

Fiscal Redistribution by Age and Generational Inequality in the Twentieth Century

Erick Eschker

Department of Economics
Humboldt State University
1 Harpst Street
Arcata, CA 9521

eschker@humboldt.edu

(707) 826-3216
(707) 826-3206 fax

Christopher Olson provided excellent research assistance. I would also like to thank Susan Carter and participants at the 2005 Social Science History Association Meeting and seminar participants at the American Medical Association for very helpful comments. Peter Lindert, Greg Clark, and Steve Sheffrin gave important feedback on earlier versions of this paper. The remaining errors belong to me.

Fiscal Redistribution by Age and Generational Inequality in the Twentieth Century

Abstract

This paper is the most comprehensive look at federal, state, and local government fiscal redistribution in the twentieth century. There were four distinct eras of fiscal policy, but the government increased its relative generosity to the elderly so that by the 1970s the elderly received more net transfers than the young. Net transfers received in retirement were by far the largest source of cohort lifetime redistribution. Unless historical rates of growth in aggregate transfers or the age-profile of transfers are maintained, cohorts born 1920-45 will have less lifetime net transfers as a percent of lifetime income than those born 1900-20.

Keywords: Cohort Redistribution, Generational Equity, Fiscal Policy, Twentieth Century, Social Security, Medicare, Deficits

1. Introduction

The size and scope of the government increased dramatically over the twentieth century. In 1900, revenue from all levels of government was 7.2 percent of Gross National Product, and this number grew to 37.5 percent by 1990 (Wallis 2000). Additionally, Wallis shows that in 1900, local governments relied primarily on property taxation and they spent and taxed more than states and the federal government. After the New Deal, the federal government became the dominant fiscal entity and depended on income tax finance. In 1900, education expenditures and general welfare were the only age-targeted transfers made by all levels of government. By 2000, many programs comprised the social safety net, including Social Security and Medicare.

Fiscal policy changes since 1900 had an impact on inequality. According to Lindert (2000) fiscal redistribution helped to reduce income inequality from The Depression to the 1970s. In addition to this redistribution from the rich to the poor, there was also government redistribution between birth cohorts. Typically, workers are taxed in order to pay for transfers to the young and the elderly, such as education and retirement benefits. If the age-profile of taxes and transfers are unchanged, then generations experience the same transfers and taxes over their lifetimes as they age through the life cycle. However, because of fiscal policy and demographic changes, generations may face a different time path of taxes and transfers over their lifetimes.¹

¹ The creation of Social Security, and its pay as you go nature, created an early “winning” generation (see Kolikoff 2003, Chapter 2 and Eschker 2003, Table 1.). The initial elderly paid few payroll taxes yet received relatively large Social Security benefits. By contrast, the expansion of education benefits created

What has been the history of public intergenerational transfers and which generation has benefited the most? The answer to this question will be helpful for policy makers who are currently facing important fiscal policy decisions. First, it can reveal how disparate the future treatment of cohorts may turn out. Second, past generosity toward a generation may influence future generosity toward the same generation.² Most prior research that has tried to determine how entire generations have fared has considered specific programs in isolation, such as rates of return to Social Security contributions (see Duggan et al. 1993, Leimer 1998 and 1994). As expected, returns to early retirees under pay-as-you-go pension systems received high rates of return per dollar contributed.

However, since one generation may benefit from the creation of one program while another generation may benefit from the creation of another program, it is important to assess the full generational impact of all federal, state, and local government programs.

an initial “losing” generation of workers and elderly because they paid for benefits that they did not receive.

² In the most recent projections, the Trustees of the Social Security System anticipate that in 2041 benefit obligations will exceed tax collections and will exhaust the Trust Fund (Trustees 2005). The ways to solve this budget dilemma include some combination of increasing the number of workers relative to retirees, reducing benefits, or increasing taxes. According to Kotlikoff 2004 “[The administration’s] plans are generationally inequitable. Social Security has a \$10.4 trillion unfunded liability, and well-heeled current and near-term retirees should be asked to help pay it. But the commission's plans force today's young and future generations to bear essentially the entire burden.” Since the burden of the solution may not be shared equally across generations, society will need to determine, either explicitly or tacitly, which generations burden the costs.

Thomson (1989) compares lifetime transfers of generations born in 1930 to those born in 1955 in New Zealand. He concludes that the early cohort is a “winning” generation since they benefited from the generous transfers to the young that blossomed in the post-war era, such as college and housing subsidies, and aid to families with children. The shift in New Zealand's priorities to the old in the 1970s and 80s through increasing payments to old-age programs meant more benefits to the early cohorts as they approach retirement age. The 1930 cohort, Thomson claims, was the right age at the right time.

Gokhale, Page, and Sturrock (1997, table 3) calculate lifetime net tax rates for those born in the US between 1900 and 1995 (see also Auerbach, Kotlikoff and Gokhale 1993), where net tax rates are defined as lifetime taxes paid minus transfers received as a fraction of lifetime income. They find that lifetime net taxes rise from twenty-four percent for those born in 1900 to thirty-three percent for those born in 1950 before and fall to twenty-nine percent for those born in 1995. The winning generation was born in 1900 since it paid the least in lifetime net taxes. However, they leave out education transfers which were a large portion of public sector intergenerational redistribution early this century. More importantly, they ignore general, non-age specific government spending and therefore implicitly ignore deficits. This is an important omission, since increases in debt that are not paid for during a generation's lifetime represent a net transfer to that generation.

This paper contributes to the literature by making the most comprehensive assessment of public transfers and taxes by age and by birth cohort.³ I calculate the age-profile of public net transfers 1900-2002 and find four distinct eras of redistribution policy. Over the twentieth century there was a change in the priorities of the government from primarily subsidizing the youth through education to the creation of elderly-centered welfare programs in the 1930s and 1960s to an expansion of government deficits in the 1980s. I also calculate which generation born 1900-1945 benefited the most over the twentieth century from changes in fiscal policy. Members of these generations are still living, but most of their tax and transfer history is known. Additionally, these generations are now sixty years old and greater, and it is unlikely that major changes in their benefits and taxes will be legislated.⁴ For these cohorts, per capita transfers in old age are far greater than transfers received in youth and taxes paid while working. I also find that cohorts born in 1945 will receive similar lifetime transfers, as a fraction of lifetime income, to those born in 1900 only if historical growth in aggregate or age-specific transfers is maintained.

³ In a broad sense, government redistribution is only one avenue by which cohorts may transfer resources. Cohorts make important sacrifices by sending soldiers to war and making private intergenerational transfers, among others. While these should all be taken into account in a complete assessment of cohort redistribution, they are beyond the scope of this paper.

⁴ No popular proposal for solving Social Security's long term budget dilemma includes changes in benefits to existing retirees or those near retirement. This is presumably because politicians perceive that the elderly will not vote for legislators who reduce senior benefits.

2. Generational Incidence

Transfer payments, such as Social Security, Foodstamps, and Unemployment Benefits represent resources to the cohort. In-kind benefits, such as Medicare and publicly provided education also represent resources. However, taxes, such as income and property taxes, reduce the resources available to each cohort. In addition to transfer payments, government expenditures benefit living generations.⁵ Some expenditures, such as public education, are easy to assign to a specific age-group. It is very difficult, however, to divide spending on public roads, national defense, and the provision of public parks between generations. This paper therefore assumes that general government consumption benefits accrue equally to all living cohorts.⁶ Net transfers, or transfer benefits received plus government expenditures minus taxes paid, are the net annual amounts that the government transfers to each birth cohort.⁷

⁵ If public capital goods, such as roads, are purchased then future-born cohorts will benefit as well but this paper does not distinguish between capital and consumption goods.

