ARIZONA**HEALTH**FUTURES

The Coming of Age

**A Technical Paper on
Aging, Health and
Arizona's Capacity to Care**

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St. Luke's Health Initiatives

**The Future Outlook for
Social Security,
Medicare, and Medicaid**

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Preface

Aging affects all dimensions of our society, but none so much as health. Because of this, St. Luke's Health Initiatives asked Arizona State University's School of Public Affairs and Morrison Institute for Public Policy to explore Arizona's capacity to meet the demands likely from an aging population.

This complex topic called for analysis from a variety of disciplines. Hence, as a key part of The Coming of Age research effort, we invited experts from different fields to explore and write about the topics essential to understanding public policy choices for an aging future. *The Coming of Age Technical Series* is the result. These papers provide in-depth, objective analyses of important trends and facts at the heart of the coming of age.

These technical papers provided the foundation for *The Coming of Age: Aging, Health and Arizona's Capacity to Care,* as well as *Four Scenarios of Arizona's Future.* All of the products from The Coming of Age project are available at www.slhi.org.

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The Future Outlook for Social Security, Medicare, and Medicaid

The United States has one of the highest per capita incomes in the world.[1] A recent World Health Organization (WHO) assessment of national health care systems, however, ranked France first in the world, Italy second, and the United States thirty-seventh.[2] The WHO ranking for the U.S. health care system is not surprising, because, unlike any other developed country in the world, about 18 percent of the U.S. population does not have health insurance and, thus, has limited access to the health care system.[3] The United States also ranks first in the world in health care expenditures, both as a percentage of Gross Domestic Product (GDP) and on a per capita basis.[4] Much of this spending is driven by technology[5] and a large percentage of this spending (55%) is devoted to the care of a relatively small percentage of the population.[6]

Currently in the United States, seniors comprise about 13 percent of the population, but account for approximately 40 percent of all health care expenditures and about 36 percent of pharmaceutical expenditures.[7] As one paper recently put it: "There is more illness among the elderly and thus more opportunity to apply new technologies."[8] What these authors failed to make explicit is that almost 100 percent of these same seniors are covered by health insurance (Medicare, Medicaid, and Medigap). Thus for the two major economic shortcomings of the U.S. health care system (lack of health insurance and medical technology pushing up costs), seniors *are* insured and they *are* the major beneficiaries of the technologies that are driving health care costs.[9]

The current and future arrangements for Social Security, Medicare, and Medicaid pose an enormous challenge in public finance. In one sense, Social Security is "under control," because its benefit payments per enrollee were indexed to the cost of living in 1972. Therefore, Social Security benefits *per enrollee* cannot grow any faster than the U.S. economy itself. However, the Social Security system must deal with the future demographics of the elderly population. Because Social Security is the major source of income for many senior citizens, this source of income is key to their well-being and to their ability to pay out-of-pocket costs for health care. On the other hand, Medicare and Medicaid must deal with both the demographics and the health insurance and technological issues that are driving health care costs.

The main purpose of this paper is to try to spell out the economic consequences of the aging of the population for the Social Security, Medicare, and Medicaid programs. The first section shows how the structure of the federal budget has changed over the last twenty years as a consequence of these three programs. The next section explains the economic nature of the trust funds that finance Social Security and Medicare. The following portion explores intermediate projections for the solvency of the trust funds. The next section discusses the long-run projections that the Congressional Budget Office has made for Social Security, Medicare, and Medicaid. The policy implications for these three programs and senior citizen welfare follow, along with an explanation of what all of this means for Arizona.

The Changing Structure of the Federal Expenditure Budget

Table 1 shows the distribution of federal government expenditures in 1980 and in 2000. It is important to analyze changes in the distribution of expenditures over time to understand what expenditure categories, if any, are driving the budget. During the twenty-year period, total expenditures increased from $601 billion to $1,826 billion. The components of the budgets for 1980 and 2000 are ranked by the absolute size of each expenditure category in 2000. Social Security expenditures were 19.7 percent of the 1980 budget and 22.3 percent of the 2000 budget. Social Security expenditures increased 13.2 percent as a percent of the budget between 1980 and 2000.

