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THE EQUITY OF SOCIAL SERVICES PROVIDED TO CHILDREN AND SENIOR CITIZENS

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ABSTRACT

This paper marshals a variety of different types of evidence in considering the degree of equity in the government's treatment of children vis-a-vis adults, particularly the current elderly. The paper begins by showing that poverty rates of children have, over the past two decades, risen dramatically while those of the elderly have fallen. Next, it shows that, over this same time frame, the levels of consumption and income of the elderly have risen relative to those of other Americans, including children. The paper then turns to the role of government policy in influencing these trends. It documents the high level of transfer payments going to the elderly relative to those going to children, even if one includes educational expenditures on children as a transfer payment. But the paper argues that such point-in-time comparisons are invalid because they fail to account for the fact that, at a point in time, children and the elderly are at different stages of their life cycles, Controlling for the stage of the life cycle requires examining the government's fiscal treatment of generations over their entire lifetimes. Accordingly, the paper compares the lifetime fiscal treatment of generations. Specifically, it presents/projects lifetime net tax rates for generations born from 1900 through the present as well as for generations that will be born in the future. These lifetime tax rates indicate that today's and tomorrow's children could well end up paying as much as 50, 60, or even 70 percent of their lifetime incomes to the government while generations that are now old will end up paying only about 25 percent of their lifetime incomes to the government. While the paper cautions that generational equity is in the eye of the beholder, such disparate taxation of generations does considerable violence to standard norms of generational equity.

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I. Introduction

This paper examines the government's current and prospective future treatment of the cohorts of Americans who are now children. The paper documents the flow of transfer payments now being given to children as well as the government services now being purchased on behalf of children. In addition, the paper considers the benefits and services today's children will receive as well as the taxes they will pay when they become adults.

In examining the transfer payments and services that today's children will receive, and the taxes they will pay, over their entire lifetimes, the paper seeks to answer the question: Are today's children being treated equitably compared with other generations, particularly today's elderly? In addressing this question the paper relies, in part, on a new method of comparing the lifetime net tax burdens (taxes paid less transfer payments received) of different generations. This new method is called generational accounting.[1] In taking a lifetime perspective, generational accounting overcomes the difficulty encountered with point-in-time comparisons between any two generations, namely that the two generations are at different stages of their life cycles.

To understand this difficulty, consider a country which has a longstanding policy of making transfer payments to children financed by taxes on the elderly. While a point-in-time, say time t, comparison of the treatment of children and elderly in this country would

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[1] See Laurence J. Kotlikoff, Generational Accounting: Knowing Who Pays and When for What We Spend, New York, N.Y.: The Free Press, 1992 and Alan J. Auerbach, Jagadeesh Gokhale, and Laurence J. Kotlikoff, "Generational Accounts: A Meaningful Alternative to Deficit Accounting," in David Bradford, ed., Tax Policy and the Economy, National Bureau of Economic Research volume, Cambridge, Mass: MIT Press, vol. 5, 1991, pp. 55-110.

suggest that children are being treated favorably compared to the elderly, this ignores the fact that the time-t elderly received the same amount of transfers when they were children as the children at time t receive and that the time-t children will pay the same amount of taxes when they are old as the elderly pay at time t. Thus, from a lifetime perspective the time-t children, in this example, are being treated neither better nor worse than the time-t elderly. In contrast to current flow accounting, generational accounting, when applied in this hypothetical setting, would document the equal lifetime treatment of the time-t children and elderly. Thus generational accounting provides a tool for comparing the fiscal treatment of different generations despite their being at different stages of their life cycles.

The next section of this paper attempts to motivate interest in the question: Are today's children being treated fairly relative to today's adults, in general, and to today's elderly, in particular. It begins by pointing out that poverty rates of children have risen over the past two decades while those of the elderly have fallen. It then documents the concomitant rise in the income and consumption levels of older generations relative to those of younger generations, including children. Next it raises the question of the government's role in altering the living standards of children relative to the elderly. In so doing it points out that much of the current plight of children cannot be traced to a lack of government financial support, but rather to the break-up of American families that has left almost a quarter of America's children living with, and relying on the support of, just one parent.

While Section II's discussion of demographics provides perspective on the limits of government policy in determining the relative living standards of children, the question remains as to whether the government has offset or exacerbated the relative economic

situation of today's children. The rest of the paper considers this question from both point-in-time and lifetime perspectives. Section III examines the current flows of transfer payments and services being provided children and compares these flows with those going to senior citizens. Section IV presents the generational accounting approach to comparing the lifetime net tax treatment of different generations. In particular, it compares the lifetime net tax rates of each generation of males and females that were born and or will be born in this century. A generation's lifetime net tax rate is defined as the ratio of its lifetime net tax payment to its lifetime labor earnings. Lifetime tax rates for different generations are calculated based on current services projections of future fiscal policy as well as alternative fiscal policy scenarios. The final section, Section V, summarizes the main findings of the paper and draws conclusions.

II. The Relative Economic Condition of America's Children

A. Poverty Rates Among Children and the Elderly

America today has about 13 million children living in poverty. About 35 percent of these children are African-American, and at least 20 percent are Hispanic. The roughly 13 million impoverished American children translates into a child poverty rate of close to one in five. Among African-American and Hispanic households the rates of child-poverty are even higher. Over two of every five African-American children and over one in every three Hispanic children are poor.

The 20 percent aggregate child-poverty rate tells us only about the fraction of children who are poor at a point in time. It doesn't indicate the fraction of children who either were

poor in the past or will be poor in the future. Since there is considerable mobility of children into and out of states of poverty, one can surmise that more than 20 percent of America's children experience one or more spells of poverty before they reach their 18th birthday. Indeed, calculations by Ellwood (1989) based on panel data indicate that over one third of those children born around 1970 experienced some years of poverty before they reached age 10.

As Figure I indicates, the current 20 percent point-in-time poverty rate for children is considerably higher than it was in the past. In 1970, for example, only 15 percent of children were classified as impoverished. At the same time that poverty rates have risen for children, they have declined for older Americans. In 1970 almost one quarter of all Americans age 65 and older were officially poor. Today's figure is about 12 percent.[2]