⁶ Gokhale et al. (1997) ignore general government consumption when producing lifetime net tax rates. This biases the resulting lifetime net transfers to be negative, since taxes must fund government consumption in addition to transfer payments. In other words, measured taxes collected are considerably greater than transfer payments. Their main conclusion, that lifetime net tax rates have risen for later-born cohorts, simply shows that government has grown over the twentieth century, and that it takes more taxes to fund larger government expenditures.

⁷ Transfer payments which are paid to one birth cohort may “benefit” another. For instance, providing Medicare services to elderly may relieve adult children from spending their own resources on their parent’s medical needs. However, a good deal of intergenerational altruism would need to be assumed in order to assign the benefits of elderly Medicare payments to their children. Altonji et al. (1995) find little evidence for much altruism.

Fiscal policy has at least two distinct ways that it can redistribute across generations. First, changes in fiscal policy will benefit some generations at the expense of others because the policy will benefit certain ages at the expense of others. For instance, the creation of a public pension plan that is pay as you go funded will benefit current elderly. Second, deficits may allow some generations to escape taxes through death.⁸ Since the deficit is government consumption plus transfers minus taxes, then current generations get benefits in the form of expenditures or transfers without current generations paying taxes. Conversely, a surplus, perhaps used to pay off accumulated debt, implies that some generations will pay taxes in excess of the expenditures or transfers that they receive.⁹

I adopt the generational accounting framework of Auerbach et al. (1991) to construct cohort net benefits.¹⁰ The three types of data are required in order to calculate net

⁸ In addition to these net resource transfers, fiscal policy also will affect factor prices. In a general equilibrium model, Kotlikoff (2003) shows that the creation of a transfer scheme from workers to elderly will permanently reduce the capital stock, which increases the return to capital and decreases wages. Additionally, the workers lose because they forego earned interest on the amount that they are taxed, even if they expect to receive the same amount once they reach retirement. These considerations may affect which generation is the “winning” generation in a broader definition, but this paper will focus solely on the net public resource transfers between generations.

⁹ While Ricardian Equivalence predicts that private transfers between generations will offset public redistribution and leave lifetime resources unchanged, this paper will only consider public transfers.

¹⁰ An important difference, however, is that generational accounts are the present value of all remaining lifetime net tax payments while in this paper I construct real lifetime net transfers summed over the

benefits in any year are 1) total government (federal, state and local) transfers paid and taxes collected for each program, 2) population by sex and age and 3) age-specific average transfers and taxes by sex. Consider a government transfer program in any year. Assume that each cohort lives for 110 years and, to simplify notation, that both sexes receive the same transfer.¹¹ The aggregate transfers paid by an individual transfer program, *TRANSFER*, is equal to the sum over all ages of the average transfer received by a person of age i , T_i , times the population of age i , P_i , or

$$TRANSFER = \sum_{i=0}^{110} T_i P_i . \quad (1)$$

Now chose a base age for comparison. If the average transfer received by the base age is T_{base} then the average transfer received by someone age i relative to someone the base age is $A_i = T_i / T_{base}$, or

$$T_i = A_i * T_{base} . \quad (2)$$

Substituting equation (2) into (1) and factoring out T_{base} yields

generation's entire lifetime. For a discussion of generational accounting, see Haveman (1994), Diamond (1996), and Cutler (1996).

¹¹ Male and female net transfers are calculated and combined, weighted by sex population, in order to calculate average cohort net transfers per surviving cohort member.

$$TRANSFER = T_{base} \sum_{i=0}^{110} A_i P_i . \quad (3)$$

Thus, for any transfer program one can solve for T_{base} using (3) if one knows total government transfers ($TRANSFER$), the population age-structure (P_i s) and the ratios of average payments by age (A_i s). One can then get average transfers to a person age i (T_i) using (2). Lastly, one can sum over all transfers and taxes in any one year to get net transfers that the average person of the cohort receives in that year, and sum over all years to get lifetime net transfers.¹²

3. Data

The data definitions are the same as in Auerbach et al. (1991). The five tax categories are labor taxes, which are labor's share (80 percent) of federal and state income taxes; capital taxes, which are capital's share (20 percent) of income taxes; Federal Insurance Contribution Act (FICA) payroll taxes; excise taxes, which are taxes on production and imports and do not include non-business property taxes; and residential property taxes.

The eight transfer categories are Old Age Survivors Disability Insurance (Social

¹² As a simple example of how transfers are attributed to specific ages, assume that people live for only two periods so that in any given period there are only two birth cohorts alive, the old and the young. Suppose that total transfers paid by the government are \$100 and there are five old and ten young people. If the base age is the old, and if the old receive, on average, twice as much as the young, then equation (3) becomes $100 = T_o[2(10) + 1(5)]$. Solving this yields $T_o = 4$ and $T_y = 8$, since $T_y = 2T_o$.

Security), which includes federal and state supplemental security income for the elderly; Medicare; Family Support (Temporary Aid to Needy Families); general welfare, which includes Medicaid; Food Stamps; unemployment insurance; public education expenditures on primary, secondary and upper education; and all remaining government consumption expenditures, which includes interest payments and benefits to government employees.

Annual aggregate transfers and taxes 1929-2002 come from the National Income and Product Accounts (NIPA) (BEA 2005). Historical Statistics of the U.S. Colonial Times to 1970 is used to construct data 1900-1928 (Census 1975). The series in Historical Statistics do not precisely match the NIPA definitions, so indexes are created for similar categories using Historical Statistics. The NIPA series are projected backwards to 1900 using these indexes and 1929 NIPA benchmarks. Education expenditures 1959-2002 come from the NIPA. The Digest of Education Statistics is used to construct the data 1900 to 1928 (Education 2003). The Consumer Price Index found in the U.S. Bureau of Labor Statistics' CPI Historical Tables is used to convert numbers to constant 1982-84 dollars (BLS 2005). Table 1 shows real aggregate transfers and taxes in select years.

Historical population estimates through 2004 come from the Census Bureau (Census 2005a, 2005b, 2005c, 2005d, and 2005e). Population projections through 2050 come from the Census Bureau and are the most recent interim projections based on the 2000 Census and based on the "middle" fertility, mortality, and immigration assumptions. Gaps in estimated and projected population are estimated through interpolation and

projected using life tables from the National Center for Health Statistics (Health 2005a and 2005b).

Average transfer and tax data by age come from Appendix Tables 3 and 4 in Auerbach et al. (1991). They use the Bureau of the Census' Survey of Income and Program Participation and the Bureau of Labor Statistics' Consumer Expenditure Surveys to calculate average transfers received and taxes paid by all members of a given age in 1984. I interpolate between their given benchmark ages to get payments for ages 0 through 110. Since the data are household-level, Auerbach et al. (1991) had to assign total household taxes and transfers to individual household members to get age-specific estimates. A result of this is that, for example, excise taxes are attributed to children. I distribute education payments equally among all people age 5-22 and general government consumption expenditures equally among all people. Table 2 shows the A_i or relative transfer payments for select ages from equation (2).¹³

4. The Age-Profile of Policy

There are four distinct eras over the twentieth century with regard to net public transfers. For each era, the age-profile is distinct and government favored a different age-group. In each era, legislation was enacted that led to fiscal policy changes in subsequent eras.