Contrasting the percentage change for Social Security with the two health components, Health (includes Medicaid) and Medicare, gives some insight into what I have called "under control" with respect to the financing the Social Security program and, by implication, "out of control" with respect to the financing of the two medical care programs. Between 1980 and 1999, the senior population grew from 11.3 to 12.7 percent as a percentage of the total population; in 1980, there were 25.6 million seniors; and in 1999, 34.5 million.[10] This represents a 35.2 percent increase in the number of seniors between the two years. And yet, Social Security expenditures only increased as a percentage of the total expenditures budget by 13.2 percent. Thus, tying Social Security expenditures per enrollee to the cost of living adjustment (COLA) seems to have had the desired effect of somewhat controlling these expenditures per enrollee. Some of the budgetary categories in Table 1 are subject to appropriations by the Congress (e.g., National Defense), whereas other categories are not subject to appropriations, because they are "entitlements" (e.g., Social Security and Medicare). This distinction in appropriations status creates a fundamental difference in the way that money is spent on each program.

Budget Theory, the National Debt, and the Trust Funds

During the 2000 presidential campaign, both candidates pledged to place a "lock box" on Social Security. What is a "lock box" within the context of government finance? The analogy refers to how families save for retirement and for future large expenditures. The amount that the family can spend now, or save for the future, is a function of its income, which, in turn, is a function of its productivity in the marketplace. The family tradeoff between spending and saving is determined by what economists call "time preference" (i.e., the value that the family places upon present spending versus the value of future spending plus the interest earned on the savings for the future spending). Every family has its own internal interest rate with which it discounts these values down to the present. The family can hold its savings in cash, or invest it in a financial instrument, such as a stock or a bond, issued by either a government, or by a private corporation. If, for example, the family buys a bond, it is, in effect, making a cash loan to a government or to a corporation.

Table 1
Allocation of the Federal Expenditure Budget, 1980 and 2000

Federal Budget Categories[a]	1980 Amount Billions ($)	2000 Amount Billions ($)	1980 (%)	2000 (%)	Change (%)
Total	601.4	1.826.2[b]	100.0[c]	100.0[c]	—
1. Social Security	118.5	406.6	19.7	22.3	+13.2
2. National Defense	134.0	290.6	22.3	15.9	-28.7
3. Income Security	86.5	251.3[d]	14.4	13.8	-4.2
4. Interest on National Debt	52.5	220.3	8.7	12.1	+39.1
5. Medicare	32.1	202.5	5.3	11.1	+109.4
6. Health (includes Medicaid)	23.2	154.2	3.9	8.4	+115.4
7. Education, Training, Employment & Social Services	31.8	63.4	5.3	3.5	-34.0
8. Veterans Benefits and Services	21.2	46.8	3.5	2.6	-25.7
9. Transportation	21.3	46.7	3.5	2.6	-25.7
10. Agriculture	8.8	32.0	1.5	1.8	+20.0
11. Administration of Justice	4.6	26.8	0.8	1.5	+87.5
12. Natural Resources & Environment	13.9	24.5	2.3	1.3	-43.5
13. General Science, Space & Technology	5.8	18.9	1.0	1.0	0.0
14. International Affairs	12.7	17.1	2.1	0.9	-57.1
15. General Government	13.0	15.0	2.2	0.8	-63.6
16. Community & Regional Development	11.3	11.1	1.9	0.6	-68.4
17. Energy	10.2	-1.6	1.7	-0.1	-105.8
18. Commerce & Housing Credit	9.4	5.6[e]	—	—	—
19. Undistributed Offsetting Receipts	-19.9	-43.1	—	—	—

[a] Ranked by size of expenditure in 2000; expenditures are listed by function.
[b] Categories 1–17 = $1,826.2; minus category 18 = $1,820.6; minus category 19 = $1,777.5.
[c] May not add to 100.0 due to rounding.
[d] Income Security
    (i) general retirement and disability insurance $ 5.0
    (ii) federal employment retirement and disability   77.7
    (iii) housing assistance   29.2
    (iv) food and nutrition assistance   34.2
    (v) other income security   81.1
    (vi) unemployment compensation   24.1
[e] Commerce and Housing Credit
    (i) mortgage credit   -$4.5
    (ii) postal service   1.6
    (iii) deposit insurance   -1.4
    (iv) other commerce   9.9

Source: U. S. Bureau of the Census (1980 and 2000).

