Adjusting Government Policies for Age Inflation

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It is commonly agreed upon that government programs such as tax systems, welfare programs, and retirement programs must adjust for price inflation to account for the fact that a fixed amount of dollars can buy items of different values from one time period to the next. Few would argue that a $10,000 income in 1970 is the same in real terms as a $10,000 income in 2008, and most government programs explicitly take this difference into account. In fact, the year-to-year adjustments that are needed to keep systems in line with their initial intentions are often automatic. When comparing U.S. economic statistics for different time periods, economists and policy analysts state the figures in “real dollars” or “dollars of constant purchasing power” rather than using unadjusted nominal dollars. Just like a dollar in 1950 is not the same unit as a dollar in 2008, we argue that a year of age or a year since birth is not a constant unit of age. We will propose different ways of coming up with “real ages” rather than nominal years since birth and then illustrate how various ages in the law would have to be adjusted in order to maintain constant real ages.

A particular age, as conventionally measured by years since birth, has a different “value” or meaning associated with it over time. We call this effect “age inflation.” The typical 65-year-old in 1935, when Social Security was enacted, had a much higher mortality risk and lower life expectancy than the typical 65-year-old in 2004 (see Figure 1). In 1935, 65-year-olds could expect to live just over 12 additional years on a gender-blended basis, while a 65-year-old in 2004 could expect an additional 19 years of life. Their mortality risk, or their chance of dying within a year, was over 3 percent in 1935, but less than 1.5 percent in 2004. In addition, 65 represents two very different stages in the life cycle for these individuals, as measured by the percent of the expected lifespan completed. Figure 2 shows the percent of the expected lifespan completed by age 65, where average lifespan is measured at birth and at age 20, again on a gender-blended basis. In 1935, age 65 was greater than the life expectancy of a newborn, and represented roughly 95 percent of the expected lifespan of a 20-year-old. By 2004, both of these percentages had fallen to approximately 85 percent. Figure 3 displays the percent of the population age 65 and older from 1940 through 2004. In 1940, 7 percent of the population was age 65 or older, so a 65-year-old individual was in the 93rd percentile of the age distribution. In 2004, a 65-year-old was instead in the 88th percentile because the number of people living age 65 and beyond has grown significantly relative to the younger population. The U.S. Census forecasts that a 65-year old will be in the 78th or 79th percentile of the population by 2050.

Despite these large changes in what it means to be age 65, there has been almost no adjustment in the Social Security program to account for these differences. If we think of individuals with a higher life expectancy and lower mortality rate as effectively "younger," absent adjustments to Social Security rules, participants are allowed to commence a Social Security life annuity at younger and younger real ages.

In this paper, we examine the rules governing three public programs – Social Security, Medicare, and Individual Retirement Accounts – and determine what the ages in the legislation would be today if we assume that the initial ages when the legislation was enacted defined the original intent of each program in terms of real ages. We also project the level of these legislated ages to 2050 under two different scenarios: 1) automatic age adjustments began when the law was enacted, and 2) automatic age adjustments begin now.

Four different methods are used to make adjustments for age inflation. The first method adjusts an age from year X to year Y by finding the age in Y with an equivalent remaining life expectancy. The second method is similar, but finds the age in Y that faces the same mortality risk. In the third method, the adjusted age in Y represents the same percentage point in the lifespan as the original age in Y, where lifespan is measured as life expectancy at birth. The fourth method is similar, but measures the lifespan as the total life expectancy given survival to age 20. Each of these methods is applied to the whole population, as well as to different demographic groups to examine whether there have been differential rates of mortality improvement across race and gender.

This paper builds on earlier work in Shoven (2007) which discusses alternative ways of measuring age. Shoven shows that there has been remarkable progress in age-specific mortality, and that as measured by mortality risk, a 59-year-old man in 1970 was the same real age as a 65-year-old man in 2000. The mortality improvement among women was somewhat slower over the last thirty years of the Twentieth Century, but still significant: a 59-year-old woman in 1970 had the same mortality risk as a 63-year-old woman in 2000. He also shows that the measurement of the elderly as a percent of the U.S. population differs based on whether conventional measures of age are used or a definition of age based on mortality risk.

Other literature which has presented similar ideas include Fuchs (1984), Cutler and Sheiner (2001), Shoven (2004), Sanderson and Scherbov(2005 and 2007), Cutler, Liebman and Smyth (2006), and Lutz, Sanderson and Scherbov(2008). Fuchs states that remaining life expectancy may be a better measure of age and suggested that "nominal ages" could (or should) be adjusted to "real ages" based on mortality or remaining life expectancy. Cutler and Sheiner note that for acute care and nursing home care, demand is more a function of remaining life expectancy than it is of age. They find that the high medical costs associated with the last year of life have been occurring at older and older ages. Similarly, Shoven (2004) finds that Medicare spends roughly the same amount on men and women with the same mortality risk or remaining life expectancy. Sanderson and Scherbov(2005, 2007) and Lutz, Sanderson and Scherbov(2008) show how forward looking measures of age (such as remaining life expectancy) in combination with traditional backwards looking meaures (years since birth) can lead to a better understanding of global population aging. Cutler, Liebman and Smyth (2006) model the optimal Social Security retirement age in light of changes in the underlying health of the population. They summarize several measures of health status over time, such as self-reported health status, annual bed days for people with specific health conditions, and disability rates. Across these different measures, it is evident that the health status of individuals of a given age has improved significantly over time.

The Relationship between Age, Remaining Life Expectancy, and Mortality Risk

Over time, there has been significant mortality improvement that is persistent across age, gender, and race. There is a wide variety of statistics that illustrate this point, and we present some of them here. There are two other interesting empirical facts to highlight that will show up in our later analysis. The first is that while women have always experienced higher life expectancies than men of the same age and continue to do so, the mortality improvement among women over the last 30 years has been lower than that among men. In addition, holding life expectancy constant through time, individuals have a lower mortality risk today than they had decades ago.