¹³ The weights in Table 2 are assumed to remain constant over the entire period 1900-2055. While this may not be accurate since changes in population and income distribution and fiscal policy will change the age-profile of transfers and taxes over time, data limitations prohibit calculating age-profiles of tax and transfer programs before the 1980s, since the Survey of Income and Program Participation started in 1984.

These four eras are distinguished by the key fiscal element that defined each era: education, Social Security, Medicare, and deficits.

4.1 Education Era

Fiscal policy before WWII was overwhelmingly youth-centered and the largest age-targeted transfer program was education. Table 1a shows that in 1900, real aggregate education payments equaled over \$2 billion and grew by a factor of almost seven until 1940. General welfare payments, which benefit all ages, grew by a factor of almost twelve, but started at only one seventh the level of education payments in 1900. General government expenditures, which benefit all ages equally, grew faster than education payments, and were paid for by rapidly growing capital and labor taxes.

Figure 1a shows average real net transfers from 1900 to 2002 in 1982-84 thousands of dollars. From 1900 to 1940, the shape of the age-profile of net transfers does not change, although the scale of the curve grows. The young are the only ages who receive positive net transfers. The elderly receive negative net transfers, and this amount is only slightly less negative than what people in their working ages pay. Table 3 shows the amounts of net transfers going to ten year-olds and seventy year-olds minus net transfers going to forty year-olds. The real amount receive by ten year-olds relative to forty year-olds rises by almost one thousand dollars, or a factor of three and a half, from 1900 to 1940. Over the same years, the relative amount paid by seventy year-olds fell in absolute terms.

Goldin (2001) calls the twentieth century the “human-capital century.” She finds that before WWII the U.S. was distinguished from other countries by having relatively high secondary education enrollments. Goldin says that “...around 1910 the United States pulled ahead of all other nations in terms of enrollment rates in postelementary education.” (Goldin p. 265).

4.2 Social Security Era

From 1940 to 1965, government policy grew relatively more favorable to the elderly although in 1965 average net transfers to the young were still higher than those to the elderly. From the first payments in 1941 to 1965, Social Security transfers grew by a factor of almost one hundred fold to sixty-four billion dollars. Over the same period, education payments grew to almost seventy-seven billion dollars. No other age targeted transfers were important by comparison. Taxes increased, with taxes on labor and FICA taxes leading the way. These grew by a factor of almost fourteen and five, respectively, and by 1965 labor and FICA taxes combined for almost forty percent of total taxes collected.

Figure 1a shows that by 1950, net transfers became significantly positive for the oldest age groups. In fact, the first year in which any age over sixty-five averaged positive net transfers was 1943. Figure 1b shows that by 1965, the typical person over age sixty-eight averaged positive net transfers. Table 3 shows that from 1940 to 1965, real net transfers of seventy year-olds, relative to forty year-olds, grew by almost four thousand dollars to a

level of \$3,738. In comparison to transfers to the young, net transfers to the elderly were less but sizeable nonetheless by 1965.

It was not just the original Social Security Act of 1935 and the 1937 amendment that made the Social Security Era possible. Through the 1970s, Social Security expanded to cover more workers and replace a higher portion of wages. The 1939 amendment began coverage of spouses and dependents, the 1954 amendment began disability coverage, and the 1961 amendment lowered the age when benefits could begin (see Social Security 2005). In the 1970s, Supplemental Security Income and cost of living adjustments were added.

4.3 Medicare Era

From 1966 to 1981, fiscal policy for the first time became elderly-centered as average net transfers to the elderly became greater than those to the young. Medicare was created in 1965 and payments were first made in 1966. By 1981 Medicare payments were almost fifty billion dollars and almost thirty percent as large as Social Security payments. Only in the four years from 1969 to 1972 did Social Security grow faster than Medicare.

While Social Security aggregate payments were still the biggest part of transfers to the elderly, growth in Social Security was losing steam by 1981, and Medicare transfers were what finally tilted the balance of fiscal policy toward the elderly. From 1966 to 1981, Medicare, Social Security and education aggregate payments grew by 1,450 percent, 138 percent, and 79 percent, respectively.

Figure 1b shows that by 1982, net transfers to the elderly were comfortably larger than net transfers to the young. Table 3 indicates that this change took place during the 1970s. From 1965 to 1982, relative net transfers to the young grew by \$2,400, while relative net transfers to the elderly grew by almost six thousand dollars.

4.4 Deficit Era

From 1982 to 2002, government policy became the most elderly-centered that it was at any time during the twentieth century. In the aggregate, Medicare expenditures grew by 178 percent, Social Security by 59 percent, and education by 77 percent. Figure 1b shows that the typical elderly person received far more in net transfers than the typical child. Table 3 shows that from 1982 to 2002 the relative net transfer to ten year-olds grew by just over three thousand dollars while the relative net transfer to seventy year-olds grew by over four thousand dollars.

In many ways, the period after 1982 is similar to the Medicare era, with transfers to the elderly rising relative to the young and Medicare being the main contributor. However, individually, the aggregate tax and transfer totals do not reveal the large change in fiscal policy starting in 1982. Before that year, the combined budget deficit of all levels of government typically increased during periods of war, and then returned to small deficits or surpluses. In the 1960s real total government budget deficits averaged \$23 billion per year and in the 1970s the average annual deficits averaged \$62 billion. In 1982, the deficit grew by \$100 billion and ballooned to over \$100 billion for only the third time ever. Deficits have been large and persistent ever since. The deficit averaged \$159

billion and \$129 billion annually in the 1980s and 1990s, respectively. There were a few notable surplus years at the turn of the millennium, but deficits have returned to record levels and averaged \$106 billion in the 2000s.

What impact did these deficits have on the age-profile of net transfers? It is impossible to say, since one needs to know what fiscal policy would have been in the absence of deficits. All that is certain is that with the deficits, taxes may have been lower than otherwise and transfers may have been larger than otherwise. From the perspective of the age-profile of net transfers, the rise in deficits means that transfers to the young and old were probably larger, and taxes on workers smaller, than otherwise would be the case. Another consequence of persistent deficits is rising levels of debt. If a generation gains from a deficit through larger transfers or smaller taxes, but then dies before the debt is repaid, then there has been a transfer to that generation from future generations who must repay the debt. The cohort born in 1900 was eighty two years-old when the deficit era began and the number of living cohort members is rapidly dwindling. If any gains were realized by this generation through increased debt, then that debt will almost surely outlive the 1900 generation. On the other hand, cohorts born closer to 1945 may be asked to repay their own gains, through increased taxation over the next few decades if the debt is substantially reduced.

To summarize, over the twentieth century fiscal policy has decidedly moved from being youth-centered to elderly-centered, although different transfer and tax programs are responsible. This swing toward retirees has been slow but steady. In absolute terms, the

largest gains came to the elderly after the 1950s, and by the 1970s the elderly received more net transfers than the young. While the initial elderly who received Social Security payments in the 1940s earned a high rate of return, because their benefits were large as a percent of their contributions, the amounts transferred to the elderly only became significant a few decades later. Thus, the true winning elderly were those who retired in the 1970s and later.

