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EQUIVALENT RETIREMENT AGES: 1940-2050

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Purpose

Much interest has arisen recently as to whether the normal retirement age for Social Security (which has been 65 since benefits were first paid in 1940) should be increased. Both the 1975 and 1979 quadrennial Advisory Councils on Social Security recommended in their reports that serious consideration be given to enacting a gradual increase in the normal retirement age after the turn of the century. In its report of February 1981, the President's Commission on Pension Policy recommended that "to help solve the long-run financing problem, an increase in the normal retirement age to 68 should be phased in over a twelve-year period beginning in the year 1990." The National Commission on Social Security, which also recommended an increase in the retirement age to 68 in its report issued in March 1981, noted that "sixty-five has become ingrained in people's expectations . . . . It is very possible that, as workers draw close to 65, they begin to feel the need to stop working full time, quite apart from the effect of the aging process itself." The significant gain made in life expectancy at birth since 1940 (roughly 10 years) may lend support to the idea that people may have outgrown any physical need for retirement at age 65 which may have existed in earlier years.

Although some persons and organizations believe that an increase in the retirement age should be made, no basis for deciding exactly how much that increase should be has yet been agreed upon as equitable. Many people would view it unfair to expect that all the extra years of life expectancy gained since 1940 should be spent working. But it might also be unreasonable to expect that all those extra years should be spent in leisure. Some method of measuring equivalent retirement ages based on improvements in mortality through time could be developed which will be equitable to future retirees relative to past or present retirees. In this note we consider four different measures of equivalent retirement ages based on life table values. Each of these measures addresses the question of what is equitable from a slightly different perspective.

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Data

Annual tabulations of numbers of deaths by age and sex are published by the National Center for Health Statistics, based on information from all death records received by the Center. Annual estimates of the U.S. resident population by age and sex are published by the Bureau of the Census based on decennial census counts. Death rates calculated by comparing numbers of deaths tabulated by the National Center for Health Statistics with the population estimated by the Bureau of the Census are subject to errors of noncomparability of numerator and denominator. Although efforts are made to minimize these errors (by excluding armed forces stationed overseas from the population estimates, for example), complete comparability cannot be achieved.

Errors of noncomparability may be eliminated if the numbers of deaths and the population are drawn from the same source. This approach, however, generally involves so large a reduction in the size of the population being observed that more random error is introduced than noncomparability error is eliminated. One source of data on aged persons which is not subject to errors of noncomparability and yet does permit a very large number of observations is the Social Security Medicare program, which includes roughly 99 percent of the persons aged 65 or over represented in the vital statistics data.

In this note, composite National Center for Health Statistics/Bureau of the Census data by sex were used for ages 0 to 64, while Medicare data by sex were used for ages 65 and over. (For years prior to the inception of the Medicare program, death rates for those aged 65 or over were developed by retrospective application of vital statistics trends to Medicare data for 1968.) Future improvements in mortality were assumed to be as projected for the intermediate set of assumptions appearing in the 1981 Report of the Board of Trustees of the OASDI Trust Funds. This set of assumptions incorporates an annual rate of improvement in mortality to the year 2055 of about half that observed since 1900 to date.

A life table provides a convenient tool for comparing the mortality characteristics of different populations. Such tables for the United States are published by the National Center for Health Statistics in conjunction with each decennial census. Some of the value of these tables as indicators of changes in mortality through time, however, is lost because of changes in the methods used to construct the tables. Although, in general, this is not a serious problem, we believe that the sensitivity required by this note was great enough to warrant constructing all the life tables to be used by a consistent method. The method which we used to construct life tables from mortality data was similar to that used for the 1959-61 decennial life tables, with some modifications at the very young ages and the very old ages.

Measures of Equivalence

There are three major questions which must be answered when selecting a method of measuring equivalent retirement ages:

(1) What characteristic or combination of characteristics about a person's life should be used to determine equivalence? For example, equivalence could be based on the average number of years spent in retirement, the average total amount of benefits received (perhaps discounted by interest), the average ratio of total benefits received to total taxes paid, etc.

(2) At which point in a person's life should the measurement of equivalence be made? Two obvious choices would be measuring at the time of entry into the labor force or measuring at the time of retirement (which implicitly excludes the experience of all persons who do not survive to reach retirement). Another interesting choice might be measuring at birth.