Figures 4 and 5 display mortality risk by age in 1940, 1970, and 2004, for men and women respectively. In moving to each successive time period, the curves shift down and to the right by an amount that represents the degree of mortality improvement. Individuals at each age face a lower chance of dying within a year in 1970 and 2004 compared to 1940. If we placed Figures 3 and 4 on top of each other, we would see that women at each age face lower mortality risk than men. The degree of mortality improvement also differed by gender in the two periods. Women saw greater improvement in mortality from 1940 to 1970, while men experienced greater improvement 1970 to 2004. The mortality risk progress over the entire 64-year period is roughly the same for men and women and nothing short of remarkable. The magnitude of the change can be illustrated by noting that the mortality risk of both 70-year old men and women in 2004 is very close to the mortality of 60-year old men and women in 1940. The saying "70 is the new 60" is not just a cute phrase on a birthday card. It's true! – at least in terms of mortality risk.

Remaining life expectancy and mortality risk are two alternative mortality-related measures of age. Remaining life expectancy at a given age takes into account the mortality risk in that age as well as the mortality risk in successive years, while the mortality risk measure is limited to the chance of death within one year. If a person's chance of dying was zero in one year and one hundred percent the next, this individual would look very young by the mortality risk measure, but older by the remaining life expectancy measure. The data show that the relationship between these two measures over time is that individuals with a given life expectancy face a lower chance of dying in the next year now relative to what they used to. For instance, men with a 18-year remaining life expectancy in 1935 had a 1.9% mortality risk, whereas such a man in 2004 had approximately a 1.5% mortality risk. This suggests that even with the same remaining life expectancy, people are "healthier" in 2004 than in 1935. This phenomenon is consistent with a larger concentration of high mortality in the last years of life.

Ages Fixed in Government Policies

We focus on three public programs primarily for the elderly: Social Security retirement benefits, Medicare, and Individual Retirement Accounts (IRAs). Social Security defines the rules under which beneficiaries are eligible to receive full retirement benefits (commonly referred to as the Normal Retirement Age, or NRA), a reduced level of benefits (Early Retirement Age, or ERA), and the age at which benefits stop increasing with later retirement due to delayed retirement credits. Medicare defines the age at which beneficiaries are first eligible to receive health insurance benefits. The rules governing IRAs (and 401(k)s, 403(b)s and 457 plans) indicate the age at which funds can be withdrawn without penalty, and the age at which a minimum distribution must be taken to avoid penalty.

Social Security began with the Social Security Act of 1935. The program originally was designed to give retirement benefits to those over the age of 65, with no provision for reduced benefits at earlier ages or higher benefits for delayed retirement. In 1956, all female workers and widows were eligible for reduced benefits at age 62, and in 1961, the option of reduced benefits at 62 was extended to men.[1] The next changes came in 1972 when delayed retirement credits were instituted for those who retired after age 65, and these accrued until an individual reached age 72. The 1983 amendments lowered this maximum age to 70, and most significantly, increased the normal retirement age for the first time in the program's history gradually to age 67. (SSA Title II) The increase in the NRA will be completed by 2023 and was motivated by

[1] Widows later became eligible for reduced benefits at age 60 in 1965, but here we focus on retirement benefits.

the program's financial difficulties rather than an explicit recognition that age inflation meant that 65 was not the same real age that it had been in 1935.

Medicare's age of eligibility has been 65 since the program was enacted in 1965 (SSA Title XVIII). Similarly, the age limits for IRAs and other defined contribution retirement plans have not changed since they were created by ERISA legislation in 1974. The earliest age at which funds can be withdrawn without penalty is 59 ½ and the age where the minimum required withdrawals are imposed is 70 ½.

Data Sources

Several data sources were obtained to determine the adjustment of government program rules for age inflation. The primary source of mortality data is the set of period life tables used by the Social Security Administration (SSA) to construct the 2007 Trustees Report. These were obtained by request. The tables cover the historical period 1900-2004, and project future mortality rates under three different alternative scenarios. For all calculations of projected age adjustment, the intermediate scenario, Alternative II, is used. SSA maintains projected mortality tables from 2005-2100. Population data from SSA were also used to determine the percent of the population eligible for government programs under alternative measures of age.

Mortality tables for the gender-blended population were obtained for 1933-2004 from the Human Mortality Database, which compiles detailed mortality data for a variety of countries. In addition, mortality statistics by race through 2004 were obtained from the National Center for Health Statistics (National Vital Statistics Reports, various years).

The analysis is based on period life tables, which report age-specific mortality rates in a given year, rather than cohort life tables, which display age-specific mortality data for a group of individuals born in the same year. While cohort life tables may give more accurate descriptions of mortality statistics because they take into account improvements in mortality beyond the current period, they are necessarily largely based on projected mortality improvements. For example, the period remaining life expectancy of a 65-year-old female in 2004 is based on mortality rates for 65-, 66-, …-year-old females in 2004. These mortality rates are likely to be higher than the mortality that a 65-year-old female in 2004 will actually experience because she will be 66 in 2005, 67 in 2006, and so on. However, the cohort remaining life expectancy of a 65-year-old female in 2004 computed today would have to assume rates of mortality improvement for years beyond 2004.

Adjusting Government Policies for Age Inflation

Four methods are used to adjust ages in Social Security, Medicare, and IRAs for changes in mortality:

1. Constant RLE. Under the Constant RLE method, two ages are equivalent if their remaining life expectancies are equivalent.
2. Constant Mortality Risk. The Constant Mortality Risk method assumes that two ages are equivalent if they have the same mortality risk.
3. Constant Percent of Lifespan (measured at birth). The lifespan measured at birth is simply the life expectancy of a newborn. Two ages that have the same ratio to the life expectancy of a newborn are equivalent under this method.
4. Constant Percent of Lifespan (measured at age 20). This method is similar to the previous one (number 3), except that lifespan is measured as 20 + remaining life

expectancy at age 20. This method addresses the implausibility introduced by method 3 when the age of interest is greater than the expected lifespan.

To illustrate these four methods further, suppose we would like to find the inflation-adjusted age in 2004 of a 65-year-old woman in 1965. The remaining life expectancy of a 65-year-old female in 1965 was 16.34. In 2004, a 68-year-old woman had a remaining life expectancy of 16.80 and a 69-year-old woman had a remaining life expectancy of 16.06. The true RLE-adjusted age in 2004 by the first method would be between 68 and 69, but because we do not have mortality data by fractional years, we apply a decision rule to use the younger age so that the individual at the adjusted age would have at least the same life expectancy in 2004 relative to 1965. Therefore, this method gives 68 as the answer we are looking for.