5. The Winning Generation

5.1 Cohort Transfers by Age

The data in Figures 1a and 1b can be arranged by cohort rather than age. Figure 2 plots real net transfers by age for four cohorts. The amounts shown are per surviving person, or the average net transfer received by a living member of each cohort at each age. The 1900 cohort data is from age zero through age 102. Net transfers in youth were insignificant for this cohort and net taxes during working ages peaked at about \$2,500 per person per year. Benefits climbed throughout retirement to a level of \$10,000 per person. What is most evident for this cohort is the very large transfers per person received in retirement in relation to the taxes and transfers earlier in life. The other three cohorts follow a similar pattern over their lifetime, with transfers during childhood and retirement and taxes during working ages growing larger for successive cohorts.

5.2 Pre-retirement Lifetime Transfers

Since all of the cohorts born 1900-1945 were living in 2002 we cannot calculate their complete lifetime net transfers. However, one can form historical lifetime net transfers for each of these cohorts through age 57. Figure 3 sums up actual annual net transfers in Figure 2 by cohort through age 57. It shows that actual lifetime net transfers fell the later that the cohort was born. For the cohort born in 1900, pre-retirement lifetime net transfers were negative thirty-thousand dollars, which means that they paid more in taxes than they received in transfers up through age 57. This is not surprising, since the totals in Figure 3 do not include the substantial Social Security and Medicare payments they received during their retirement years. For the 1945 cohort, lifetime net benefits were over negative eighty-thousand dollars, or almost three times the amount of the earlier cohort. Figure 3 also shows that pre-retirement lifetime net transfers fell more quickly for successive cohorts born between 1900 and 1920 than successive cohorts born after 1920. Cohorts born in the early 1920s paid double in lifetime pre-retirement taxes than cohorts born only twenty years earlier. On the other hand, cohorts born in the early 1940s faced pre-retirement taxes which were only ten percent more than cohorts born twenty years earlier paid. This may reflect the impact of the Deficit Era, which reduced the tax burden in the 1980s for the 1940 cohort, who were entering their high income earning, and high net tax, ages.

How do these net transfers compare to cohort lifetime income? From 1929-2004 per capita real GDP grew by 2.1 percent (BEA 2005). If annual cohort income grows by this amount, then a cohort born one year later will have 2.1 percent greater lifetime income

than a cohort born one year earlier. Figure 3 includes a benchmark line which is the 1900 cohort lifetime real net transfer adjusted for a 2.1 percent growth rate. As the benchmark shows, the cohort born in the 1920s received lifetime net transfers that are almost twenty thousand dollars less than what the 1900 cohort received on a growth-adjusted basis. On the other hand, the actual pre-retirement lifetime transfers to cohorts born in the 1940s was very close to lifetime transfers received by the 1900 cohort on a growth-adjusted basis. Still, these numbers are lifetime totals, and negative net transfers of between thirty and eighty thousand dollars are not terribly significant. In order to get a better idea of lifetime resource transfers, one must look at the massive retirement transfers to each cohort.

5.3 Projected Lifetime Net Transfers

While it is impossible to present historical lifetime net transfers for these cohorts, one can consider alternative future policies to project lifetime net transfers. Since the 1945 cohort will turn 110 in 2055, one must project the future path of transfers and taxes through mid-century. Table 4 shows lifetime net transfers under four assumptions about future policy.

First, suppose that the budget making process focuses largely on aggregate expenditures, rather than per capita expenditures. Specifically, suppose that each tax and transfer program grows at its historical rate over the Deficit Era, 1985-2002, as shown in assumption 1 in Table 4.¹⁴ In this case, a member of the 1900 cohort can expect to

¹⁴ I use 1985 rather than 1982 as the starting point because 1985 is a non-recession year and it is in a similar point in the business cycle as is 2002.

receive \$314,000 over their lifetime in real net transfers, while a member of the 1945 cohort can expect to receive \$998,000. Of course, cohort lifetime income grew for successive cohorts, so one expects lifetime transfers to rise as well. In order to adjust for this, Table 4 also includes benchmark amounts, which are the 1900 cohort lifetime net transfer under each assumption adjusted for the 1929-2004 real per capita GDP average annual growth rate. For example, a member of the 1945 cohort would need to receive \$799,000 in lifetime real net transfers to have the same growth-adjusted lifetime transfers as someone born in 1900. According to assumption 1, cohorts born in the 1940s receive greater net transfers than those born earlier on a growth-adjusted basis. Assumption 1 seems to benefit the later-born cohorts the most because the deficit explodes and these later-born cohorts benefit from both reduced taxes and increased transfers during their lifetime. Suppose instead that all transfer and tax programs grow by two percent annually, or the same as per capita real GDP growth, from their 2002 aggregate starting value. Assumption 2 in Table 4 shows lifetime net transfers under this assumption. At a two percent aggregate growth rate, cohorts born 1920-1945 received higher net transfers than those born earlier. The cohort born in 1945 enjoys lifetime net transfers of \$405 thousand while those born in 1920 and 1900 receive transfers of \$380 thousand and \$307 thousand, respectively. However, compared to the growth-adjusted benchmark, the later-born cohorts do worse.

Second, suppose that fiscal policy is more concerned with maintaining per capita transfers and taxes. Two possibilities are that the age-profile of net transfers by age may grow at a constant rate or remain fixed in real terms. In other words, all the values in the

2002 age-profile in Figures 1a and 1b may grow by the same percent or may remain unchanged. Assumption 3 in Table 4 projects that real net transfers for each age grow by the same historical percent as they did 1985-2002. In this case lifetime net transfers rise quickly from \$300 thousand for the 1900 cohort to over \$750 thousand for the 1945 cohort, and lifetime benefits largely keep up with lifetime income. Suppose instead that the projected age-profile of lifetime real net transfers remains constant, as shown in assumption 4. In this case, lifetime net transfers rise from just over \$300 thousand for the cohort born in 1900 to just over \$380 thousand for the cohort born in 1925 and remain essentially constant for later-born cohorts. Lifetime benefits for later-born cohorts remain far below the growth-adjusted benchmark.

Under these four scenarios, those born 1920-1945 always receive greater lifetime real net transfers than those born 1900 to 1920. However, in two of the four assumptions of future policy, the later-born cohorts received lifetime net transfers that were a much smaller portion of lifetime income than the earlier-born cohort. Therefore, it seems that the later-born cohorts may expect to receive tens or hundreds of thousands of dollars more in real lifetime net transfers than earlier-born cohorts, but net transfers will be similar in relation to lifetime income only if future policy maintains either historical growth in aggregate transfers and taxes or the age-profile of transfers and taxes.

6. Conclusions

This paper is the most comprehensive look at federal, state and local government redistribution between ages and between birth cohorts. There were four eras of

government redistribution, but from 1900 to 2002, fiscal policy shifted from transferring net resources to the young toward largely transferring resources to the elderly. By 1965, elderly and youth transfers were approximately even, and the elderly who reached retirement after 1970 were the true beneficiaries from changing policy. In cohort terms, per capita transfers in old age are far larger than transfers received in youth. From birth until retirement, the cohort born in 1945 received similar net transfers to the 1900 cohort after adjusting for income growth. However, unless aggregate taxes and transfers, or the age-profile of net transfers, rises at its historical rate then those born 1940-45 will do relatively worse than those born in 1900 on a growth-adjusted basis. It seems that birth cohorts separated only by a decade or two may not be treated the same by the government.