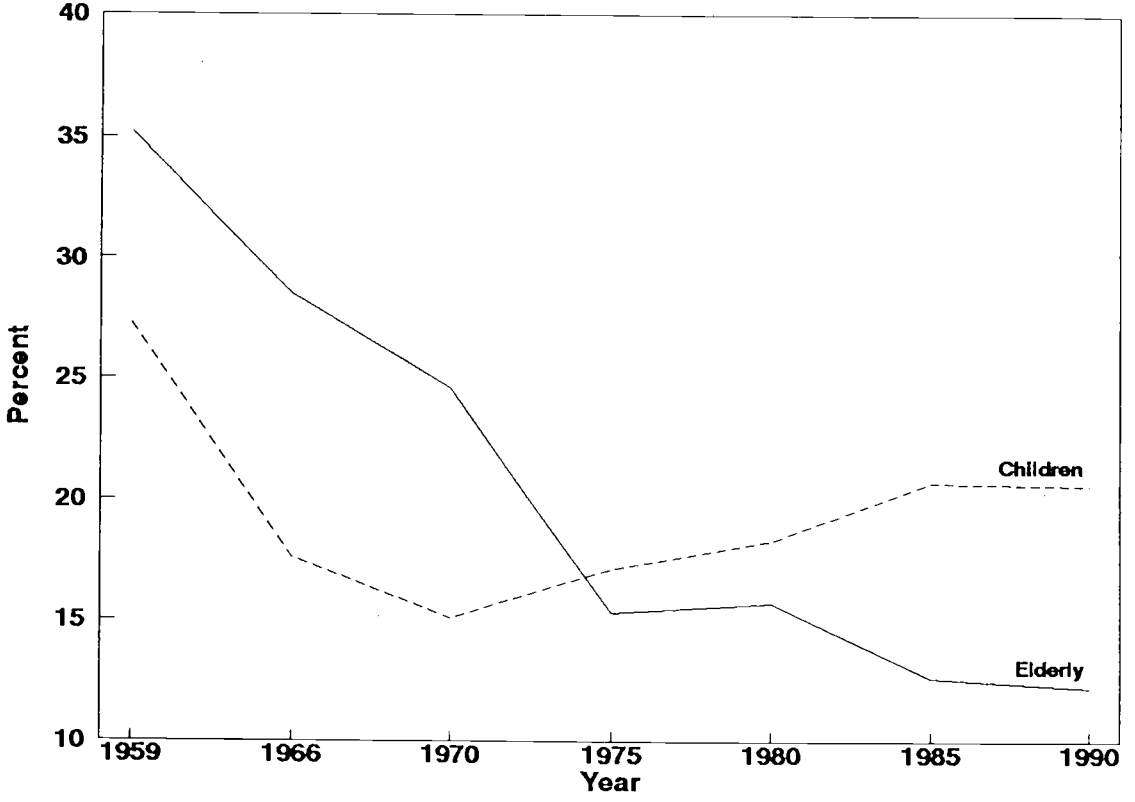
B. Demographics and Child-Poverty

The difference in poverty trends between the young and the old raises the question of the degree of equity of government treatment of the young and the old. But other factors besides government policy seem clearly to be at play, at least in raising child-poverty rates. One of the most important such factors is the increase in the fraction of America's children living with a single parent. In 1989 73.1 percent of all American children, 67.0 percent of Hispanic children, and 38.0 percent of African-American children lived with both parents. The respective 1970 figures are considerably higher: 85.2 percent, 77.7 percent, and 58.5

[2] These poverty rate figures are from U.S. Bureau of the Census, Current Population Reports, series P-60, no. 168 and earlier reports.

Fig.1

Children and Elderly Poverty Rates



Source: U.S. Bureau of Census, Current Population Reports P. 60 175

percent.[3] Child-poverty rates are much higher among single-parent than among two-parent households. Currently, almost 50 percent of children living with a single parent are poor, compared to only 10 percent of children living with two parents. All told, about two in every three poor children live in single-parent families.

The increase in the fraction of children living with only one parent can be traced to two causes -- the increase in the U.S. divorce rate and the increase in the fraction of children born out of wedlock. Today 12.7 percent of Americans 35 to 44 are divorced, compared to only 2.9 percent in 1960.[4] As a consequence of the high U.S. divorce rate two children in five now grow up in divorced families.[5] The concern about children living in single-parent households would be less if the absent parent was a frequent visitor of his or her child, but quite often this turns out not to be the case. According to a recent survey, almost one quarter of divorced fathers had no contact with their children in the last five years and another 20 percent had not seen their children during the preceding year.[6]

The increase in the fraction of children born to unmarried women since 1970 is even

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[3] Statistical Abstract of the United States 1991, Table no. 70, p. 53.

[4] Business Week, May 20, 1991, p.76.

[5] Brody, Jane E., "Children of Divorce: Steps to Help Can Hurt," The New York Times, Tuesday, July 23, 1991, p. C1. The 1989 U.S. Statistical Abstract Table no. 132, p. 87 indicates that in 1985 1.73 percent of all children 18 or younger were children of parents who became divorced in 1985. The comparable percentage for 1970 was 1.25 percent.

[6] The survey by Dr. Frank F. Furstenberg Jr. and colleagues at the University of Pennsylvania is cited in the article just cited by Jane E. Brody.

more dramatic than the increase in the divorce rate. In 1970 just over 10 percent of children were born to unwed mothers. The current figure is over 25 percent. This explosion of births out of wedlock has occurred for whites as well as minorities. In the case of whites, the 1970 share of births to unwed mothers was 6 percent; it was 18 percent by 1988. In the case of African-Americans, the share of births to unwed mothers grew from 38 percent in 1970 to 64 percent in 1988.

C. Recent Changes in the Relative Consumption Levels of Different Age Groups

The increase in child-poverty relative to that of adults is suggestive of a general deterioration in the living standards of children relative to that of adults, but it is not conclusive for the simple reason that impoverished children are only a segment of the entire population of children. One way to assess the overall change in living standards of children vis-a-vis adults is to consider changes over time in the shape of the age-consumption profile. The age-consumption profile is a graph of the ratio of the average consumption of members of one age-sex group to the average consumption of members of a reference age-sex group. The reference age-sex group used here is 40 year-old males.

The data sources used in this analysis are the 1972-73 and 1987-90 Bureau of Labor Statistics Surveys of Consumer Expenditures. The procedures used to form average consumption by age and sex for each of the survey periods are described in detail in Kotlikoff and Sabelhaus (1993). Briefly, expenditures reported in the surveys were first benchmarked against the National Income and Product Accounts totals to adjust for under- or over-reporting. Next, each household's adjusted expenditures were distributed to individual

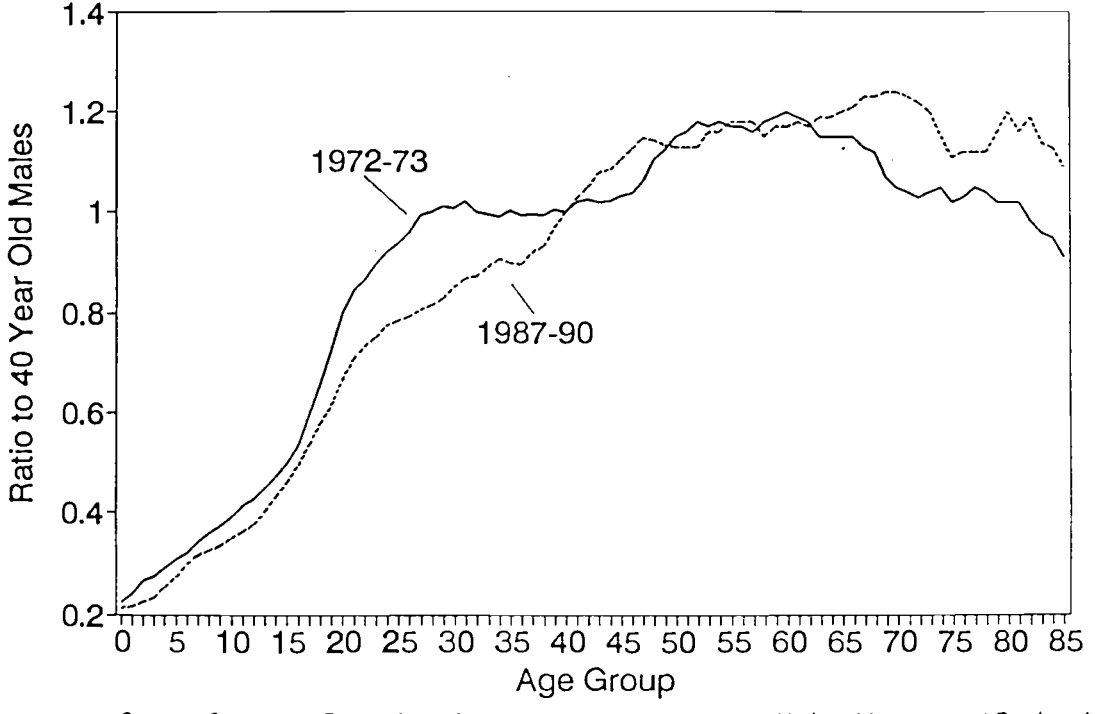
household members producing a data set consisting of individuals with particular consumption expenditures and particular characteristics. The third step involved averaging the consumption expenditures across all individuals of a particular age and sex to form the values of average consumption by age and sex. The last step entailed adding to these average values of consumption by age and sex the age- and sex-specific average amounts of consumption expenditures included in the National Income and Product Accounts, but excluded from the Consumer Expenditure Surveys. An example of such expenditures is health care expenditures paid by third party insurers, including the government.