The mortality risk of a 65-year-old woman in 1965 was 1.79 percent. In 2004, the mortality risk of a 69-year-old woman was 1.75 percent, and that of a 70-year-old woman was 1.93 percent. The adjusted age under the second method would therefore be between 69 and 70, and we record the adjusted age to be 69, the age where the mortality risk is at most 1.79 percent.

A newborn girl in 1965 had an expected lifespan of 73.84, and the remaining life expectancy at age 20 for a female was 56.08. These values for 2004 were 79.6 and 60.36, respectively. Age 65 represented 65/73.84 = 88 percent of the expected lifespan of a newborn in 1965, and the equivalent age in 2004 is (0.88)(79.6) = 70.1, which would be the adjusted age under the third method. If we instead use the expected lifespan of a 20-year-old, 65 represented 65/(56.08+20) = 85.4 percent of the total lifespan, so the equivalent age in 2004 under the fourth method would be (0.854)(60.36+20) = 68.7.

These four methods of calculation were done for seven different eligibility ages in the rules governing Social Security, Medicare, and IRAs and defined contribution retirement plans to find the mortality-equivalent ages in 2004. Each adjustment was done using gender-blended mortality, as well as by using male and female mortality separately. The results are summarized in Table 1.

Depending on the initial year of legislation and the method used, the adjustments are on the order of three to eight years. For the majority of cases, the four methods yield similar results. One exception is the adjustment of age 65 in 1935 to 2004 using the method which equates the percent of lifespan measured at birth. This occurs because the life expectancy in 1935 at birth is actually less than age 65. Using instead the percent of lifespan measured at age 20 yields estimates that are more in line with the other two methods, implying that some of the mortality improvement between 1935 and 2004 was in infant and childhood mortality. Mortality improvements from age 20 onward may be more relevant in adjusting policies relating to work and retirement.

Adjusting ages using mortality risk consistently produces adjustments that are larger than those calculated by the constant RLE method. This reflects the higher concentration of mortality in later ages discussed earlier. The superiority of one method over the other depends on which measure – remaining life expectancy or mortality risk – better proxies for the factors taken into account when determining eligibility.

The ages adjusted for female mortality are lower than those adjusted for male mortality because women experienced less mortality improvement over most of the time periods examined. The lower rate of improvement among women means that the gap in life expectancy between men and women has been decreasing over this time period.

The overall results from Table 1 show that very significant adjustments would have to be made in the ages in the laws we examine in order to restore the law to the original real age. For instance, the Normal Retirement Age for Social Security in 2004 would have to be at least 71 (using lowest number in the table) and more likely 73 or 74 (using the gender blended results from Methods 1 and 2) in order to be consistent with the real age of 65 in 1935. Using the same logic, the age of Medicare eligibility would have needed to have been advanced by at least five years. Such adjustments would be politically difficult, but age inflation and the lack of adjusting for it has quite a bit to do with the solvency problems of Social Security and Medicare.

Next, we project the adjustments forward to 2050 using Social Security's intermediate estimates of future mortality. We produce estimates by gender separately, and use two different starting points – the year of legislation, as assumed in Table 1, and 2004, the latest year of non-projected mortality statistics. Assigning the year of legislation as the starting point addresses the question of what the eligibility ages we consider would be in 2050 if ages were indexed from the beginning using each of the four methods of age adjustment. Using 2004 as the starting point speculates how things would look in 2050 based on projected mortality improvement if we started indexing ages in 2004.

Table 2 summarizes the projected ages of eligibility in 2050. Because mortality is projected to improve throughout the 2004 – 2050 period, the adjusted ages continue to go up. Again, the four methods yield largely similar results. Adjusted ages using female mortality continue to be less than ages adjusted using male mortality, indicating that projected mortality rates also exhibit less mortality improvement among women. The mortality-equivalent ages assuming adjustment starts in 2004 are much less dramatic than those calculated from the legislation date, providing another indication of how much mortality has improved already.

The results that adjusting for age inflation would have on the number of people eligible to receive entitlement benefits are striking. Figures 6 and 7 show the percent of the population projected to meet age eligibility requirements for full retirement benefits in Social Security and Medicare health insurance benefits under three different situations – ages were adjusted beginning when the legislation was written; age adjustments began in 2004; and no age adjustment occurs. The adjustment method assumed in these figures was the second method, which finds the equivalent age based on mortality risk, computed for men and women separately, and then averaged.

Figure 6 shows that without any adjustment in the age of eligibility for full retirement (including the 1983 amendments which changed the normal retirement age gradually from 65 to 67), the percent of the population which would be eligible would rise from just under 7 percent in 1941 to over 20 percent in 2050. If adjustments had happened automatically, only 9.35 percent of the population would be eligible in 2050. Even if adjustments start occurring today, the projections show that more than 17 percent of the population would receive full retirement benefits in 2050. The data in Figure 7 show a similar pattern. This indicates that because all of the substantial life expectancy improvements that have occurred thus far have been allocated as eligible years rather than non-eligible years, adjusting in the future will have less dramatic an effect.

Heterogeneity in Mortality Improvement

An important concern for a policy that indexes ages of eligibility to life expectancy improvements is that mortality improvement in most cases will not be uniform across all demographic groups. It was already shown that men and women experienced different rates of improvement in mortality historically, causing the adjusted age to be different depending on whether male- or female-based mortality statistics were used.

We explore this issue further by tabulating mortality-adjusted ages by race and gender to the extent that sufficient data are available. Data limitations allow us to only examine two racial distinctions (black and white), and to examine historical changes in mortality but not projected changes. For starting years prior to 1965, detailed data on mortality risk and remaining life expectancy is not available, but we are still able to calculate adjustments using the third and fourth methods of adjustment using life expectancy at birth and at age 20. Our results are summarized in Table 3. The data generally support the idea that while the level of mortality varies significantly across different racial groups, with blacks having worse mortality than whites, the amount of mortality *improvement* does not vary as dramatically. In fact, within each gender group, the implied adjustment is higher for blacks than it is for whites in a majority of cases. This phenomenon is particularly true when comparing black women to white women.