References

Altonji, Joseph G., Hayashi, Fumio and Kotlikoff, Laurence J., 1995. "Parental Altruism and Inter Vivos Transfers: Theory and Evidence," National Bureau of Economic Research Working Paper, no 5378.

Auerbach, Alan J., Gokhale, Jagadeesh and Kotlikoff, Laurence J., 1993. "Generational Accounts and Lifetime Tax Rates, 1900-1991," *Economic Review*, Federal Reserve Bank of Cleveland, Quarter 1, vol 29, no 1, 2-13.

Auerbach, Alan J., Gokhale, Jagadeesh and Kotlikoff, Laurence J., 1991. "Generational Accounts: A Meaningful Alternative to Deficit Accounting," in David Bradford (ed) *Tax Policy and the Economy*. Cambridge Ma: The MIT Press.

Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Trust Funds, 2005. "Annual Report," March 23,
<<http://www.ssa.gov/OACT/TR/TR05/index.html>>.

Cutler, David M., 1993. Book Review of *Generational Accounting: Knowing Who Pays, and When, for What We Spend*, by Kotlikoff, Laurence J., *National Tax Journal*, vol XLVI, no 1, 61-67.

Diamond, Peter, 1996. "Generational Accounts and Generational Balance: An Assessment," *National Tax Journal* 49, no. 4, 597-607.

Duggan, James E., Gillingham, Robert and Greenlees, John S., 1993. "Returns Paid to Early Social Security Cohorts," *Contemporary Policy Issues*, vol XI, no 4, 1-14.

Eschker, Erick, 2003. "The Characteristics of Countries with Generational Account Imbalances," *Journal of Comparative Policy Analysis*, vol. 5, issue 1, March, pp. 39-57.

Gokhale, Jagadeesh, Page, Benjamin R., and Sturrock, John R., 1997. "Generational Accounts for the United States: An Update," *Economic Review*, Federal Reserve Bank of Cleveland, vol 33, no 4, quarter 4, 2-23.

Goldin, Claudia, 2001. "The Human-Capital Century and American Leadership: Virtues of the Past," *The Journal of Economic History*, vol 1, no 2, June, 263-292.

Haveman, Robert, 1994. "Should Generational Accounts Replace Public Budgets and Deficits?" *The Journal of Economic Perspectives*, vol 8, no 1, Winter, 95-112.

Kotlikoff, Laurence J., 2004. "The End of Social Security? Don't Reform It, Replace It," *The Boston Globe*, November 21.

Kotlikoff, Laurence J., 2003. *Generational Policy*, Cambridge, Massachusetts: The MIT Press.

Leimer, Dean R., 1994. "Cohort-Specific Measures of Lifetime Net Social Security Transfers," ORS Working Paper Number 59, Office of Research and Statistics, Social Security Administration.

Leimer, Dean R., 1998. "Historical Redistribution Under the Social Security Disability Insurance Program," *Social Security Bulletin*, vol 61, no 3, pp. 3-19.

Lindert, Peter H., 2000. "Three Centuries of Inequality in Britain and America," in Anthony B. Atkinson and Bourguignon, Francois (eds) *Handbook of Income Distribution*. New York: Elsevier Science, North-Holland. Vol 1, 167-216.

Thomson, David, 1989. "The Welfare State and Generation Conflict: Winners and Losers," in Paul Johnson, Christoph Conrad and David Thomson (eds) *Workers Versus Pensioners: Intergenerational Justice in an Ageing World*. New York: Manchester University Press.

U.S. Bureau of Labor Statistics, 2005. "Consumer Price Index All Urban Consumers," Washington, D.C. <http://www.bls.gov/cpi/home.htm>.

U.S. Bureau of the Census, 1975. *Historical Statistics of the United States, Colonial Times to 1970, Bicentennial Edition, Part 1 and 2*. Washington, DC.

U.S. Bureau of the Census, 2005a. "Monthly Population Estimates, 1990 to 2000," Washington, D.C. www.census.gov/popest/archives/1990s/nat_detail.html.

U.S. Bureau of the Census, 2005b. "Monthly Population Estimates, 2000 to 2004," Washington, D.C., www.census.gov/popest/national/asrh/2003_nat_af.html.

U.S. Bureau of the Census, 2005c. "National Estimates: Quarterly Population Estimates, 1980 to 1990," Washington, D.C. www.census.gov/popest/archives/1980s/80s_nat_detail.html.

U.S. Bureau of the Census, 2005d. "U.S. Interim Projections by Age, Sex, Race, and Hispanic Origin, 2000-2050," Washington, D.C., March, www.census.gov/ipc/www/usinterimproj/.

U.S. Bureau of the Census, 2005e. "U.S. Population Estimates, by Age, Sex, and Race: 1900 to 1979," Population Division Electronic Product PE-11, Washington, D.C. www.census.gov/popest/archives/pre-1980/PE-11.html.

U.S. Bureau of Economic Analysis, 2005. "National Income and Product Accounts, 2003 Comprehensive Revision," Washington, D.C., <http://www.bea.gov/beahome.html>.

U.S. Department of Health and Human Welfare, National Center for Health Statistics, 2005a. "United States Life Tables: 1959-61," vol 1, no 1.
<www.cdc.gov/nchs/data/lifetables/life59-61_1_1acc.pdf>.

U.S. Department of Health and Human Welfare, National Center for Health Statistics, 2005b. "U.S. Decennial Life Tables for 1989-91," vol 1, no 1.
<www.cdc.gov/nchs/data/lifetables/life89_1_1.pdf>.

U.S. Department of Education, National Center for Education Statistics, 2003. "Digest of Education Statistics," Washington, D.C.
<<http://nces.ed.gov/programs/digest/d03/index.asp>>.

Social Security Administration, 2005. "Brief History."
<<http://www.ssa.gov/history/briefhistory3.html>>

Wallis, John Joseph, 2000. "American Government Finance in the Long Run: 1790 to 1990," *Journal of Economic Perspectives*, vol 14, no 1, Winter, pp 61-82.

Table 1. Real Aggregate Transfers and Taxes 1900-2002^a

Year	<u>Transfers</u>							<u>Taxes</u>					
	Old Age, Survivors and Disability Insurance	Medicare	Family Support	General Welfare	Unemployment Insurance	Food Stamps	Government Expenditures	Education	Labor	Capital	FICA	Excise	Property
1900	0	0	0	0.3	0	0	9	2	0	0	0	16	4
1910	0	0	0	0.4	0	0	15	4	0	0	0	18	7
1920	0	0	0	0.4	0	0	22	4	0	7	0	16	8
1930	0	0	0	1	0	0	36	12	5	7	0	27	16
1940	0	0	4	4	4	0	76	15	7	24	11	53	18
1950	10	0	2	1	6	0	181	22	61	91	17	79	17
1960	44	0	3	3	10	0	284	51	120	109	48	121	32
1965	64	0	5	6	8	0	354	77	142	137	67	153	43
1970	89	19	12	16	11	3	457	117	207	139	111	184	54
1982	169	53	13	35	26	10	605	153	289	128	206	201	50
1990	200	82	15	62	14	11	786	200	357	185	299	257	71
2002	268	147	11	146	30	10	826	269	462	216	404	333	92

^aAll amounts in billions of 1982-84 dollars using the Consumer Price Index.