One of the primary determinants of the rate of return on savings invested in financial instruments is the amount of risk involved. For example, Mexican government bonds have paid as much as a 30 percent interest rate, because of devaluation risk and because of investor perception of a less stable government in Mexico than in the United States—where government generally only has to pay about 6.5 percent interest on the bonds that it sells. The family that invests in a U.S. government bond expects the government to pay annual interest on the bond and, at the bond's term, to return the principal amount of the bond to the family.[11] Governments usually issue bonds because their expenditures exceed their tax revenues in any given year. The ability of the government to pay the interest and to repay the principal of the bond in the future depends upon its ability to collect taxes in the future. If a family's expenditures exceed its income in any given year, the family must borrow from someone and pay interest on the debt. The ability of both the government and the family to repay debt is enhanced in a productive and growing economy and is restricted in a stagnant or declining economy.

Federal government financing is a bit more complex than the average family's finances, but the same economic principles apply. Unlike the family's income, government' s income is principally derived from its tax revenues. If the government's expenditures exceed its tax revenues, it has a budget deficit; if expenditures are less than tax revenues it has a budget surplus. A deficit is financed by selling bonds to the public. A surplus may be eliminated by buying back outstanding bonds (existing national debt), thus saving on interest payments, or by buying corporate bonds.[12]

For thinking clearly about a "lock box" for Social Security and Medicare, it is useful to make a few simplifying assumptions. First assume that the federal government only has two accounts:

1. A *current* account that brings in taxes from general income taxes and payroll taxes

2. A *debt* account that holds two kinds of debt, namely debt held by the public (banks, corporations, and foreign investors) and debt held by the government (the U.S. Treasury)

Call one portion of the debt held by the treasury the "Social Security Trust Fund" and the other portion the "Medicare Trust Fund." The current account is a "flow" concept, in that it measures the annual flow of taxes into the treasury and expenditures out of the treasury. The debt account is a "stock" concept, in that it measures the total amount of debt that the treasury owes to someone (bankers, corporations, and foreign investors) or to some program (Social Security and Medicare).

The top half of Figure 1 shows the three components of the current account budget of the federal government. Each year, each component receives revenues, makes expenditures, and has either a resultant surplus or deficit. The bottom half of Figure 1 shows the size of the three components of the stock of federal government debt in 1999.[13] All of this debt exists in the form of "full-faith-and-credit" bonds, held either by the public or by the treasury.[14] All of these bonds make interest payments each year. In the case of the debt (bonds) held by the public, the interest payments are made in the form of cash; in the case of the Social Security and Medicare trust funds, the interest payments are made in the form of additional deposits of more full-faith-and-credit bonds into the trust funds.

Therefore, a "lock box" on Social Security and Medicare already exists: the Social Security and Medicare surpluses (the excess of payroll tax revenues over and above Social Security and Medicare program expenditures) are locked away in what are arguably the safest investment vehicles in the world, namely full-faith-and-credit U.S. government bonds. Whether there are "enough" bonds in these two trust funds to cover all future Social Security and Medicare expenditure obligations is a question that will be addressed later.