Figures 2 and 3 present the calculated age-consumption profiles for the periods 1972-73 and 1987-90 for males and females, respectively. Note that both figures show that the age-consumption profiles in the late 1980s have twisted toward more consumption of the elderly relative to the consumption of other age groups, including children. Young adults -- those between ages 20 and 40 -- have experienced a particularly large decline in their relative levels of consumption.

To obtain a quantitative sense of the amount by which the consumption of children has fallen since the early 1970s relative to that of the elderly, consider the average consumption of all children age 10 versus the average consumption of all adults age 70. In 1972-73 the consumption of children age 10 averaged 37 percent of the average consumption of 70 year-olds. But in 1987-90 it averaged only 31 percent. Thus, the consumption of 10 year-olds relative to that of 70 year-olds fell by over 16 percent across the two periods.

Figure 2

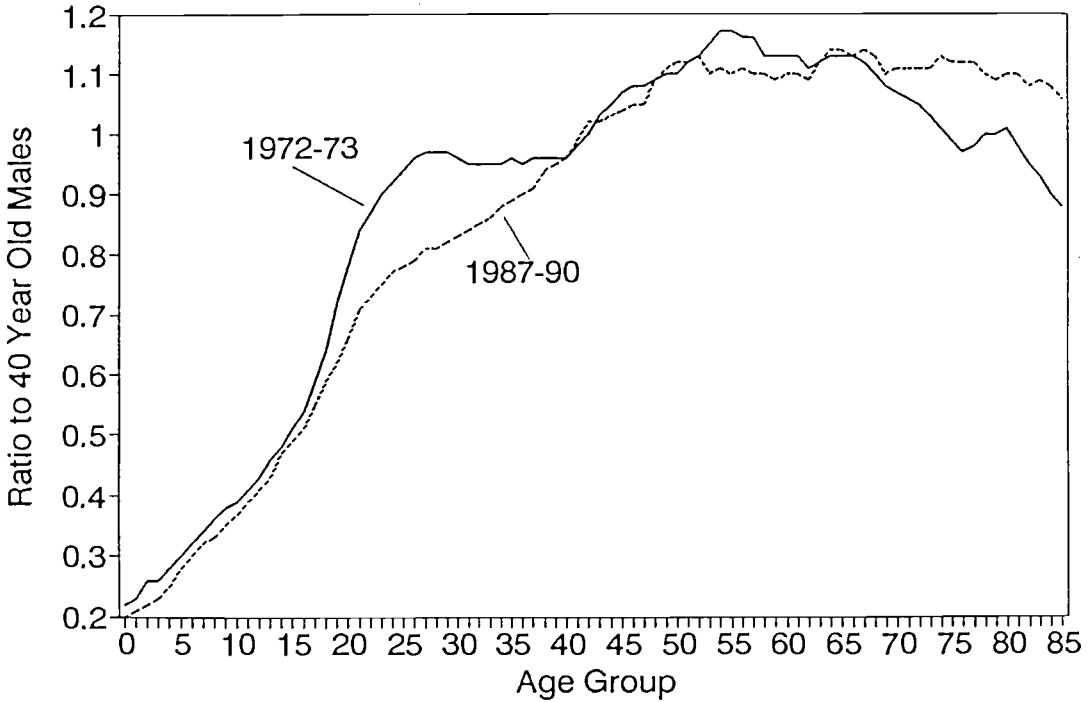
Relative Consumption Profiles, Males



Source: Consumer Expenditure Surveys, 1972-73 and 1984-89; National Income and Product Accoun

Figure 3

Relative Consumption Profiles, Females



Source: Consumer Expenditure Surveys, 1972-73 and 1984-89; National Income and Product Accounts

D. Recent Changes in the Relative Incomes of Different Age Groups

What explains the recent increase in the relative consumption of the elderly? The answer is that over the past twenty or so years the income of the elderly has grown much more rapidly than that of other age groups. Figure 4, reproduced from Boskin, Kotlikoff, and Knetter (1985), shows age-income profiles for different age groups for the period 1968-1984. Specifically, the figure indicates the ratio of the average income of households whose heads are in particular age groups divided by the average income of households whose heads are age 35-44.

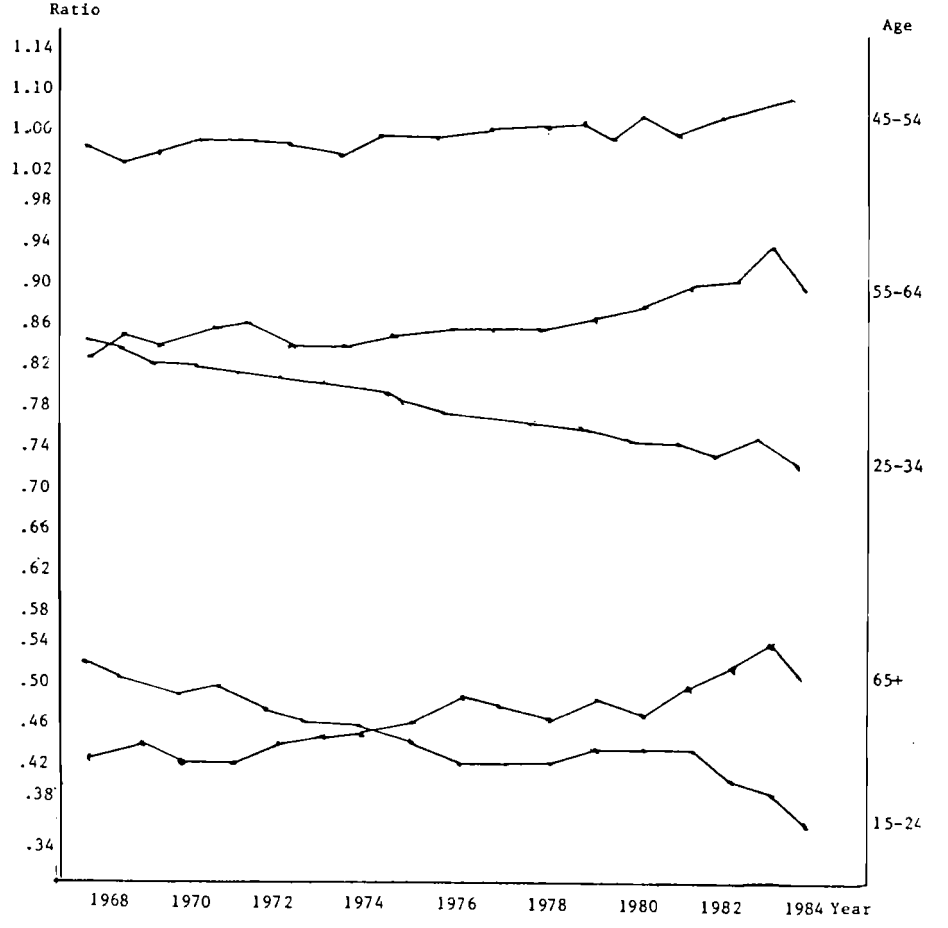
The figure shows a sharp rise in the relative income of households age 65 and older between 1968 and 1984. In 1968 income per elderly household averaged 43 percent of income per household age 35-44. In 1984 this figure was 54 percent. Thus the income of the elderly relative to that of households age 35-44 rose by 26 percent over the 16 year period. It rose by an even larger percentage -- 45 percent -- relative to that of households age 25-34, since, as Figure 4 shows, these households experienced a fall in their income relative to that of the 35-44 age group.