Source: Author's calculations using National Income and Product Accounts, Historical Statistics of the U.S. Colonial Times to 1970, and Digest of Education Statistics.

Table 2. Average Transfers and Taxes as fraction of Base Age Average, Selected Ages^a

Age	<u>Transfers</u>							<u>Taxes</u>					
	Old Age, Survivors and Disability Insurance	Medicare	Family Support	General Welfare	Unemployment Insurance	Food Stamps	Government Expenditures	Education	Labor	Capital	FICA	Excise	Property
<i>Males</i>													
5	0.01	0.00	0.00	0.41	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.41	0.00
15	0.02	0.00	0.31	0.36	0.66	0.26	1.00	1.00	0.29	0.01	0.29	0.68	0.00
25	0.02	0.00	2.65	0.52	2.48	1.21	1.00	0.00	1.09	0.12	1.09	1.01	0.10
35	0.02	0.00	4.35	0.60	3.47	2.04	1.00	0.00	1.83	0.40	1.83	1.22	0.45
45	0.05	0.00	3.33	0.60	3.14	2.00	1.00	0.00	2.01	0.76	2.01	1.26	0.80
55	0.17	0.00	2.12	0.69	2.49	1.51	1.00	0.00	1.80	1.01	1.80	1.16	0.95
65	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
75	1.62	2.35	0.19	1.28	0.00	0.75	1.00	0.00	0.23	0.79	0.23	0.86	0.99
85	1.37	2.79	0.00	0.94	0.00	0.68	1.00	0.00	0.05	0.61	0.05	0.78	0.93
95	1.11	2.97	0.00	0.27	0.00	0.62	1.00	0.00	0.00	0.54	0.00	0.75	0.86
105	0.90	3.15	0.00	0.07	0.00	0.57	1.00	0.00	0.00	0.48	0.00	0.72	0.79
<i>Females</i>													
5	0.01	0.00	0.00	0.77	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.35	0.00
15	0.02	0.00	13.04	0.64	0.41	2.94	1.00	1.00	0.21	0.00	0.21	0.56	0.02
25	0.03	0.00	27.24	0.91	1.20	6.97	1.00	0.00	0.66	0.02	0.66	0.90	0.22
35	0.06	0.00	22.96	1.03	1.49	6.90	1.00	0.00	0.95	0.12	0.95	1.14	0.53
45	0.09	0.00	12.83	0.95	1.26	4.24	1.00	0.00	0.97	0.28	0.97	1.20	0.80
55	0.15	0.00	4.89	0.90	0.92	2.08	1.00	0.00	0.81	0.43	0.81	1.09	1.00
65	0.71	1.00	0.81	1.11	0.41	1.28	1.00	0.00	0.45	0.49	0.45	0.89	1.12
75	1.21	2.35	0.00	1.35	0.04	1.11	1.00	0.00	0.12	0.43	0.12	0.70	1.21
85	1.15	2.79	0.00	1.37	0.00	1.11	1.00	0.00	0.01	0.21	0.01	0.63	1.33
95	1.01	2.97	0.00	1.37	0.00	1.11	1.00	0.00	0.00	0.00	0.00	0.63	1.46
105	0.89	3.15	0.00	1.38	0.00	1.11	1.00	0.00	0.00	0.00	0.00	0.64	1.61

^aThe base age is 17-year old males for Education. For all other programs the base age is 65-year old males.

Source: Auerbach et al. 1991, Appendix Tables 3, and 4.

TABLE 3 Relative Real Net Transfers for Ten and Seventy Year-Olds, 1900-2002^a

<u>Year</u>	<u>Ten Year-Old</u>	<u>Seventy Year-Old</u>
1900	394	43
1910	463	13
1920	540	-105
1930	909	-33
1940	1,372	-36
1950	2,946	752
1960	4,506	2,886
1965	5,478	3,738
1970	6,943	6,063
1982	7,915	9,589
1990	10,038	11,053
2002	11,020	13,726

^aAverage net transfers to ten- and seventy year-olds minus average net transfers to forty year-olds.

All amounts real 1982-84 dollars.

Source: Author's calculations.

Table 4. Cohort Lifetime Real Net Transfers under Four Projections, \$000s^a

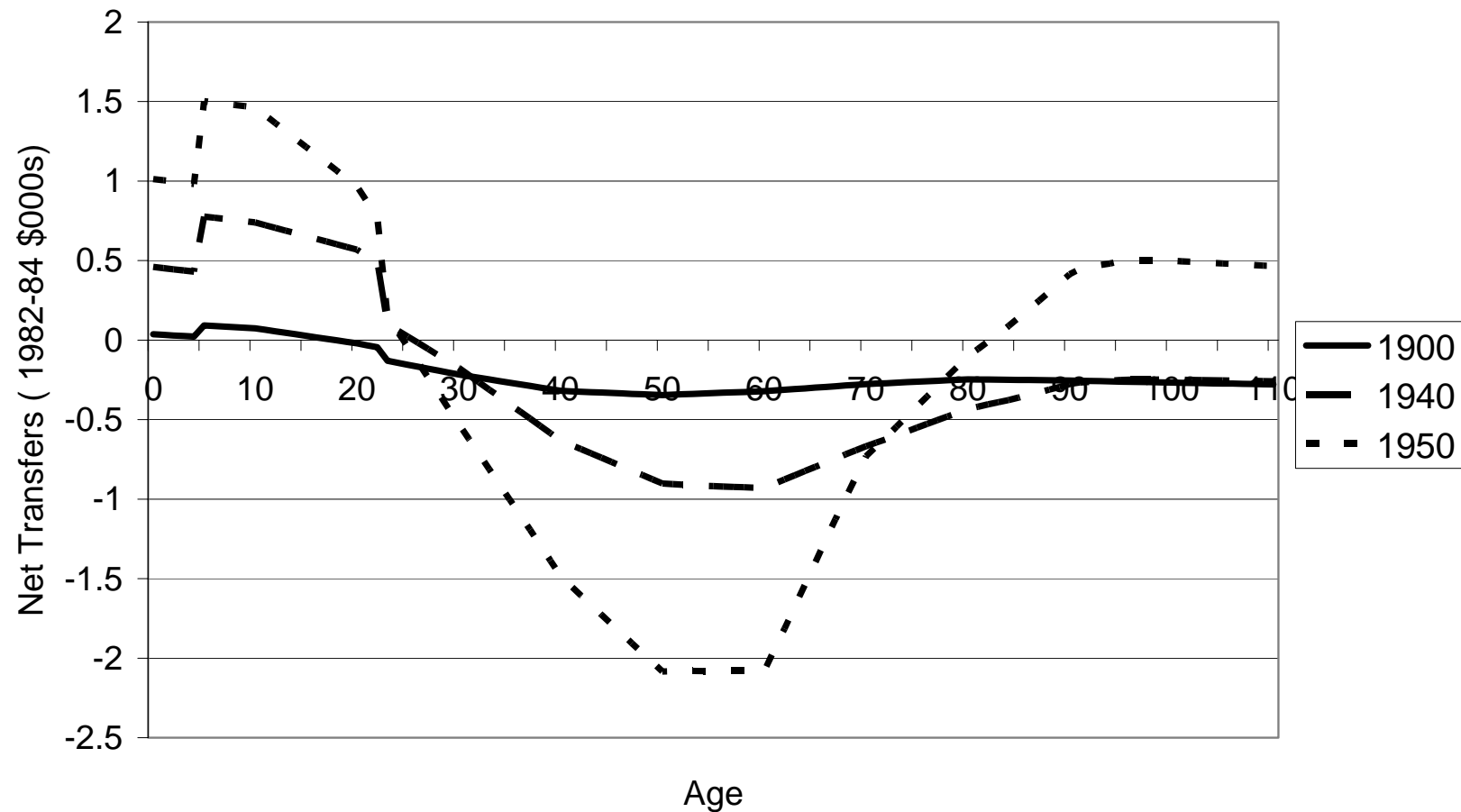
<u>Cohort Birthyear</u>	<u>Assumption 1</u>		<u>Assumption 2</u>		<u>Assumption 3</u>		<u>Assumption 4</u>	
	<u>Projected</u>	<u>Benchmark^b</u>	<u>Projected</u>	<u>Benchmark</u>	<u>Projected</u>	<u>Benchmark</u>	<u>Projected</u>	<u>Benchmark</u>
1900	314	314	307	307	312	312	304	304
1905	357	348	337	340	353	346	333	337
1910	396	386	358	377	392	384	353	374
1915	436	429	372	419	432	426	367	415
1920	480	475	380	464	475	472	377	460
1925	534	527	386	515	523	524	383	511
1930	604	585	389	572	575	581	385	567
1935	699	649	393	634	634	645	384	629
1940	829	720	399	704	700	715	384	698
1945	998	799	405	781	770	794	381	774