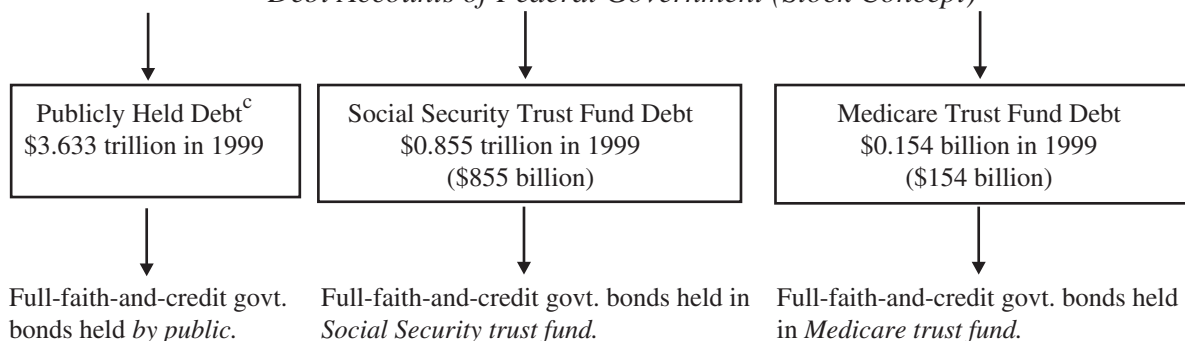**Figure 1**
Federal Current Account and Debt Accounts

Current Account Budget of Federal Government (Flow Concept)

Revenues	Expenditures	Results
1. Income taxes[a]	Current expenditures	Surplus or deficit
2. Social Security taxes[b]	Social Security expenditures	Surplus or deficit
3. Medicare taxes[b]	Medicare expenditures	Surplus or deficit

[a] Called "federal funds"; federal funds are derived mainly from taxes and borrowing and are not restricted by law to any specific government spending purpose.
[b] Trust funds collect certain taxes and other receipts for use in carrying out *specific purposes* or programs in accordance with the terms of the trust agreement.

Debt Accounts of Federal Government (Stock Concept)

Publicly Held Debt[c] $3.633 trillion in 1999	Social Security Trust Fund Debt $0.855 trillion in 1999 ($855 billion)	Medicare Trust Fund Debt $0.154 billion in 1999 ($154 billion)
Full-faith-and-credit govt. bonds held *by public.*	Full-faith-and-credit govt. bonds held in *Social Security trust fund.*	Full-faith-and-credit govt. bonds held in *Medicare trust fund.*

[c] All federal debt, except Social Security Debt and Medicare Debt.

Table 2 uses two scenarios to illustrate why there is confusion about the mechanics of change in these two trust funds that are simply accounting devices. For some federal governmental accounting purposes, a distinction is made between "on-budget" and "off-budget" expenditure items;[15] "on-budget" refers to budget categories such as those in Table 1 and "off-budget" refers to trust fund accounting. In Table 2, the two budgetary concepts are combined into what is known as the "unified budget." In the first scenario in Table 2, the top half shows the flow of funds over a one-year period, when there is a current account deficit, and the bottom half shows the resultant change in the trust fund stocks at the end of the year. The second scenario in Table 2 shows the same kinds of budgetary change, when there is a current account surplus, which is the case at the present time.

For Scenario 1, we first begin with the flow of funds that occurred during 1999. At the end of 1999, the current account had a deficit of $212 billion because "federal funds" current account expenditures exceeded income tax revenues by that amount. The Social Security current account had a surplus of $107 billion (i.e., Social Security payroll tax revenues exceeded Social Security

benefit payments by $107 billion). As the "Disposition" column shows, the Social Security surplus funds help to pay for some of the $212 billion deficit in the "federal funds" current account; this Social Security surplus provides cash for the government to pay for some of the nineteen expenditure categories in Table 1. In return for this cash, the U.S. Treasury prints $107 billion worth of bonds and places them in the Social Security trust fund account. Medicare payroll tax revenues exceeded Medicare current account expenditures on health care for seniors and disabled Americans by $21 billion. Therefore, the treasury spends the $21 billion to make up for part of the $212 billion deficit in the current "federal funds" account, prints bonds worth $21 billion, and places them in the Medicare trust fund debt account. The net effect of expenditure and revenue flows in these three accounts is a total unified budget deficit of $84 billion. In order to finance this net deficit, the U.S. Treasury prints more bonds and sells them to the public in return for cash. This increases the amount of publicly held debt (the "national debt").