Figure 4 is likely, if anything, to understate the recent growth in the relative income of the elderly. Income is defined in the Boskin, et. al. study to include labor earnings, property income, private pension income, welfare benefits, annuities, unemployment benefits, and social security. It does not include the imputed value of government-provided health care benefits such as those provided by the Medicare and Medicaid programs. As a result, the profiles understate the growth in the relative income of the elderly.

Figure 5 examines the source of the growth in the relative income of the elderly. It

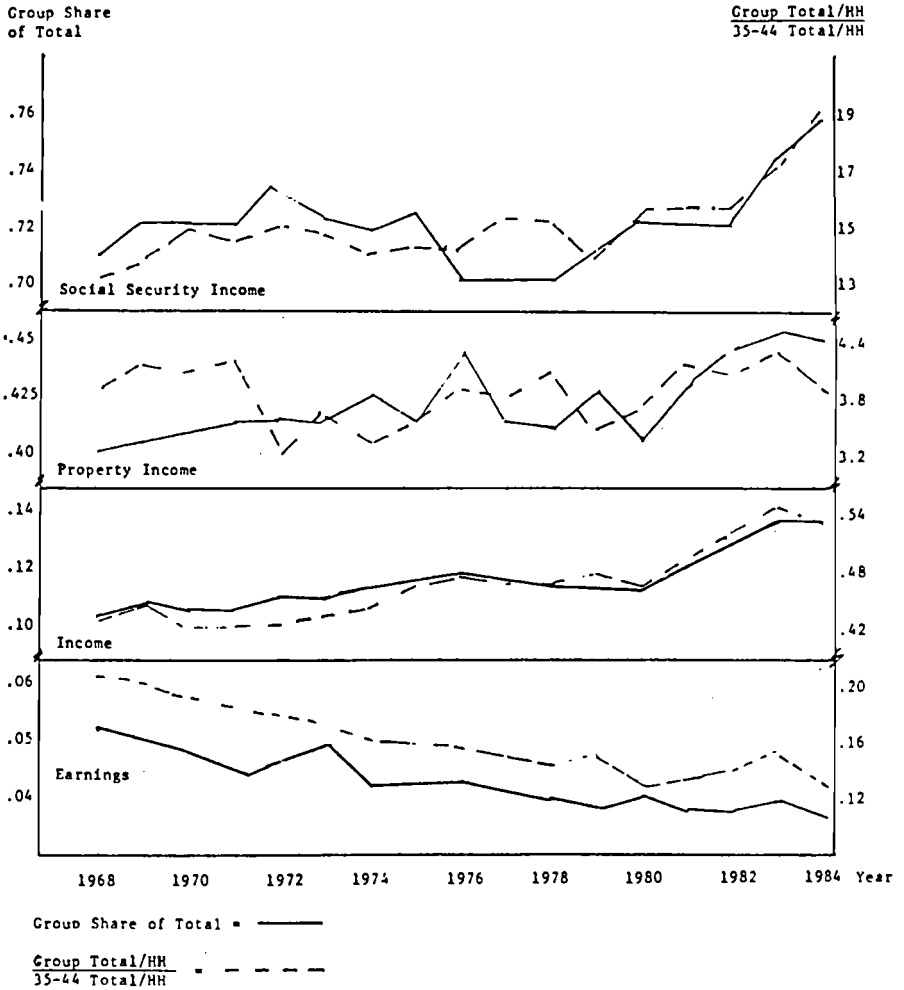
Figure 4

Ratio of Income per Household
to Income per Household of 35-44 yr. Age Group



Source: Boskin, Kotlikoff and Knetter (1985)

Figure 5 HOUSEHOLDS 65 AND OVER: Share of Income and Major Components of Income, and Ratio of Per Household Income and Major Components to 35-44 Year Old Group



Source: Boskin, Kotlikoff and Knetter (1985)

plots two things. First, it plots the shares of particular types of income going to the elderly for the years 1968-84. Second, it plots the ratio of particular types of income that elderly households receive, on average, to the corresponding average for households age 35-44. The figure documents the rapid growth in the relative social security and property incomes of the elderly as well as the decline in the relative labor earnings of the elderly. The decline in relative labor earnings can be traced to the decline in labor force participation of the elderly over this period.

III. The Government's Treatment of Children Relative to Other Age Groups - A Point-In-Time Perspective

A. Flows of Transfers and Taxes by Age and Sex

The last section documented the decline over the last 20 years in the economic well-being of children relative to the elderly. This section begins to ask whether the government (federal, state, and local) has offset or worsened this trend. One way to approach this question is to consider the government's direct transfer payments to different age groups as well as the taxes the government collects from these age groups.

To that end, Tables 1 and 2 present the values of transfer payments received and taxes paid by different age-sex groups for the years 1970 and 1990. These tables are constructed by using cross-section profiles of relative transfer receipts and tax payments by age and sex to distribute aggregate transfers and taxes by age and sex. As described in Auerbach, Gokhale, and Kotlikoff (1991), the cross-section profiles are obtained from various micro data sets, the most important of which is the U.S. Bureau of the Census

Table 1

The Flow of Transfers and Taxes to Different Generations in 1970

Males

Age in 1990	Net Payment	Tax Payments: Labor Income	Capital Income	Payroll Taxes	Excise Taxes	Transfer Payments: OASDI	Health	Welfare
0	-48	0	0	0	303	5	47	298
5	55	0	0	0	407	48	22	280
10	160	0	0	0	513	110	21	220
15	213	0	0	0	672	225	44	188
20	3,395	1,204	95	915	1,502	103	44	175
30	10,417	3,996	1,562	3,038	2,327	34	146	325
40	13,658	4,382	4,170	3,331	2,299	79	146	299
50	15,627	4,016	6,645	3,053	2,523	175	147	288
60	14,686	3,100	7,621	2,357	2,411	398	147	258
70	3,570	581	6,547	442	1,771	4,369	1,177	223
80	-216	124	4,590	94	1,312	4,490	1,591	255
90	469	0	4,073	0	1,342	3,219	1,721	5