^aAll amounts 1982-84 dollars. See text for assumption definitions.

^bBenchmark is 1900 cohort lifetime net transfers at 2.1 percent annual growth.

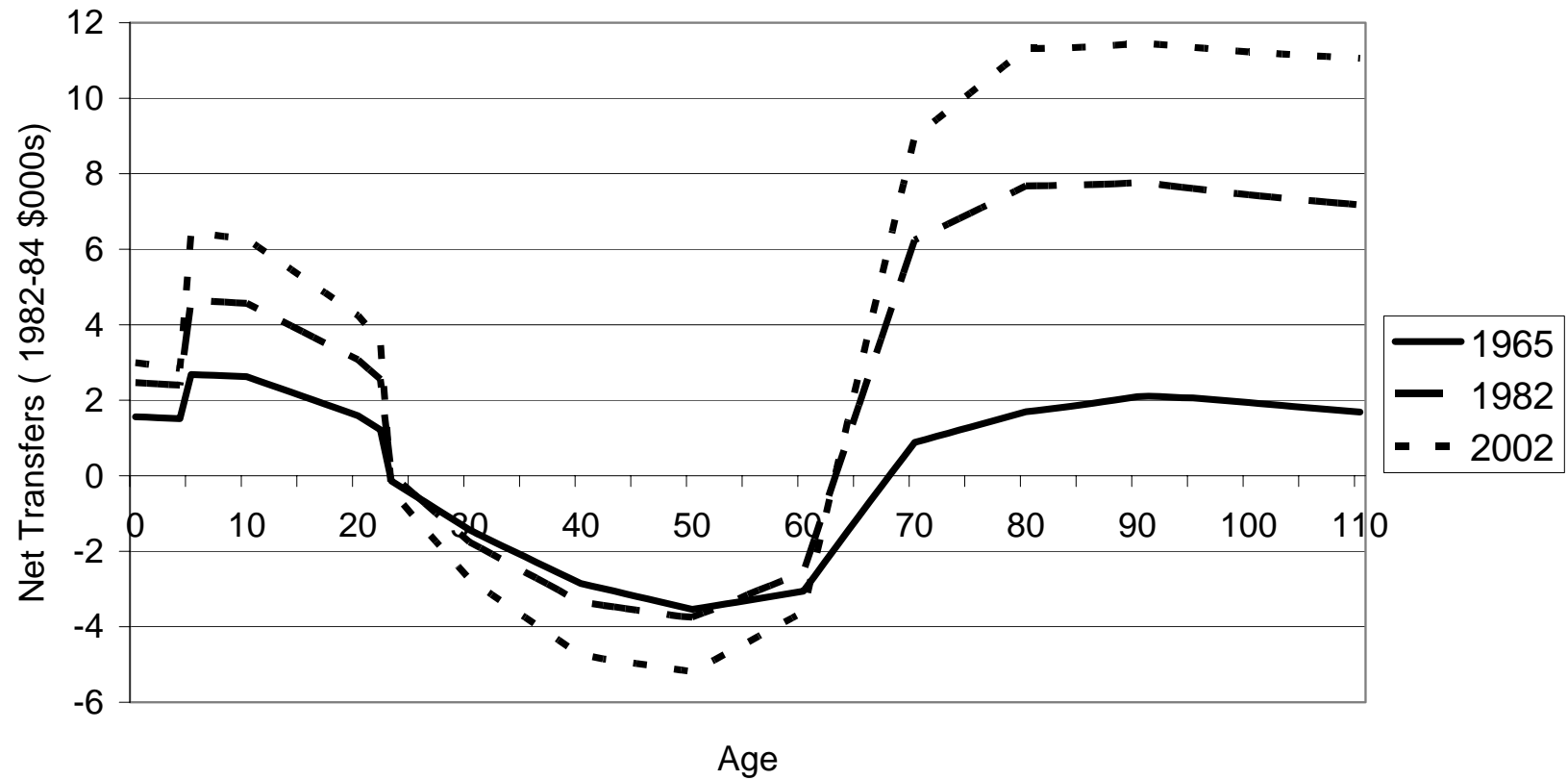
Source: Author's calculations.