Which racial group has had more improvement also seems to depend on what definition of improvement is used. Under the first method of adjusting ages, which uses increases in remaining life expectancy as the relevant measure of mortality, the mortality-equivalent ages for whites tend to be higher than those for blacks, indicating a greater degree of mortality improvement. The measures that use percent of lifespan as the relevant measure tend to yield higher adjusted ages for blacks relative to whites, and the results using mortality risk are more mixed. These results imply that blacks have had larger gains in mortality early in life, but that the racial gap in mortality among the elderly has persisted.

It is important to note that the current policy of a single age of eligibility applying to the entire population implicitly redistributes from individuals with short life expectancies to those with higher life expectancies. Social Security and Medicare benefits are paid as lifetime benefits and actuarial adjustments to retirement benefits are based on average mortality. Thus, while heterogeneity in mortality improvement implies that some groups would benefit more from indexing eligibility ages to age inflation, heterogeneity in mortality rates indicate that current eligibility rules also redistribute between demographic groups.

One way to address the issue of heterogeneous rates of mortality improvement would be to have a different age of eligibility for each race-sex cell, with each eligibility age indexed based on the mortality improvements in that cell. However, this would likely not be practical to administer. Another way would be to index to the minimum level of mortality improvement. While some groups have had more improvement than others in mortality, all of the groups examined have experienced substantial gains. This approach would not address the fact that age indexation would benefit some groups more than others, but it would decrease the possibility that one group would be significantly worse off due to another group's mortality improvements.

Disability-Free Life Expectancy

Our four methods of adjusting nominal ages to real ages are all based on mortality or life expectancy – that is, they depend on the evolution over time of survival probabilities as reflected in a time series of period life tables. In some sense, they are based on a two-state model where people are either alive or dead. What many people mean when they categorize people as elderly is people who have disabilities or reduced functionality. This raises the question of whether the increase in life expectancies and the decrease in age-specific mortality rates imply an increase in disability-free life expectancy and a decrease in the age-specific disability rates.

There is a large literature on this matter. There is some evidence that disability-free life expectancies have grown by at least as much as overall life expectancies and that age specific disability rates have fallen in line with mortality rates. For instance, a recent paper by Manton and Lamb (2007) shows that while life expectancy of 85-year-olds increased by one year between 1965 and 1999, their "active life expectancy" increased by 1.5 years (and the expected disabled years actually fell by 0.5 years). Manton and Lamb find that the expected future years in disability for 85-year-olds decreased for both men and women. Manton and Land (2000) find that 13.7 of the 15.7 years of remaining expected life for 65-year-old men are disability-free, whereas for women, the corresponding numbers are 15.7 of the remaining 22.2 years. The overall findings of Manton and his co-authors is that the number of years in disability has not been growing in the past few decades.

Cutler, Liebman and Smyth (2006) come to similar conclusions. They show that the same percentage of men age 62 in the mid-1970s report themselves to be in fair or poor health as 72-year-old men in the mid-1990s. They also show that impairment associated with heart disease has declined over the same period as measured by the number of days spent in bed, and that the share of the population with limitations in activities of daily living has declined. They state, "Our best guess is that people aged 62 in the 1960s or 1970s are in equivalent health to people aged 70 or more today. All of these results conflict with previous work by Crimmons and Saito (1997) which found that healthy life expectancies grew by much less than total life expectancies between 1970 and 1990. However, the majority of the evidence suggests that health status has been improving along with mortality.

Our feeling is that while the growth in active life expectancies or healthy life expectancies would be useful for indexing nominal ages in retirement laws, the data are not yet of the same quality as the mortality data contained in the period life tables. This means that more research and information about the transitions between functional and disabled status is necessary before disability-free life expectancies are ready to be used for age inflation indexing.

Conclusion

The significant mortality improvement that has been experienced in the United States over the last century means that age, as conventionally measured by years since birth, has a different meaning today than it did in the past. Government policies that are based on age fail to adjust to the fact that a given age is associated with a higher remaining life expectancy and lower mortality risk with each passing year.

In this paper, we evaluate eligibility ages contained in the rules governing three public programs: Social Security, Medicare, and Individual Retirement Accounts. We calculate adjustments to these eligibility ages using four different definitions of mortality-equivalence – remaining life expectancy, mortality risk, or percent of expected lifespan at age zero and at age 20. We first assume that age indexation began when the eligibility age was initially established and show how it would have changed by 2004. We then use projected mortality estimates to forecast the effect of age inflation on eligibility ages to 2050. We also calculate age adjustments for different demographic groups to explore the effect of differences in mortality and mortality improvement on age inflation.

The results indicate that, on average, historical adjustment of eligibility ages for age inflation would have increased ages of eligibility by approximately 0.15 years annually. The adjustments implied by improvements in female mortality are smaller than those calculated using male mortality improvement, and differences in mortality improvement across race are not as large as the differences in the base level of mortality. Estimates of projected mortality show that future adjustments would be lower, approximately 0.08 years per annum, indicating that a lower rate of mortality improvement is implicit in Social Security's intermediate estimates of projected mortality. This slowing in the rate of improvement is far from agreed upon amongst U.S. demographers.

The idea of indexing nominal ages to generate real ages requires an appropriate metric for the indexation. While we have used four such metrics, another appealing one would be to index age by the change in disability-free life expectancies. We briefly examined the state of knowledge about the evolution of active (or disability-free) life expectancies. There is some evidence that active life expectancies have been growing as rapidly as total life expectancies. However, in our opinion, the evidence is not sufficiently agreed upon to be used to adjust ages in government programs.

Implementing a policy that explicitly adjusts ages of eligibility for improvements in mortality would have important practical considerations. One such consideration would be the lead time that individuals would have in planning for the future. It would not be sensible to wait to announce a cohort's normal retirement age, for example, in the year they are planning to retire. One approach may be to lock in a cohort's retirement age at a pre-determined time, such as when the cohort attains 55 years of age.

The four methods of calculating mortality-equivalent ages that we examined give different results regarding the amount of adjustment that would yield equivalent ages. Each uses a measure of mortality that summarizes a different dimension of mortality improvement, and the most appropriate measure, perhaps different than the four described here, would depend on which dimension best captures the intent of the initial legislation that defined the initial age of eligibility.