(3) What base year should be selected as a standard against which to measure equivalence? One might choose to measure equivalence relative to the situation that existed when the program first paid monthly benefits in 1940. One could also measure equivalence relative to the situation as it presently exists, or else as it existed in some past year since 1940.

In addressing the first question, we believe that a good characteristic for measuring equivalence should not be directly related to provisions of the program, other than the retirement age itself. A characteristic which is dependent upon other provisions of the program (such as benefit levels or tax rates) may overcompensate in determining equivalence. That is, the resulting measure of equivalence may determine a retirement age which offsets certain intentional changes in the program. We believe that, throughout the history of the Social Security program, the various changes in benefit structure and financing that have been enacted have not been intended to be substitutes for changes in the normal retirement age. Even when retirement benefits first became available at age 62 in 1956 for women and in 1961 for men, the concept was to provide reduced benefits for early retirement, and not to establish an adjusted benefit structure for a new normal retirement age.

As one characteristic used to measure equivalence in this note, we have selected the expected number of years spent in retirement based on mortality rates observed in the calendar year for which equivalence is being determined. This characteristic is presented as a "limiting case", because it assumes that all the adult years of life added by improvements in mortality should be spent in the labor force. Another characteristic used to measure equivalence in this note is the ratio of the expected number of years spent in retirement to the expected number of years spent in the labor force. We believe that a measure based on this characteristic equitably distributes gains in life expectancy into working years and retirement years.

In addressing the second question, we believe that the best point at which to measure equivalence is at entry into the labor force. We prefer measurement at entry into the labor force over measurement at retirement, because the experience of persons who do not survive to reach retirement (which is ignored when measuring at retirement) seems an important consideration in deciding what is equitable between generations. Because measurement at retirement is also a viable approach, however, we have also included it. We have not included measurement at birth, because we believe that the childhood years are not relevant in establishing retirement policy.

In addressing the third question, we believe that the best base year for measurement is 1940 (the year when monthly benefits were first paid). This approach recognizes that a specific decision to set the retirement age at 65 was made when the program started. Since then, improvements in mortality combined with the invariant retirement age have caused the "effective" retirement age to drift steadily lower. The following table summarizes in terms of life table functions the four measures of equivalence considered in this note.

	Characteristic of Measurement	
Point of Measurement	Retirement Expectancy	Ratio of Retirement Expectancy to Total Work Expectancy
Retirement (age r)	$A = \mathring{e}_r$	$C = \frac{C_r}{r-20}$
Entry into labor force (assumed to be age 20)	$B = \frac{\ell_r}{\ell_{20}} \mathring{e}_r$	$D = \frac{\frac{\ell_r}{\ell_{20}} \mathring{e}_r}{C_{20} - \frac{\ell_r}{\ell_{20}} C_r}$

Measure A defines the equivalent retirement age for a given year to be that age at which the retirement expectancy (the expected number of years spent in retirement) at time of retirement is equal to that for age-65 retirement in the base year. Under measure A, a retirement age in 1980 of 71 years and 0 months would be equivalent to age-65 retirement in 1940. Assuming mortality improvement as in the intermediate set of assumptions for the 1981 Trustees Report, a similarly equivalent retirement age in 2000 would be 74 years and 1 month. Assuming a base year of 1980 instead of 1940, an equivalent retirement age in 2000 would be 67 years and 11 months. This means that, according to measure A, a proposal to increase the normal retirement age to 68 in the year 2000, could be viewed as a correction for future expected drift in the effective retirement age and an acceptance (i.e., not taking account) of the drift that has already occurred. Table 1A gives equivalent retirement ages under measure A for various calendar years and various base years of measurement.

Measure B defines the equivalent retirement age for a given year to be that age at which the retirement expectancy when measured at entry into the labor force (assumed to be age 20) is equal to that for age-65 retirement in the base year. The results under this measure are very similar to those under measure A. Assuming a base year of 1940, equivalent retirement ages in 1980 and 2000 are 71 years and 4 months, and 74 years and 3 months, respectively. Assuming a base year of 1980, an equivalent retirement age in 2000 is 67 years and 11 months. Table 1B gives equivalent retirement ages under measure B for various calendar years and various base years of measurement.