The lower half of Table 2 shows how the three debt accounts are administered and how their stocks of debt change, as the result of movements in the three flow accounts. At the beginning of 1999, total federal government debt was $4.642 trillion, of which $3.633 trillion (78.3%) was publicly held debt, $855 billion (18.4%) was Social Security trust fund debt, and $154 billion (3.3%) was Medicare trust fund debt. By the end of 1999, $84 billion in bonds had been added to the publicly held debt fund account; $107 billion in bonds had been added to the Social Security trust fund debt account, and $21 billion in bonds had been added to the Medicare trust fund debt account. Total federal debt increased to $4.854 trillion (by the amount of the current account deficit of $212 billion). However, the composition of the total debt also changed. Publicly held debt decreased from 78.3 percent of the total debt to 76.6 percent. Social Security debt increased from 18.4 percent to 19.8 percent and Medicare debt increased from 3.3 percent to 3.6 percent. The reader will recall from Figure 1 that all of this debt exists in the form of "full-faith-and-credit" bonds either held by the public or by the U.S. Treasury in the trust fund accounts.

Scenario 1 would be a good descriptor of the federal expenditure and debt accounts during the 1980s and the early 1990s, with budget deficits. Scenario 2, however, more accurately describes the expenditure and debt accounts in the late 1990s and into the present, with budget surpluses. In Scenario 2, the federal government continues to run a deficit of $106 billion in the current account. But, because the surpluses in the Social Security current account and the Medicare current account are larger than the deficit in the current account, there is a total current account budget surplus of $22 billion which is used to buy back some of the publicly held debt. In Scenario 2, the mechanics of the debt fund accounting are similar to those in Scenario 1. This time, however, the publicly held debt declines from 78.3 percent of total federal debt to 76.1 percent; Social Security debt increases from 18.4 percent to 20.3 percent; and Medicare debt increases from 3.3 percent to 3.7 percent. Total federal debt increases by $106 billion, the amount of the deficit in the current account.

Table 2
Two Scenarios: Current Account Budget Deficit and Current Account Budget Surplus

Scenario 1: Unified Budget, with Current Account Budget *Deficit*

Flow of Funds (end of 1999)		Disposition
Current Account ("federal funds"), expenditures minus taxes collected	-0.212	
Social Security, expenditures minus taxes collected	+0.107 ⟶	Spend the cash in the current account, print bonds worth $0.107 trillion, and put the bonds in the Social Security trust fund debt account.
Medicare, expenditures minus taxes collected	+0.021 ⟶	Spend the cash in the current account, print bonds worth $0.021 trillion, and put the bonds in the Medicare trust fund debt account.
Current Budget Deficit	-0.084 ⟶	Print and sell bonds to the public in order to pay for net deficit expenditures and add to publicly held debt fund account.

Stock of Debt	Totals at beginning of 1999 ($ trillions)	%	Additions at end of 1999 ($ trillions)	Totals at end of 1999 ($ trillions)	%
Publicly held debt fund account	$3.633	78.3	+$0.084	= $3.717	76.6
Social Security trust fund debt account	.855	18.4	+0.107	= 0.962	19.8
Medicare trust fund debt account	.154	3.3	+0.021	= 0.175	3.6
Total debt fund account	$4.642	100.0		$4.854	100.0
				-4.642	
				Net $0.212 increase in *total* federal debt	

Scenario 2: Unified Budget, with Current Account Budget *Surplus*

Flow of Funds (end of 1999)		Disposition
Current Account ("federal funds"), expenditures minus taxes collected	-0.106	
Social Security, expenditures minus taxes collected	+0.107 ⟶	Spend the cash in the current account, print bonds worth $0.107 trillion, and put the bonds in the Social Security trust fund debt account.
Medicare, expenditures minus taxes collected	+0.021 ⟶	Spend the cash in the current account, print bonds worth $0.021 trillion, and put the bonds in the Medicare trust fund debt account.
Current Budget Surplus	+0.022 ⟶	Buy up outstanding bonds from the public and subtract from publicly held debt account (i.e., tear up the bonds).