In many ways, adjusting ages of eligibility for age inflation is similar to adjusting income or asset thresholds for price inflation. Prior to 1985, the parameters of the U.S. income tax code were not indexed to inflation, and high inflation rates in the late 1960’s and 1970’s caused “bracket creep,” where more and more households were subject to high marginal tax rates because their incomes were rising in nominal terms even as their real incomes were held constant. Currently, many parameters of the income tax system are indexed to inflation to avoid this from occurring. The one major exception is the Alternative Minimum Tax, which was designed to keep taxpayers with high incomes from paying little or no income tax by taking advantage of various preferences in the tax cod. Today, this tax is affecting a growing number of middle-class taxpayers because income exemption levels are not indexed to inflation.

Adjusting government policies for age inflation would have a large impact on the number of individuals eligible to receive entitlement benefits, and consequently, on the financing of these public programs. Shultz and Shoven (2008) state that the total labor supply in 2050 would be at least 9 percent higher if workers retired with the same lengths of retirement as they do today, relative to what it would be if they retired at the same ages as today. Estimates in the literature suggest that the elderly have high labor supply elasticities (French 2005), and the effects of policies that index eligibility ages for mortality improvement on labor markets, health, and government budgets is an important area for future research.

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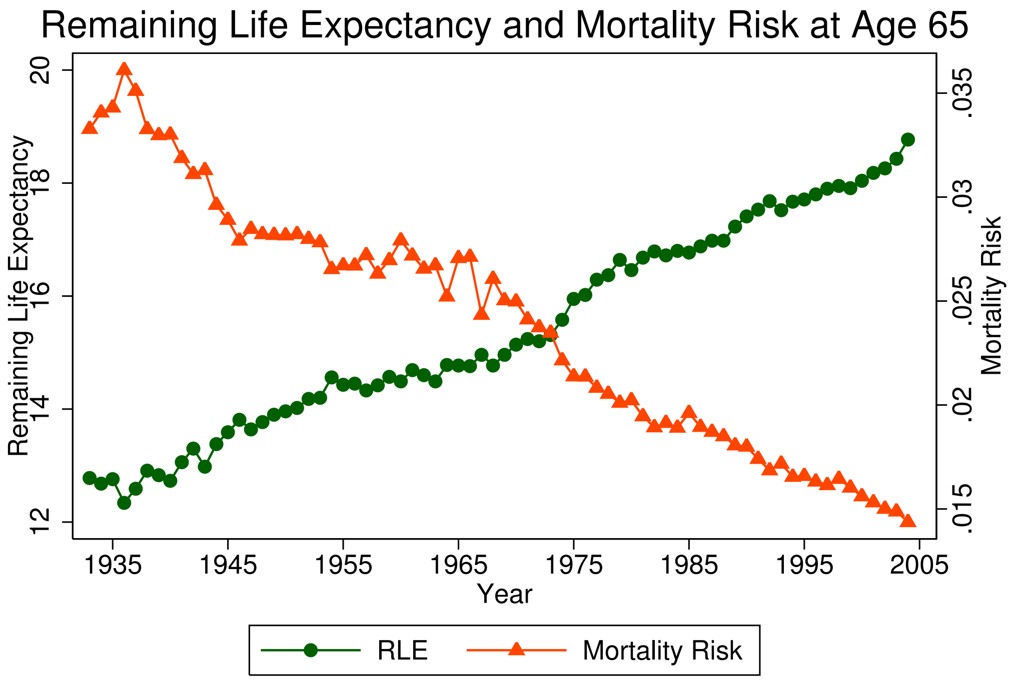
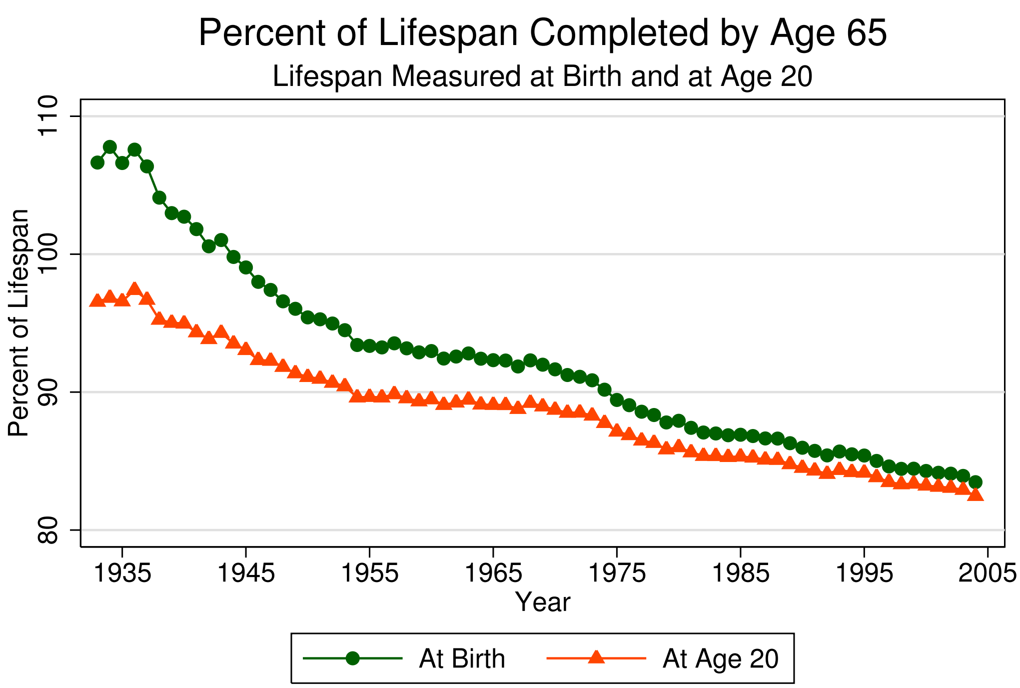
Figure 1