Measure C defines the equivalent retirement age for a given year to be that age at which the ratio of the retirement expectancy to the total past work expectancy (the total number of years spent between age 20 and retirement) as measured at time of retirement is equal to that for age-65 retirement in the base year. Under measure C, a retirement age equivalent to age-65 retirement in 1940 would be 69 years and 1 month in 1980, and 71 years and 1 month in 2000. A retirement age equivalent to age 65 retirement in 1980 would be 66 years and 11 months in 2000. Table 1C gives equivalent retirement ages under measure C for various calendar years and various base years of measurement.

Measure D defines the equivalent retirement age for a given year to be that age at which the ratio of the retirement expectancy to the total work expectancy at entry into the labor force when measured at that time is equal to that for age-65 retirement in the base year. Assuming a base year of 1940, equivalent retirement ages in 1980 and 2000 are 69 years and 7 months, and 71 years and 10 months, respectively. Assuming a base year of 1980, an equivalent retirement age in 2000 is 67 years and 1 month. Table 1D gives equivalent retirement ages under measure D for various calendar years and various base years of measurement.

Conclusions

Table 2 summarizes Tables 1A, 1B, 1C, and 1D for base years 1940 and 1980. Measures B, C, and D depend upon age at entry into the labor force. For simplicity, we assumed this age to be 20 and to be constant through time. If we had incorporated a slightly increasing age at entry into the labor force (as has been generally observed), the resulting equivalent retirement ages would have been somewhat higher than those shown in Table 2. Under any of the four measures of equivalence, a retirement age in 1980 equivalent to age-65 retirement in 1940 is more than 69 years. Under any of the four measures of equivalence, a retirement age in 2000 equivalent to age-65 retirement in 1940 is more than 71 years.

The measures of equivalence considered in this note take into account mortality, but do not take into account morbidity. That is, they adjust for the expected length of life spent in retirement, but they ignore the question of whether that life is spent in a more or less healthy condition. One reason for ignoring that question in this note is that morbidity is

much more difficult to quantify than is mortality. For example, increased use of health care facilities can mean alternatively: (1) people are less healthy and use the facilities because they need treatment; (2) people are equally healthy, but use the facilities because of the availability of insurance benefits and government assistance; (3) people are more healthy and use the facilities to maintain their better health; and (4) any combination of the above. Another reason for ignoring morbidity is that we believe that mortality and morbidity are correlated. That is, when mortality improves, morbidity also tends to improve.

It is sometimes argued that not every group of workers in our nation experiences the average mortality and that, for many of them, an increase in the retirement age would involve a significant additional burden. We doubt that the mortality trends for the various subgroups of the aged population have been or could be expected to be significantly different from the mortality trends for the aged population in general. Thus, we believe that changes in the retirement age based on trends in mortality would tend to treat subgroups of the aged population uniformly.

Table 1A. Retirement Ages Equivalent to Age-65 Retirement for Selected Base Years, Measured as Retirement Expectancy at Retirement

(in years:months)

Calendar Year	Base Year of Age-65 Retirement				
	1940	1950	1960	1970	1980
1940	65:00				
1945	66:05				
1950	67:02	65:00			
1955	67:10	65:08			
1960	67:11	65:09	65:00		
1965	68:03	66:01	65:05		
1970	69:00	66:09	66:00	65:00	
1975	70:01	67:11	67:02	66:02	
1980*	71:00	68:09	68:00	67:00	65:00
1985*	72:00	69:09	69:01	68:00	66:00
1990*	73:00	70:09	70:00	68:11	66:11
1995*	73:08	71:05	70:08	69:07	67:07
2000*	74:01	71:09	71:00	70:00	67:11
2025*	75:06	73:02	72:05	71:04	69:03
2050*	76:11	74:06	73:09	72:08	70:07

*Based on the intermediate mortality assumptions described in the 1981 Report of the Board of Trustees of the OASDI Trust Funds.

Table 1B. Retirement Ages Equivalent to Age-65 Retirement for Selected Base Years, Measured as Retirement Expectancy at Entry into the Labor Force*

(in years:months)

Calendar Year	Base Year of Age-65 Retirement				
	1940	1950	1960	1970	1980
1940	65:00				
1945	66:04				
1950	67:06	65:00			
1955	68:05	65:11			
1960	68:05	65:11	65:00		
1965	68:08	66:03	65:03		
1970	69:02	66:09	65:09	65:00	
1975	70:05	67:11	67:00	66:03	
1980**	71:04	68:10	67:11	67:02	65:00
1985**	72:04	69:10	68:11	68:02	66:00
1990**	73:03	70:09	69:10	69:01	66:11
1995**	73:11	71:05	70:06	69:09	67:07
2000**	74:03	71:09	70:10	70:01	67:11
2025**	75:06	73:00	72:00	71:03	69:01
2050**	76:08	74:02	73:02	72:05	70:03

*Assumed to be age 20.