Females

Age in 1990	Net Payment	Tax Payments: Labor Income	Capital Income	Payroll Taxes	Excise Taxes	Transfer Payments: OASDI	Health	Welfare
0	-119	0	0	0	301	5	42	373
5	49	0	0	0	409	48	19	291
10	166	0	0	0	518	109	17	224
15	190	0	0	0	676	223	43	218
20	2,293	789	0	600	1,391	99	43	344
30	3,351	847	290	644	2,071	26	58	417
40	4,705	1,004	1,346	763	2,035	69	58	316
50	6,552	1,138	2,607	865	2,392	129	121	201
60	6,673	922	3,465	701	2,210	369	121	136
70	605	160	3,490	121	1,954	3,840	1,160	120
80	-649	32	2,669	25	1,616	3,269	1,594	128
90	-2,085	0	271	0	1,567	2,025	1,767	129

Table 2

The Flow of Transfers and Taxes to Different Generations in 1990

Males

Age in 1990	Net Payment	Tax Payments: Labor Income	Capital Income	Payroll Taxes	Excise Taxes	Transfer Payments: OASDI	Health	Welfare
0	10	0	0	0	460	5	160	283
5	164	0	0	0	565	57	77	265
10	330	0	0	0	750	139	71	209
15	410	0	0	0	1,044	289	151	193
20	3,987	1,204	133	1,317	1,712	12	151	217
30	12,082	4,080	2,176	4,463	2,353	75	495	420
40	18,656	5,386	5,808	5,890	2,648	181	495	400
50	22,194	5,357	9,256	5,858	2,932	330	496	382
60	19,237	3,558	10,616	3,891	2,838	795	496	374
70	961	515	9,119	564	2,563	7,725	3,681	393
80	-4,246	177	6,393	194	2,206	7,797	4,973	445
90	-4,373	0	5,673	0	1,659	6,297	5,387	21

Females

Age in 1990	Net Payment	Tax Payments: Labor Income	Capital Income	Payroll Taxes	Excise Taxes	Transfer Payments: OASDI	Health	Welfare
0	-59	0	0	0	444	5	143	354
5	195	0	0	0	595	57	66	276
10	388	0	0	0	799	139	58	213
15	437	0	0	0	1,050	288	146	207
20	2,697	870	0	952	1,561	11	146	528
30	6,099	2,178	405	2,382	2,075	50	197	694
40	8,651	2,464	1,875	2,695	2,451	116	197	521
50	9,745	2,028	3,632	2,218	2,760	166	408	319
60	8,758	1,259	4,826	1,377	2,579	658	408	217
70	-3,055	167	4,862	182	2,201	6,625	3,622	220
80	-6,209	52	3,717	57	1,685	6,502	4,985	233
90	-9,273	0	377	0	1,574	5,442	5,545	237

Survey of Income and Plan Participation. The value of aggregate transfer receipts and tax payments are obtained from the National Income and Product Accounts and include all transfers and taxes of federal, state, and local governments. Hence, Tables 1 and 2 provide a comprehensive picture of the gross flows of payments the government made to, and took from, different age-sex groups in 1970 and 1990.

Each of the tables reports, for selected age-sex groups, the group's average net payment defined as its average tax payment minus its average transfer receipt. The tables also decompose average tax payments into average labor income tax payments, average capital income tax payments, average payroll tax payments, and average excise/sales tax payments. Average transfer receipts are decomposed into average non-Medicare social security benefits (OASDI), average government-provided health benefits (primarily Medicare and Medicaid), and welfare benefits (primarily Aid to Families with Dependent Children, Food Stamps, unemployment insurance benefits, and general relief). All figures in the table are reported in 1991 dollars. One aspect of the tables may seem anomalous to the reader, namely the excise tax payments imputed to children. These taxes represent the payment of sales and excise taxes on goods and services purchased for children by their parents. Admittedly, one might wish to impute these tax payments to the parents of these children.

If one focuses just on the transfer payments recorded in Tables 1 and 2, one sees that older Americans receive transfer payments that are many times greater than those received by American children. For example, in 1970 the average transfer payment made to 70 year-old women was $5120, while the average transfer payment to 10 year-old girls was $350. In 1990 the comparable figures were $10,467 paid to 70 year-old women and $410 paid to 10

year-old girls. In 1970 the ratio of the average transfer payment to 70 year-old women to that of 10 year-old girls was 14.6. By 1990 the ratio had grown to 25.5.

The elderly do, however, pay much more in taxes than children, even if one imputes sales and excise tax payments to children. For example, in 1990 the average tax payment of 70 year-old women was $7262, while the average tax payment of 10 year-old girls was $799. However, if one nets out these tax payments from the transfer payments received, the resulting net payment figures still show an enormous difference in the net flow of income from the government to the elderly versus children.

B. Flows of Age-Related Government Services

The flows of transfers and taxes just considered do not provide a complete picture of the annual flow of economic resources between the government and the private sector. The main omission is the flow of services directly provided by the government as a consequence of its purchases of goods and services. These services are wide-ranging. They include protection afforded by national defense, the reduction of travel time and transportation costs arising from the federal, state, and local road system, the provision of public education, and the general knowledge produced by the space program. Unfortunately, with the exception of educational expenditures, which, in the main benefit children, government purchases consist of public goods, the benefits of which cannot clearly be ascribed to particular generations or groups within generations.

Be that as it may, educational expenditures are still worth considering because they are fairly large. In 1990 combined education purchases for elementary education by federal,

state, and local governments totaled $220 billion in 1991 dollars -- pretty close to the amount spent on that year's total social security retirement and survivor benefit payments. If we divide the $220 billion spent on elementary education in 1990 by the 72.3 million children alive in 1990, we arrive at a per child educational expenditure level of $3042 which swamps the level of transfer payments received, on average, by children in 1990. The comparable calculation for 1970 leads to a average educational expenditure of $1785 per child (measured in 1991 dollars).

These figures on per child real elementary school education indicate several things. First, they show that educational expenditures far outweigh direct transfer payments as a government means of providing assistance to children. Second, they show that since 1970 there has been a dramatic increase (70 percent) in real spending per elementary school-age child. Third, they indicate that even if one adds to current per child transfer payments the the current historically high real spending per child on education, one still arrives at a total government payment flow to children that is considerably smaller than the per capita transfers flowing to the elderly. This is true whether one calculates this transfer flow net of tax payments or gross of tax payments by the elderly. In sum, if one ignores the fact that children and the elderly are at different stages of their life cycles and thus can be expected to receive different treatment by the government, one can make a strong case that government treatment of children relative to the elderly is highly inequitable.

IV. The Government's Treatment of Children Relative to Other Age Groups - A Lifetime Perspective

A. Lifetime Generational Accounts

While the flow figures are striking, ignoring the fact that children and the elderly are at different stages of their life cycles seems clearly inappropriate. Does it make sense, for example, to claim that the current elderly are being treated better than current children because they receive large social security benefits, on average? Such an assertion would ignore, among other things, the facts that the current elderly didn't receive much in the way of social security benefits when they were children and that today's children will receive larger social security benefits when they become old.