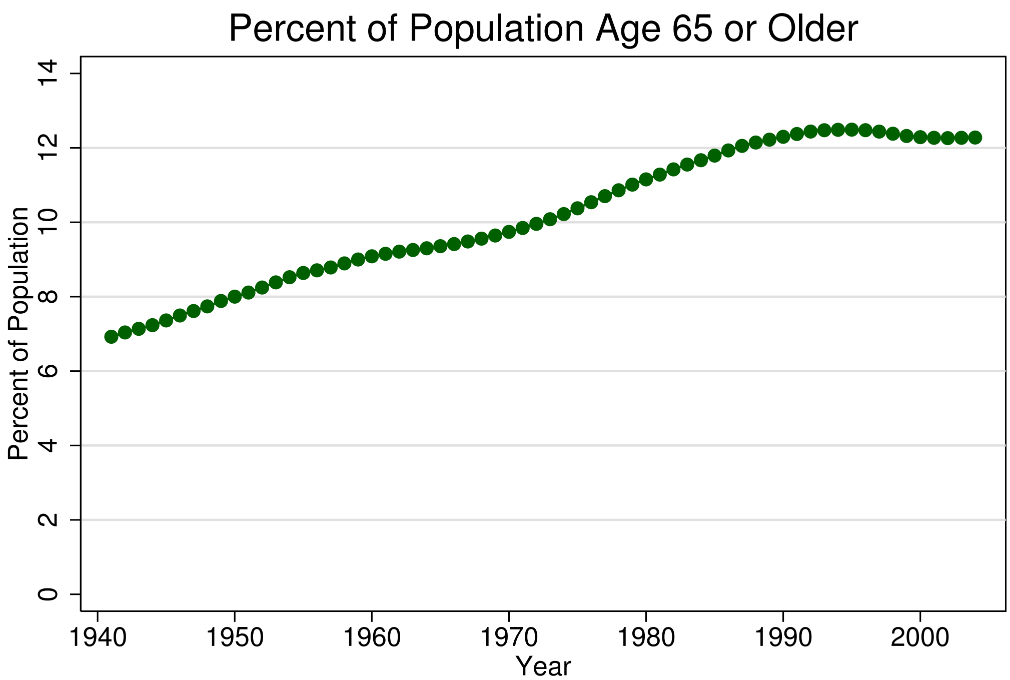
Source: Human Mortality Database

Figure 2



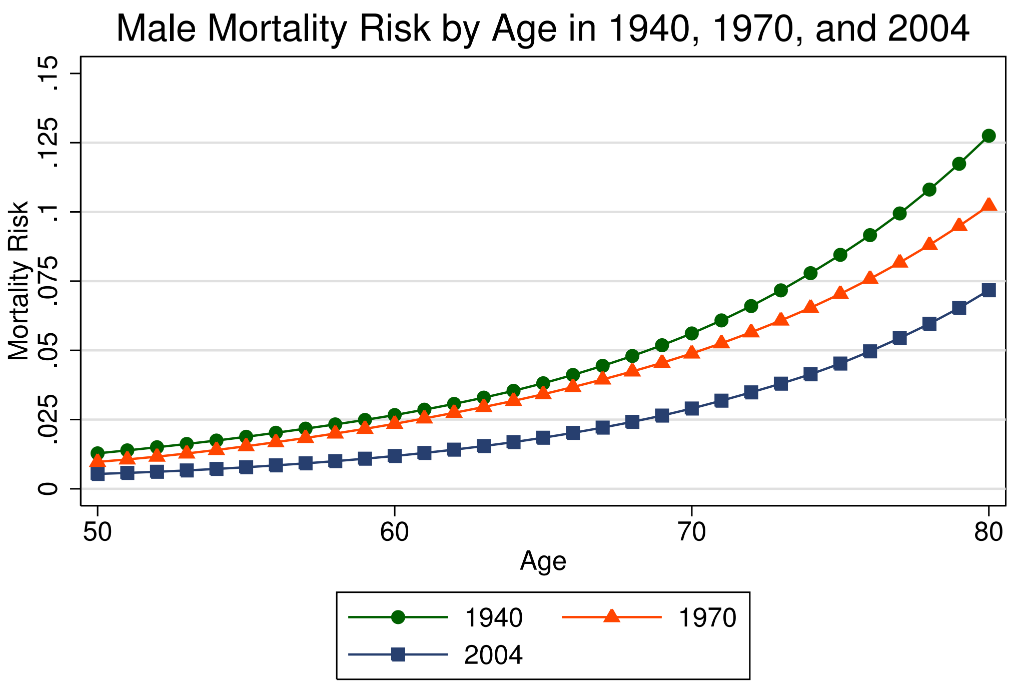
Source: Human Mortality Database

Figure 3



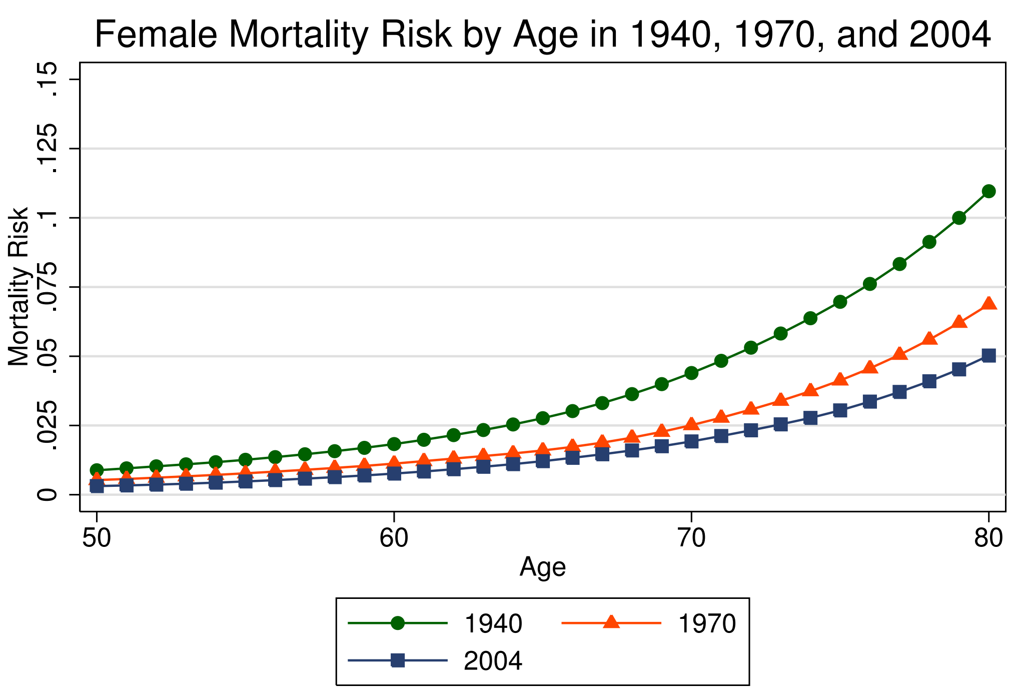
Source: Social Security Administration

Figure 4



Source: Social Security Administration

Figure 5



Source: Social Security Administration

Figure 6