Figure 1a. Average Real Net Transfers by Age,
1900, 1940, and 1950



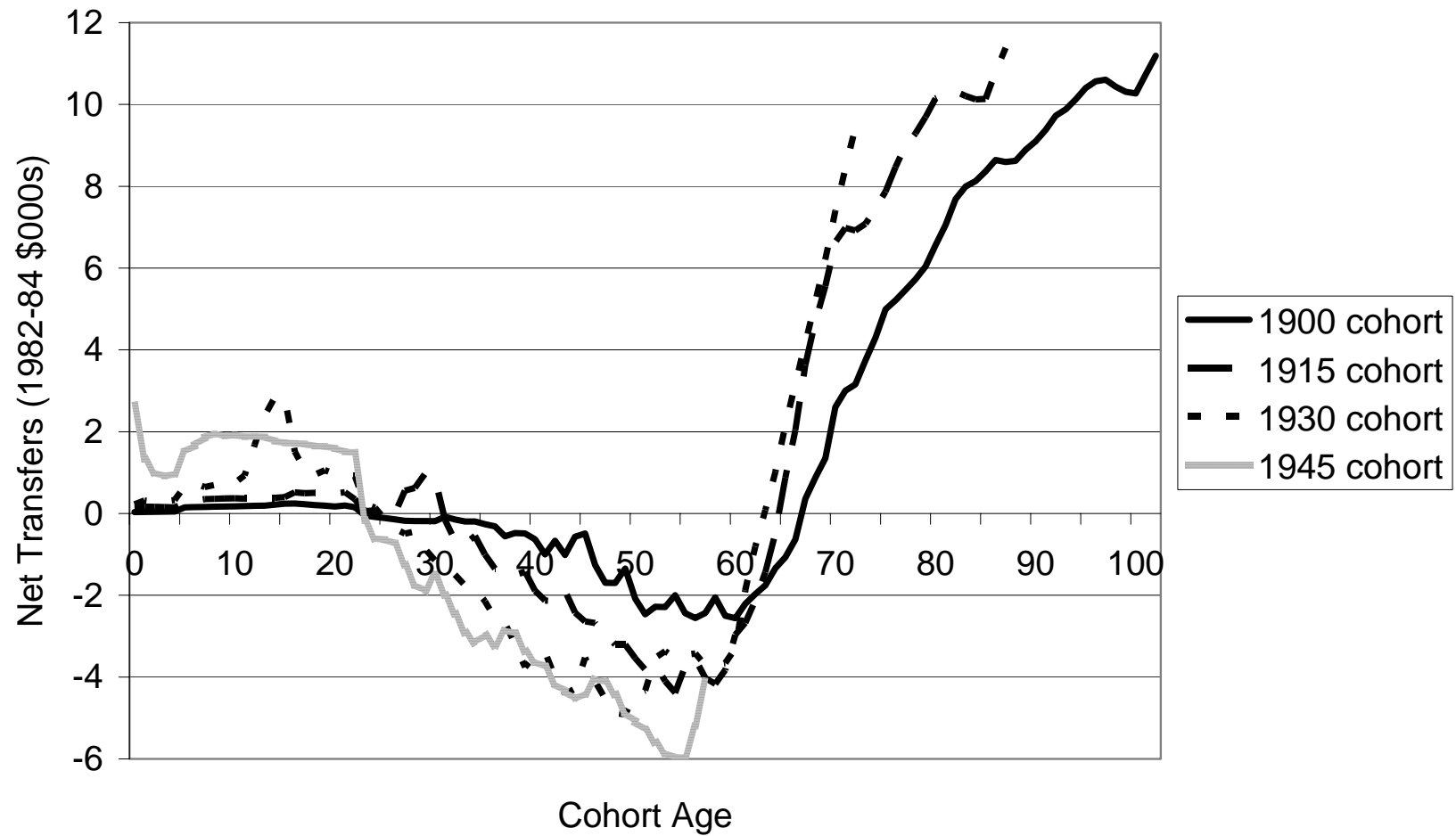
Net Transfers are all transfer payments, public education spending, and government consumption expenditures minus all taxes. Source: Author's calculations.

Figure 1b. Average Real Net Transfers by Age,
1965, 1982, and 2002



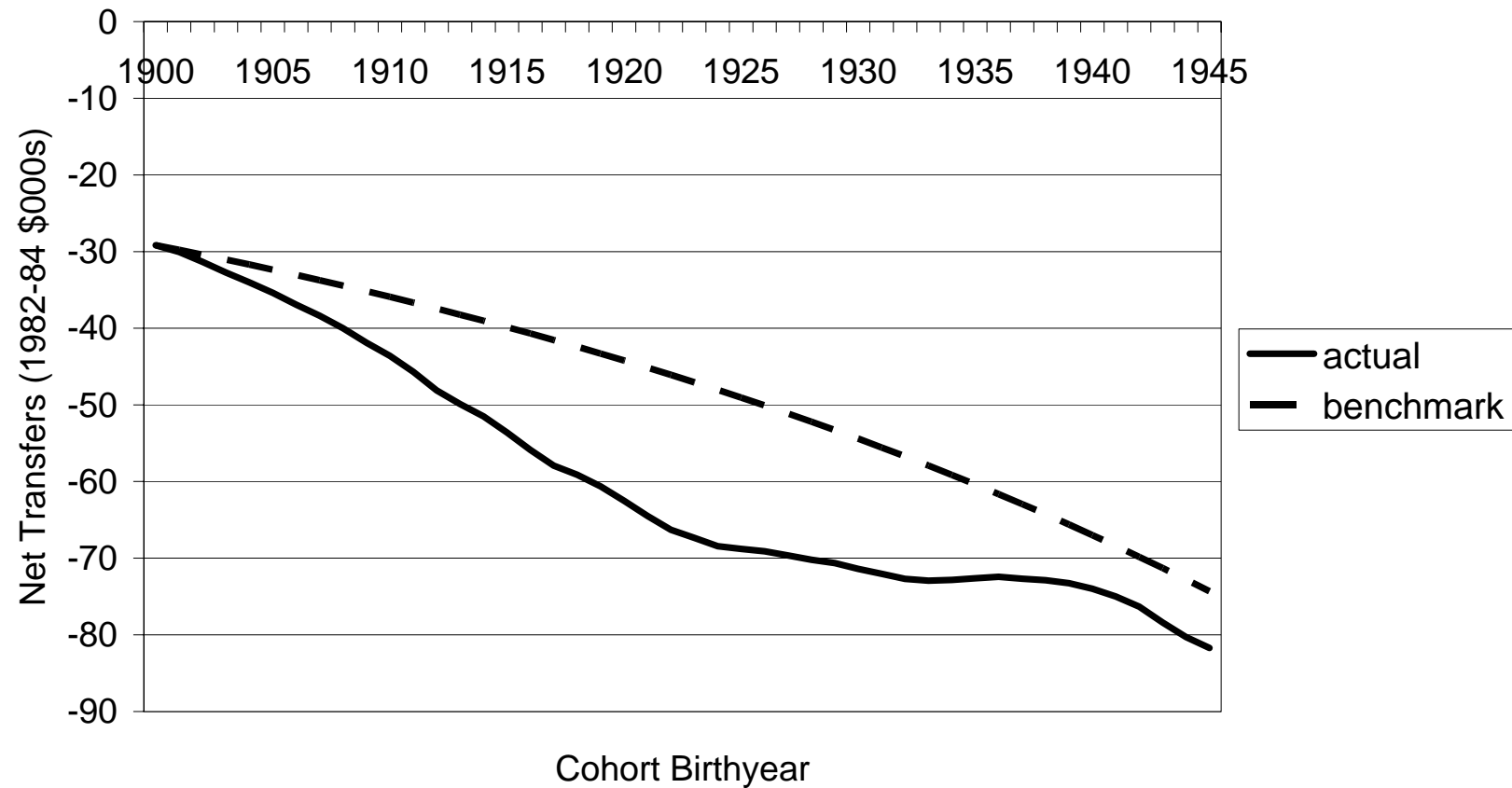
Net Transfers are all transfer payments, public education spending, and government consumption expenditures minus all taxes. Source: Author's calculations.

Figure 2. Real Cohort Net Transfers by Age, Select Cohorts



Source: Author's calculations.

Figure 3. Cohort Lifetime Real Net Transfers
Through Age 57, Cohorts 1900-1945^a



^aBenchmark is 1900 lifetime real net transfers at 2.1 percent annual growth. Source: Author's calculations.