In controlling for the life cycle, generational accounts can help us assess the true degree of generational equity underlying government policy. Generational accounts indicate in present value what members of a generation can expect to pay, on average, in net taxes (tax payments net of transfers received) over their remaining lives. The generational account at birth of a generation is particularly interesting. It indicates the present value of the net taxes the generation's members will pay, on average, to the government over their entire lifetimes. Such lifetime generational accounts can be used to compare the government's treatment of different generations since they take account of all government taxes and transfers taken from or paid to a generation over each stage of its life cycle.

In discounting taxes and transfers back to the year the generation is born, lifetime generational accounts place a smaller weight on taxes paid and transfers received at latter stages of the life cycle. This makes sense because a dollar of taxes paid in the future is less painful, in economic terms, than a dollar paid in the present, and a dollar of transfers received in the future is less valuable, in economic terms, than a dollar received in the

present. In discounting each generation's life cycle of tax payments and transfer receipts back to age zero lifetime generational accounts produce, in effect, a single lifetime net tax bill that the generation faces upon birth.

B. What Constitutes Generationally Equitable Fiscal Policy?

In considering which cross-generation pattern of lifetime generational accounts constitutes equitable lifetime treatment of different generations it may help to start by taking the simple case of an economy in which all members of a given generation are identical, productivity and population growth rates are zero, and there are no purchases by the government of goods or services. In such a world taxes and transfers would be used only to redistribute across generations. What would an equitable lifetime treatment of different generations entail in such an economy? If we interpret equity to mean treating each generation identically, then an equitable generational policy requires setting the lifetime generational accounts of each generation equal to zero. To understand this requirement, suppose, to the contrary, that the government decided to make the lifetime generational account of a particular generation negative, i.e., suppose it decided to provide net transfers to a particular generation. Since the net transfer to this generation would have to be paid for, and since it would have to be paid for by one or more other generations, making this generation's lifetime generational account negative would necessitate making the lifetime generational accounts of one or more other generations positive; i.e., it would necessitate assessing positive net taxes on one or more generations. Consequently, only zero lifetime generational accounts is consistent with equal treatment of all generations given the

circumstances we've assumed.

The requirement so far of our notion of equity -- that each generation's lifetime generational account should equal zero -- carries over to the case in which government purchases remain equal to zero, and there is zero productivity growth, but there is positive population growth. With positive population growth generations coming in the future are obviously more numerous, but setting each generation's lifetime account to zero ensures that each member of each generation bears the same fiscal burden -- namely zero.

Let's now add government purchases to our hypothetical economy, but assume that the government's purchases are of no value to any generation. In this case equitable treatment would mandate setting each generation's lifetime account to the same positive value, where this positive value is determined such that the present value of all the lifetime generational accounts of all current and future generations pays for the present value of the government's purchases.

Next, take the case that government purchases do provide valuable services to generations, but that all such government purchases occurred in the past. Further, suppose that generations who received these benefits in the past were not required to pay for them. Then existing and future generations would face the obligation of paying for these past services.[7] Equity in this context would again mandate setting each current and future generation's lifetime account equal to the same positive amount. Again, this would be the amount needed to pay off, in present value, the bill these generations collectively inherit.

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[7] This bill might, for example, be presented from previous generations to current and future generations in the form of official government debt.

The same situation would arise if the bill bequeathed to current and future generations from past generations was not for past government services enjoyed by these generations, but rather for past net transfers made to these generations.[8]

Finally, suppose government purchases do provide services of value to current as well as future generations. In this case equitable government policy would involve a) providing each generation with the same level of services and b) making each generation pay the same amounts for these services (i.e., setting the lifetime accounts of all generations at the same positive value needed to pay, in present value, for this spending).

Thus far, we've argued that generationally equitable fiscal policy entails equal lifetime accounts for all generations. But this prescription for generationally equitable policy becomes less clear once we alter our assumptions to include positive productivity growth. In this case generations born in the future will have higher lifetime incomes than those currently alive. If government policy is intended to equalize the welfare of all generations, it must find a means to redistribute, on an ongoing basis, from those generations to be born in the future toward those generations currently alive. As suggested above, the available

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[8] The initiation of an unfunded "pay-as-you-go" social security system is an example of a situation in which current and future generations are forced to pay for the transfers to a previous generation, namely the generation that is old when the social security program is initiated. This start-up generation receives social security benefits without ever having paid social security taxes. As a consequence later generations are forced, when young, to make contributions to a social security system which provides them with less old age income than they would have had had they been free to privately invest the sums they were forced to contribute. The lower than the market rate of return which social security pays on contributions to the system is the means by which social security forces current and future generations to pay for the free benefits handed the start-up generation of elderly.

mechanism is to set the lifetime accounts of earlier generations at lower values (not necessarily positive values), than those of later generations. As can easily be shown, such a policy requires that the government set successive generations' lifetime accounts equal to larger and larger fraction of their lifetime incomes; i.e., such a policy requires that the *lifetime tax rate* -- the ratio of a generation's lifetime account to the present value of the income it earns over its lifetime -- approach 100 percent asymptotically.[9]

While positive productivity growth coupled with the goal of equalizing each generation's after-tax lifetime income means that today's children should face higher lifetime tax rates than today's adults, including today's elderly, the goal of perfect equality of welfare across generations is not sacrosanct. Society may view different intergenerational distributions of after-tax income as equitable, even though they don't entail perfect equality of after-tax lifetime income. For example, society may view the higher levels of productivity that future generations enjoy as the natural inheritance of these generations, and it may think that equitable fiscal treatment of different generations requires that each generation pay the same *share* of its lifetime income to finance expenditures on public goods and services as well as past redistributions to now deceased generations. Such equal proportional sacrifice means, of course, that each generation should face the same lifetime tax rate.

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[9] Suppose that each generation's income grows at rate g. Then the tax rate required to equalize the after-tax lifetime incomes of each generation is $1-[r/(r-g)]/(1+g)^t$, where r is the rate of interest and t indexes the year the generation is born. This formula assumes that a generation's income is independent of the tax rate it faces.

C. The Lifetime Tax Rates of American Generations Born Since 1900

Ultimately what cross-generational distribution of lifetime accounts constitutes an equitable distribution is a value judgement and cannot be resolved by economists or other social scientists. What economists can do is first, help society think through its judgement and second, show what generational lifetime net tax policy is actually in place. Hopefully, the above discussion made a contribution to accomplishing the first task. The second task -- understanding actual U.S. generational policy -- is addressed in Table 3 which shows the lifetime net tax rates of generations of American males and females born since 1900.

The lifetime net tax rates of Table 3 are defined as the generation's lifetime generational account (the present value when the generation is age 0 of the average amount of net taxes its members pay in each year in their future) divided by the present value of the generation's lifetime labor income. As described in Appendix I, Section F of The Budget of the United States Government, Fiscal Year 1994, the lifetime net tax rates are based on estimates of actual taxes paid and transfer payments received in past years from 1900 through 1991 as well as on projections of taxes to be paid and transfer payments to be received in the future.[10] Lifetime income is defined as the present value of pre-tax lifetime labor income. Ideally, one would include the present value of anticipated inheritances in forming lifetime income, but data are not available to include this component of lifetime income.