**Based on the intermediate mortality assumptions described in the 1981 Report of the Board of Trustees of the OASDI Trust Funds.

Table 1C. Retirement Ages Equivalent to Age-65 Retirement for Selected Base Years, Measured as Ratio of Retirement Expectancy to Total Past Work Expectancy Measured at Time of Retirement

(in years:months)

Calendar Year	Base Year of Age-65 Retirement				
	1940	1950	1960	1970	1980
1940	65:00				
1945	66:00				
1950	66:06	65:00			
1955	66:11	65:06			
1960	67:00	65:06	65:00		
1965	67:03	65:09	65:03		
1970	67:08	66:02	65:08	65:00	
1975	68:06	66:11	66:05	65:09	
1980*	69:01	67:06	67:00	66:04	65:00
1985*	69:09	68:02	67:08	67:00	65:08
1990*	70:05	68:09	68:03	67:07	66:03
1995*	70:10	69:03	68:09	68:00	66:08
2000*	71:01	69:06	69:00	68:03	66:11
2025*	72:00	70:05	69:10	69:01	67:09
2050*	72:11	71:03	70:08	69:11	68:07

*Based on the intermediate mortality assumption described in the 1981 Report of the Board of Trustees of the OASDI Trust Funds.

Table 1D. Retirement Ages Equivalent to Age-65 Retirement in Selected Base Years, Measured as Ratio of Retirement Expectancy to Total Work Expectancy at Entry into the Labor Force*

(in years:months)

Calendar Year	Base Year of Age-65 Retirement				
	1940	1950	1960	1970	1980
1940	65:00				
1945	66:00				
1950	66:09	65:00			
1955	67:04	65:08			
1960	67:04	65:08	65:00		
1965	67:07	65:10	65:03		
1970	68:00	66:03	65:08	65:00	
1975	68:11	67:02	66:06	65:10	
1980**	69:07	67:10	67:02	66:06	65:00
1985**	70:04	68:07	67:11	67:03	65:09
1990**	71:01	69:03	68:07	67:11	66:04
1995**	71:07	69:09	69:00	68:04	66:10
2000**	71:10	70:00	69:03	68:07	67:01
2025**	72:09	70:10	70:02	69:06	67:11
2050**	73:08	71:09	71:00	70:04	68:09

*Assumed to be age 20.

**Based on the intermediate mortality assumption described in the 1981 Report of the Board of Trustees of the OASDI Trust Funds.

Table 2. Retirement Age Equivalent to Age-65 Retirement in 1940 and in 1980, Measured by Selected Measures of Equivalence

(in years:months)

Calendar Year	Measured as Retirement Expectancy at		Measured as Ratio of Retirement Expectancy to Total Work Expectancy at	
	Retirement	Entry into Labor Force*	Retirement	Entry into Labor Force*
	Equivalent to Age-65 Retirement in 1940			
1940	65:00	65:00	65:00	65:00
1945	66:05	66:04	66:00	66:00
1950	67:02	67:06	66:06	66:09
1955	67:10	68:05	66:11	67:04
1960	67:11	68:05	67:00	67:04
1965	68:03	68:08	67:03	67:07
1970	69:00	69:02	67:08	68:00
1975	70:01	70:05	68:06	68:11
1980**	71:00	71:04	69:01	69:07
1985**	72:00	72:04	69:09	70:04
1990**	73:00	73:03	70:05	71:01
1995**	73:08	73:11	70:10	71:07
2000**	74:01	74:03	71:01	71:10
2025**	75:06	75:06	72:00	72:09
2050**	76:11	76:08	72:11	73:08
	Equivalent to Age-65 Retirement in 1980			
1985**	66:00	66:00	65:08	65:09
1990**	66:11	66:11	66:03	66:04
1995**	67:07	67:07	66:08	66:10
2000**	67:11	67:11	66:11	67:01
2025**	69:03	69:01	67:09	67:11
2050**	70:07	70:03	68:07	68:09

*Assumed to be age 20.

**Based on the intermediate mortality assumption described in the 1981 Report of the Board of Trustees of the OASDI Trust Funds.