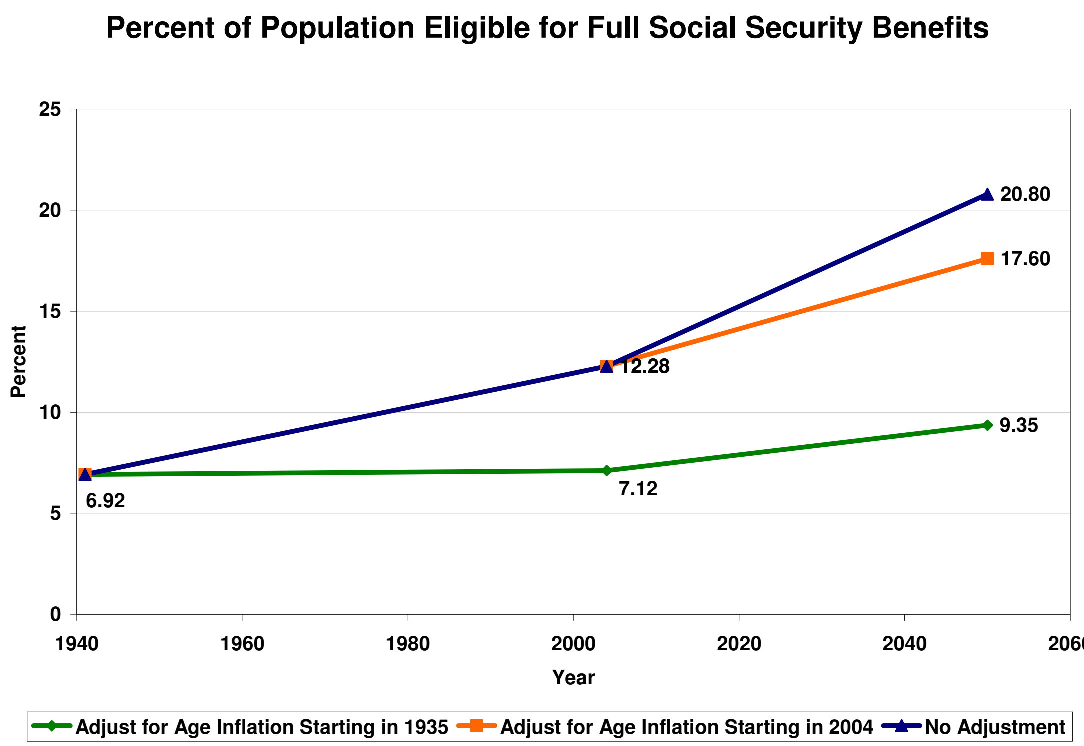


Figure 7

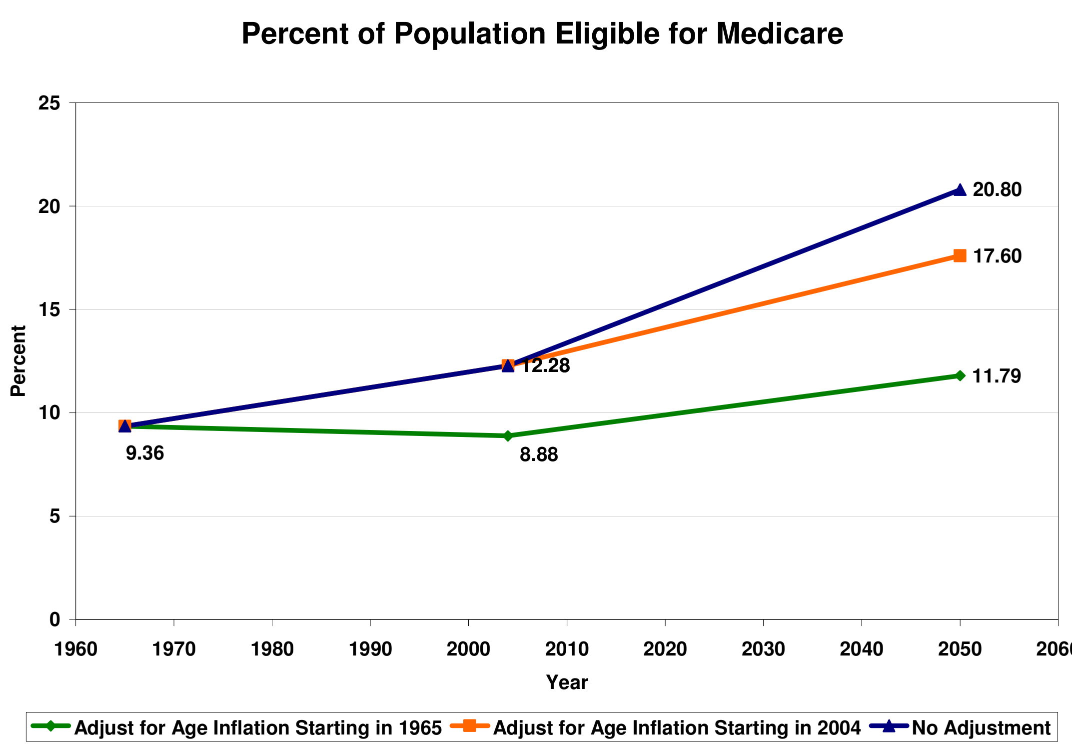


Table 1

Mortality-Adjusted Ages in 2004

SSA - Normal Retirement Age in 1935 = 65

Method	Male	Female	Total
1	73.0	71.0	73.0
2	75.0	73.0	74.0
3	83.0	81.9	81.8
4	76.1	74.8	76.0

SSA - Early Retirement Age in 1961 = 62

Method	Male	Female	Total
1	67.0	67.0	66.0
2	69.0	69.0	66.0
3	68.7	69.0	67.0
4	67.0	67.1	65.6