Stock of Debt	Totals at beginning of 1999 ($ trillions)	%	Additions at end of 1999 ($ trillions)	Totals at end of 1999 ($ trillions)	%
Publicly held debt fund account	$3.633	78.3	- $0.022	= $3.611	76.1
Social Security trust fund debt account	.855	18.4	+ 0.107	= 0.962	20.3
Medicare trust fund debt account	.154	3.3	+ 0.021	= 0.175	3.7
Total fund debt account	$4.642	100.0		$4.748	100.0
				-4.642	
				Net $0.106 increase in *total* federal debt	

Again the reader is reminded that all of this debt is represented by pieces of paper called "bonds." But, within this context, it is also useful to remember that the currency that we carry in our wallets is also represented by pieces of paper called "dollars." These dollars are accepted for the purchase of goods and services in this country, and all over the world, because there is a reasonable and proven expectation that the Board of Governors of the Federal Reserve System will act responsibly with respect to the money supply. Likewise these bonds are accepted in trade in this country and all over the world, because there is a reasonable and proven expectation that the U.S. Congress will act responsibly with respect to the federal budget and that the American people will pay their taxes. Thus, Social Security and Medicare are already in a form of "lock box," whose viability depends upon the productivity of the U.S. economy, and the government's ability to tax away a portion of the economic returns from that productivity, now and in the future.

Another form of "lock box" for funds in the Social Security and Medicare trust funds could be to cash in the bonds by selling them to private investors worldwide and then put the cash proceeds, as well as all of the future Social Security and Medicare payroll tax receipts, into interest-bearing money market funds. The problem with this form of "lock box" is that the cash, as is also true for the bonds, is only as good as the productivity in the economy supporting it and the financial stability of the government itself, so that this "solution" is no better than the presently existing practice of issuing bonds to the trust funds. Another form of "lock box" would be, as practiced by some countries such as Norway, to cash out the two trust funds by selling the bonds to private investors and then putting the cash proceeds of the sale, and future payroll tax revenues, into corporate stocks and bonds. Historically, corporate stocks have paid higher returns than corporate bonds and corporate bonds have paid higher returns than government bonds. However, individual corporate stocks carry more risk than individual corporate bonds[16] and individual corporate bonds carry more risk than government bonds. In fact, the U.S. government bond is probably the safest investment vehicle in the world of finance; that is why these bonds can be so easily sold to the public, even though they carry a relatively low interest rate.

The Future Prospects for Social Security, Medicare, and Medicaid

Two important facts will dominate this discussion. The first fact that will have a profound effect upon the financing of Social Security, Medicare, and Medicaid[17] is that the population is aging. Therefore, there will be more dependent persons per person in the workforce than has been true in the past. The second fact is that we, as a nation, have not been able to restrain the rate of increase in health care expenditures, even though some 18 percent of the non-Medicare and non-Medicaid population is uninsured. Therefore, Social Security, Medicare, and Medicaid will become more of an economic burden on the working population in the future (i.e., consume a larger percentage of GDP).

Table 3 shows some measures of dependency for the years 1960, 1980, and 2000 and forecasts for the years 2020 and 2040. In 1960, there were 5.1 workers for every Social Security beneficiary.[18] In 2000, there were 3.4 workers per Social Security *and* Medicare beneficiary, but by 2040, there will only be 2.1 workers. This decline in the number of workers per beneficiary is large, but its effect upon worker ability to support dependent persons cannot be determined without knowledge about increases in worker productivity in the future. As just one example of

large increases in worker productivity over the last seventy years, consider changes in agricultural productivity in the United States. In 1929, about 25 percent of the U.S. population was engaged in some form of agricultural activity; this 25 percent fed itself and the other 75 percent of the nonagricultural population.[19] By 2000, only about 3.6 percent of the U.S. population was engaged in agriculture, but managed to feed itself and the other 96 percent of the U.S. population, and make agricultural exports one of the largest U.S. export commodities.[20] Table 3 also shows the aged dependency ratio increasing from 17.3 percent in 1960 to 37.0 percent in 2040. Because of declining birth rates in the years 1970–2000, the total dependency ratio (with the addition of children ages 0–18) steadily declines from 90.4 percent in 1960 to 69.7 percent in 2000 and then, given greater longevity, slowly increases to 80.2 percent in 2040.