The lifetime net tax rates for males begin at 18 percent for males born in 1900 and

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[10] This chapter was co-authored by the author, Alan J. Auerbach, Jagadeesh Gokhale, and Staff at the Office of Management and Budget. The principal co-author at OMB was Robert Kilpatrick. This section of the paper draws heavily on some of the contents of this chapter.

Table 3

Lifetime Net Tax Rates for Generations Born Since 1900

Year Generation was born	Males			Females			Males and Females Combined		
	Net Tax Rate	Gross Tax Rate	Gross Transfer Rate	Net Tax Rate	Gross Tax Rate	Gross Transfer Rate	Net Tax Rate	Gross Tax Rate	Gross Transfer Rate
1900	17.8	19.6	1.8	35.3	43.9	8.7	21.5	24.8	3.3
1910	21.8	24.6	2.8	35.7	49.6	13.9	24.7	29.8	5.2
1920	24.2	27.7	3.5	34.0	50.4	16.5	26.3	32.5	6.2
1930	26.4	30.5	4.1	34.4	52.8	18.5	28.1	35.3	7.2
1940	28.2	33.0	4.8	32.7	50.6	17.9	29.3	37.3	8.0
1950	30.6	36.8	6.2	30.6	46.9	16.3	30.6	39.9	9.3
1960	32.3	39.6	7.2	31.5	47.9	16.4	32.1	42.3	10.2
1970	33.6	41.7	8.1	32.5	50.3	17.8	33.2	44.5	11.3
1980	34.1	42.4	8.3	33.1	51.6	18.5	33.8	45.5	11.7
1990	33.9	42.7	8.7	32.9	52.0	19.1	33.6	45.7	12.2
1991	33.9	42.7	8.8	32.8	52.0	19.2	33.5	45.8	12.2
Future Generations	71.5	--	--	69.3	--	--	71.1	--	--

rise to 34 percent for males born in 1991. The corresponding figures for females exhibit a quite different pattern. For females the lifetime net tax rate begins at 35 percent, declines, on average, for about 50 years, and then rises slightly, leaving a 1991 value of 33 percent. The female lifetime tax rate begins at a high value for two reasons. First, the present value of labor earnings of females born at the early part of this century was low. Second, in allocating taxes between males and females, certain types of taxes, such as excise taxes, are attributed equally to husbands and wives in the case of married households. Hence, females at the beginning of the century have low lifetime incomes, but are imputed with relatively high tax payments, producing a high lifetime net tax rate. For females born in the postwar period, the absolute size of their lifetime net tax bills are higher, but, due to the increase in female labor force participation, so too are their lifetime labor incomes. This explains why the female lifetime tax rates in the postwar period are not higher than those of females born around the turn of the century.

Since the allocation of taxes between husbands and wives within marriages is, admittedly, somewhat arbitrary, Table 3 also reports lifetime net tax rates for males and females together, calculated as a weighted average of the net tax rate for each sex. The average net tax rate rises significantly over time, increasing from 22 percent for the generation born in 1900 to 34 percent for the generation born in 1991.

Table 3 also reports gross tax rates and transfer rates. To calculate these latter rates, the present value of a generation's lifetime taxes (or transfers) is divided by the present value of its labor income. This breakdown reveals the growth of government transfer payments during this century. The lifetime transfer rate for meals and females taken together nearly

quadrupled between 1900 and 1991. In 1900 the transfer rate was 3.3 percent. It was 12.2 percent in 1991. The increase was more rapid, in both relative and absolute terms, for the generations born before World War II than afterwards.

Because of the need to pay for the higher gross transfers as well as government purchases, the gross tax rate has risen in the past two decades in contrast to the net tax rate which has stayed fairly constant. The gross tax rate for males and females taken together measured 24.8 percent for the generation born in 1900 and 45.8 percent for the generation born in 1991.

D. The Lifetime Net Tax Rate to be Paid by Future Generations Based on Current Services Projections of the Net Tax Contribution of Existing Generations

The remaining figures of Table 3 that we have not yet discussed are the lifetime tax rates to be paid by future generations. These tax rates are derived assuming a current services projection of the future fiscal treatment of existing generations. Specifically, we add together the remaining (as opposed to lifetime) generational accounts of all existing generations to arrive at the collective net tax contribution existing generations will make to paying off the government's existing net debt (gross debt minus gross assets) as well as the present value of its future purchases. By subtracting the contribution of existing generations to the payment of the government's bills from the size of its bills -- the sum of the government's net debt and the present value of its purchases -- we arrive at the present value amount that future generations must collectively pay. The reason is that some generation must pay the government's bills. If current generations do not pay for all the government's

bills, future generations will be forced to cover the difference.

The aggregate present value fiscal burden to be imposed on future generations is transformed into a per capita amount by factoring-in projections of the number of people to be born in the future and assuming that each person born in the future pays the same amount after adjusting for economic growth. The growth adjustment assumes that, on average, members of each successive generation pays $(1+g)$ times the amount paid, on average, by members of the previous generation, where g is the assumed rate of growth. The amount future generations will pay over their lifetimes divided by their projected future lifetime incomes provides our estimate of the lifetime net tax rate of future generations.

As indicated in Table 3, unless existing Americans are made to pay more, on net, over their remaining lives, future Americans will face lifetime net tax rates that are 71 percent -- over twice the lifetime net tax rate projected, based on current services, to be paid by Americans born in 1991. Of course, the assumption that existing generations, including those born in 1991, pay no more than the amount suggested by current service projections is just that -- an assumption. It is made not because of its proximity to reality, but rather to illustrate the extent of the imbalance in U.S. generational policy. As we discuss in the next subsection, other assumptions about the evolution of future U.S. fiscal policy, specifically those that place a larger fiscal burden on existing generations than that projected based on current services, lead to lower lifetime net tax rates for future generations, albeit at the price of higher lifetime net tax rates for current generations, particularly for current children.

E. Generational Accounting's Message About the Degree of Equity in U.S. Generational Policy

The figures in Table 3 indicate that current American children will face much higher lifetime net tax rates than the current elderly have faced. The generation born in 1991, for example, faces a lifetime net tax rate that is 27 percent larger than the generation that was born in 1920 and was age 71 in 1991. This projected discrepancy in the lifetime net tax treatment of current children and the current elderly would be significantly exacerbated by changes in U.S. fiscal policy that might occur to prevent future generations from paying over 70 percent of their lifetime incomes to the government.

Table 4 illustrates two such changes in U.S. fiscal policy. The first of these policies involves placing a cap during the period 1993 to 2004 on Federal Government spending on all mandatory programs with the exception of social security and deposit insurance. Medicare and Medicaid are the two programs that would experience the largest cuts relative to the baseline, current services projection of spending on these programs. The second policy is a surtax on the Federal Individual Income Tax which would last between 1993 and 2004 and which would produce, on a year-by-year basis, the same Federal deficit reduction that would eventuate under the mandatory cap policy.