SSA - Delayed Retirement Credits to 72 in 1972

Method	Male	Female	Total
1	75.0	74.0	76.0
2	77.0	74.0	77.0
3	79.8	76.2	78.6
4	78.1	75.1	77.3

SSA - Normal Retirement Age in 1983 = 67

Method	Male	Female	Total
1	69.0	67.0	69.0
2	71.0	68.0	70.0
3	70.6	68.3	69.8
4	70.0	67.9	69.3

Medicare Eligibility Age in 1965 = 65

Method	Male	Female	Total
1	70.0	68.0	70.0
2	72.0	69.0	72.0
3	72.7	70.1	71.9
4	70.7	68.7	70.2

IRA Minimum Withdrawal Age in 1974 = 60

Method	Male	Female	Total
1	64.0	62.0	64.0
2	66.0	63.0	66.0
3	65.6	62.8	64.8
4	64.4	62.0	63.8

IRA Maximum Withdrawal Age in 1974 = 71

Method	Male	Female	Total
1	74.0	72.0	75.0
2	76.0	73.0	75.0
3	77.7	74.3	76.7
4	76.3	73.4	75.6

Table 2

Mortality-Adjusted Ages in 2050

SSA - Normal Retirement Age in 1935 = 65

Starting Year:	1935		2004	
Method	Male	Female	Male	Female
1	75.0	75.0	68.0	67.0
2	77.0	78.0	69.0	68.0
3	87.1	85.4	69.2	67.9
4	79.1	79.0	68.7	67.5

SSA - Early Retirement Age in 1961 = 62

Starting Year:	1961		2004	
Method	Male	Female	Male	Female
1	70.0	68.0	65.0	64.0
2	74.0	70.0	66.0	65.0
3	73.5	70.0	66.0	64.7
4	70.9	68.2	65.6	64.4

SSA - Delayed Retirement Credits to 72 in 1972

Starting Year:	1972		2004	
Method	Male	Female	Male	Female
1	79.0	76.0	75.0	74.0
2	81.0	78.0	76.0	75.0
3	84.9	79.6	76.6	75.2
4	82.6	78.0	76.1	74.8

SSA - Normal Retirement Age in 1983 = 67

Starting Year:	1983		2004	
Method	Male	Female	Male	Female
1	73.0	70.0	70.0	69.0
2	75.0	71.0	71.0	70.0
3	75.1	71.3	71.3	70.0
4	74.0	70.5	70.9	69.6

Medicare Eligibility Age in 1965 = 65

Starting Year:	1965		2004	
Method	Male	Female	Male	Female
1	73.0	71.0	68.0	67.0
2	76.0	72.0	69.0	68.0
3	77.4	73.2	69.2	67.9
4	74.8	71.3	68.7	67.5

IRA Minimum Withdrawal Age in 1974 = 60

Starting Year:	1974		2004	
Method	Male	Female	Male	Female
1	68.0	64.0	64.0	62.0
2	71.0	66.0	65.0	63.0
3	69.9	65.6	63.9	62.6
4	68.1	64.5	63.4	62.3

IRA Maximum Withdrawal Age in 1974 = 71

Starting Year:	1974		2004	
Method	Male	Female	Male	Female
1	77.0	75.0	74.0	73.0
2	80.0	76.0	75.0	74.0
3	82.7	77.6	75.6	74.1
4	80.6	76.3	75.1	73.8

Table 3

Mortality-Adjusted Ages in 2004 by Race and Gender

SSA - Normal Retirement Age in 1935 = 65*

Method	Black	White	Black Male	White Male	Black Female	White Female
3	88.2	78.4	86.4	78.3	89.3	78.1
4	79.8	74.0	77.8	73.5	81.4	74.2

SSA - Early Retirement Age in 1961 = 62*

Method	Black	White	Black Male	White Male	Black Female	White Female
3	70.9	68.6	70.1	69.5	71.2	67.5
4	68.1	67.0	67.1	67.6	68.8	66.2

SSA - Delayed Retirement Credits to 72 in 1972**

Method	Black	White	Black Male	White Male	Black Female	White Female
1	75.0	77.0	75.0	78.0	75.0	76.0
2	79.0	78.0	78.0	79.0	79.0	76.0
3	80.2	78.3	81.4	79.8	78.6	76.6
4	78.4	77.1	79.4	78.3	77.2	75.7

SSA - Normal Retirement Age in 1983 = 67

Method	Black	White	Black Male	White Male	Black Female	White Female
1	70.0	70.0	70.0	71.0	69.0	69.0
2	70.0	71.0	71.0	72.0	70.0	69.0
3	70.4	69.8	71.2	70.7	69.5	68.8
4	69.8	69.3	70.6	70.2	69.0	68.4

Medicare Eligibility Age in 1965 = 65**

Method	Black	White	Black Male	White Male	Black Female	White Female
1	71.0	71.0	70.0	72.0	71.0	70.0
2	75.0	72.0	74.0	73.0	76.0	70.0
3	74.2	71.7	74.4	72.8	73.6	70.3
4	71.7	70.1	71.6	71.0	71.4	69.1

Table 3, cont.

Mortality-Adjusted Ages in 2004 by Race and Gender, cont.

IRA Minimum Withdrawal Age in 1974 = 60**

Method	Black	White	Black Male	White Male	Black Female	White Female
1	64.0	65.0	64.0	66.0	64.0	63.0
2	67.0	67.0	66.0	68.0	66.0	64.0
3	65.5	64.6	66.3	65.9	64.2	63.3
4	64.3	63.7	65.0	64.7	63.3	62.6

IRA Maximum Withdrawal Age in 1974 = 71**

Method	Black	White	Black Male	White Male	Black Female	White Female
1	74.0	75.0	74.0	76.0	74.0	75.0
2	78.0	76.0	77.0	78.0	78.0	74.0
3	77.5	76.5	78.4	78.0	76.0	74.9
4	76.1	75.4	76.9	76.6	75.0	74.1

*Mortality statistics for 1935 and 1961 obtained from NCHS 2007 report, Table 11. Years 1939-41 used for base year 1935, and years 1959-61 used for base year 1961.

**Mortality data from NCHS in 1966, 1972, and 1974 does not distinguish "Black" separately; "Nonwhite" or "All Other" used as indicated.