Labor Force in the United States, 1890-1960" New York, Social Science Research Council, 1948.
- (5) First published in Wolfbein, Seymour L. "The Length of Working Life" in Population Studies, December 1949 (Printed in Great Britain). A detailed exposition of the substance and techniques of this work was presented in Tables of Working Life, Bulletin No. 1001 of the Bureau of Labor Statistics (Aug. 1950). Cf. also S. L. Wolfbein, "The Changing Length of Working Life" in Proceedings of the Seventh Annual Meeting, Industrial Relations Research Association, Dec. 1954. The Tables of Working Life for women were constructed by S. H. Garfinkle of the Bureau of Labor Statistics and are described in detail in the Monthly Labor Review for June, August and October 1956.
- (6) Cf. Spiegelman, Mortimer "The Versatility of the Life Table." American Journal of Public Health, Vol. 47, No. 3, March 1957.
- (7) Cf. e.g. New Zealand: Table of Working Life, 1951. Male Population (including Maoris) Census and Statistics Department, Wellington, New Zealand, 1955.
- (8) Based on data from U. S. Bureau of the Census.
- (9) The subject of occupational choice has received very wide attention in the U. S. A., especially in recent years, generated in good part by the publication of the excellent volume by Eli Ginzberg and associates on Occupational Choice: An Approach to a General Theory (N. Y. Columbia University Press, 1951). Choice, especially as related to work, has also received much attention in other Nations, cf. e.g. Pierre Naville, op. cit. p.
- (10) Cf. e.g. ⁵⁷⁻³²³⁸The Economic Statistics of the Aged by P. O. Steiner and R. Dorfman, 1957, University of California Press.
- (11) The outlook for the next decade is described in charts and text in "Our Manpower Future 1955-65" U. S. Department of Labor. 1956. The implications of these trends are described in some detail in the School Review, Spring 1957 issue (published by University of Chicago Press) by S. L. Wolfbein "The Creative Manpower Shortage in the United States" and H. E. Wilson "Educational Implications of the Nation's Manpower Needs."