Both of these policies dramatically lower the lifetime net tax rates of future generations. Under the mandatory caps policy future generations pay only 41 percent of their lifetime incomes to the government. Under the surtax policy future generations pay 46 percent. While these means of bringing into closer balance U.S. generational policy are good for future generations, they are bad for current generations. Take the surtax, for

Table 4

Lifetime Net Tax Rates for Generations Born Since 1900
Baseline Case, Mandatory Caps on Entitlements, and Income Tax Surtax

Year Generation was born	Males			Females			Males and Females Combined		
	Base-line	Caps	Surtax	Base-line	Caps	Surtax	Base-line	Caps	Surtax
1900	17.8	17.8	17.8	35.3	35.3	35.3	21.5	21.5	21.5
1910	21.8	21.8	21.8	35.7	35.9	35.7	24.7	24.7	24.7
1920	24.2	24.4	24.3	34.0	34.8	34.0	26.3	26.6	26.3
1930	26.4	26.8	26.4	34.4	36.5	34.5	28.1	28.9	28.2
1940	28.2	28.9	28.5	32.7	35.2	33.2	29.3	30.4	29.7
1950	30.6	31.5	31.6	30.6	32.9	31.5	30.6	31.9	31.6
1960	32.3	33.6	34.6	31.5	34.2	33.5	32.1	33.8	34.2
1970	33.6	35.3	37.6	32.5	35.7	35.9	33.2	35.4	37.1
1980	34.1	36.5	39.9	33.1	37.0	38.2	33.8	36.6	39.3
1990	33.9	36.6	40.7	32.9	37.4	39.0	33.6	36.9	40.2
1991	33.9	36.6	40.8	32.8	37.3	39.1	33.5	36.9	40.2
Future Generations [4]	71.5	40.9	47.0	69.3	41.7	45.0	71.1	41.3	46.5

example. Children born in 1991 are forced to pay 40 percent of their lifetime incomes to the government, rather than only 34 percent -- the current services figure. The mandatory caps and surtax policies also raise the lifetime net tax rate of current older Americans, although by much less because the changes in net taxes under these two programs during their remaining years of life are small when they are discounted back to the years these generations were born. In the case of the surtax policy, there is a 53 percent difference in the lifetime net tax rates of children born in 1991 and 1991 71 year-olds who were born in 1920.

Is it fair that today's children may have to hand upwards of 40 percent of their lifetime incomes over to the government while their grandparents will end up paying just over a quarter of their lifetime incomes? The answer depends on several factors. First, today's children will, it appears, receive more services in the form of educational expenditures and public goods from the government over their lifetimes than today's elderly will end up receiving over their lifetimes. Second, certain types of contributions made by today's elderly, such as fighting World War II or suffering through the Great Depression, are not factored into the analysis. Consideration of these special contributions might suggest a lower lifetime tax rate for the current elderly. Third, the steep increase in lifetime tax rates may be justified to the extent that society's notion of generational equity entails equalizing the after-tax lifetime incomes of current and future generations.

If, however, society's notion of generational equity entails extracting an equal proportional sacrifice from each generation, the numbers in Tables 3 and 4 must be viewed (ignoring differences in public goods and special contributions) as highly discomforting.

They show a trajectory of U.S. generational policy that will burden today's children much more than it has in the past (or will in the future) burden today's elderly. It is also a trajectory that is likely to burden tomorrow's children to an even greater degree than it burdens today's children. Thus, the numbers in Tables 3 and 4 can be read as indicative of a fiscal policy that is, generationally speaking, highly inequitable.

Regardless of how one views the numbers in Tables 3 and 4, it is worth pointing out that they are likely to understate the generational differences in economic well-being generated by U.S. fiscal policy. The reason is that they do not take into account what economists call *general equilibrium effects on factor prices.* In adopting the generational policy identified in Table 3, the U.S. government has permitted earlier generations to consume more over their lifetimes than would otherwise have been the case. The argument for this is that every dollar less the government took from these generations meant another dollar available to finance addition consumption by these generations at some time over their lives. In consuming more, these generations have raised total U.S. consumption and lowered total U.S. saving. While there are certainly other factors, beyond generational policy, at play in explaining the recent decline in U.S. saving, generational policy has surely played a significant role. The U.S. is now saving at record low levels. In 1991, for example, the U.S. saving rate was only 1.7 percent -- dramatically lower than the almost 9 percent rate observed, on average, during the years 1950-1969.

Lower U.S. saving means lower U.S. investment, which means a slower rate of growth of the U.S. capital stock relative to the U.S. work force. Since labor productivity depends on the amount of capital available per worker and since real U.S. wages reflect U.S.

labor productivity, the decline in U.S. saving is responsible for lowering U.S. real wage growth. It is also responsible for raising the real return to capital since it has made capital more scarce, relative to the other factor of production -- labor -- than would otherwise have been the case. Those who have been harmed by slower real wage growth are today's young and middle-aged workers who have experienced very slow growth in their real hourly pay over the past two decades. If the low rate of U.S. saving continues, today's children will also experience very slow growth in their real wages once they enter the work force. Since the late 1970s, on the other hand, the real return to capital has been quite high, and the beneficiaries of this high return to capital have been, in the main, today's elderly who have been, over the past twenty years, the primary owners of U.S. capital.

While simulation studies of stylized economies, such as Auerbach and Kotlikoff's (1987), have shown that policy-induced general equilibrium changes in factor prices occur slowly over time, they have also shown that they can be of first order importance in redistributing across generations. Thus if one were able reliably to factor in these feedback effects on factor prices of U.S. generational policy, the difference in the treatment of today's elderly and today's children would likely be greatly accentuated.

V. Summary and Conclusion

This paper has examined a variety of pieces of evidence all of which point to a deterioration in the standard of living of children relative to adults, particularly the current elderly. The paper began by tracing the dramatic increase in the rate of child-poverty and the equally dramatic decline in the rate of elderly-poverty. In so doing it stressed the role

of demographics in raising rates of child-poverty. The paper then showed that there has been a considerable increase in the relative consumption and income levels of the elderly during the same period. Next it showed the significant growth in levels of real transfer payments to the elderly, both in the form of social security benefits and Medicare benefits, that appear responsible for raising their relative consumption and income levels. On the other hand, it also showed a very substantial rise in real education spending per elementary student in the past 20 years. Still, the point-in-time level of transfers to the elderly, whether calculated gross of the elderly's tax payments or net of those payments, far exceeds the sum of government transfers per child plus educational spending per child.

While it may be tempting to conclude from point-in-time data on transfers to children and the elderly and educational spending on children that children are being unfairly treated, comparisons of the fiscal treatment of children and elderly must be done on a lifetime basis because children and elderly at a point in time are at different stages of their life cycles. Accordingly, the second part of the paper examined the lifetime net tax rates imposed on different generations born from 1900 through the present as well as those generations who will be born in future years. The findings indicate a rapid increase in lifetime net tax rates of American generations born through the course of this century. Americans born at the turn of this century paid just over a fifth of their lifetime incomes to the government. Those born at the beginning of the next century are likely to have to pay well over half of their lifetime incomes to the government.

Does this considerable disparity in the lifetime net tax rates of different generations imply that U.S. fiscal policy is generationally inequitable? The answer depends on society's

notion of generational equity, on society's assessment of the special contributions that particular generations have made to the country, and on the level of benefits being provided to different generations as a result of government purchases of goods and services. Be that as it may, if society views generational equity to entail, other things equal, an equal proportional net tax sacrifice of each generation, there is no question but that U.S. government treatment of today's and tomorrow's children relative to that of today's elderly is highly inequitable.

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