Table 3.
Population, Workforce, and OASDHI Beneficiary
Data and Dependency Ratios, Selected Years 1960–2040

Workforce Measures (000,000)	1960	1980	2000	2020	2040
Total population	190	235	285	331	364
Covered workers	73	114	154	172	182
OASDHI beneficiaries	14[a]	35	45	69	88
Worker beneficiary ratio	5.100	3.200	3.400	2.500	2.100
Aged dependency ratio[b]	0.173	0.195	0.211	0.274	0.370
Total dependency ratio[c]	0.904	0.749	0.697	0.710	0.802

[a] HI enacted in 1965.
[b] Ratio of the number of persons aged sixty-five and older to the number of persons aged twenty to sixty-four.
[c] Ratio of the number of persons aged sixty-five and older plus the number of persons under twenty to the number of persons twenty to sixty-four.

Source: Board of Trustees (2001(a)).

Table 4.
U.S. Resident Population Projections: 2000–2050

Year	Total Population (millions)	65[+] Population (millions)	Percent 65[+]	Percentage Change from Previous Years
2000	275.3	34.8	12.6	—
2005	287.7	36.4	12.7	0.7
2010	299.8	39.7	13.2	3.9
2015	312.3	46.0	14.7	11.4
2020	324.9	53.7	16.5	12.2
2025	337.8	62.6	18.5	12.1
2030	351.1	70.3	20.0	8.1
2035	364.3	74.8	20.5	2.5
2040	377.4	77.2	20.5	0.0
2045	390.4	79.1	20.3	-1.0
2050	403.7	82.0	20.3	0.0

Source: U.S. Bureau of the Census (2000).

Table 4 shows the corollary of the aged dependency ratios in Table 3. The percent of the population aged sixty-five plus is projected to remain fairly stable until the year 2010. Then between 2010 and 2015, it increases by 11.4 percent; between 2015 and 2020, it increases by 12.2 percent; and between 2020 and 2025, it increases by another 12.1 percent. After the year 2030, the percentage of the population aged sixty-five plus stabilizes at about 21 percent of the population. Indeed, between 2000 and 2050, the aged sixty-five plus population will increase from 34.8 to 82.0 million persons, or a 135.6 percent increase. This implies a large financial burden on workers to pay for Social Security, Medicare, and Medicaid, *unless* the real economy grows at a rate equal to or greater than the rate of increase in the sixty-five plus population.

Table 5 presents two different sets of estimates for the financial future of Social Security. Estimates from the 1998 and 2001 reports of the Board of Trustees[21] appear so that the reader can appreciate how sensitive these estimates are from year to year to the underlying economic conditions. In the 1998 report, the trustees do not give estimates beyond the year 2030, because they expect the Old-Age, Survivors, and Disability Insurance (OASDI or "Social Security") trust fund to be exhausted by the year 2032. In the 2001 report, the trustees do not give estimates beyond the year 2035, because they expect the fund to be used up by 2038. Thus, between the 1998 and 2001 reports, the OASDI trust fund gained six years of life. How can that be possible?

Table 5.
Estimates of the Social Security Trust Fund, 1998 and 2001 (billions)

Year	1998 Estimates				2001 Estimates			
	$ Income	$ Disbursements	$ Net Increase in Fund	$ Fund at End of Year	$ Income	$ Disbursements	$ Net Increase in Fund	$ Fund at End of Year
1998	484.3	382.9	101.4	756.9				
1999	503.7	396.3	107.4	864.4				
2000	527.1	413.4	113.7	978.1				
2001	553.2	433.0	120.2	1,098.3	604.3	438.9	165.4	1,214.9
2002	581.1	454.8	126.3	1,224.6	642.3	459.9	182.3	1,397.2
2003	611.1	478.2	132.8	1,357.4	681.3	483.7	197.6	1,594.8
2004	643.9	504.2	139.8	1,497.2	722.4	510.2	212.2	1,807.0
2005	680.9	533.1	147.8	1,645.0	767.7	539.6	228.2	2,035.2
2006	719.6	564.5	155.1	1,800.1	814.4	571.5	242.9	2,278.1
2007	762.9	**599.0**	163.9	1,964.0	864.7	**606.8**	258.0	2,536.1
2008					916.3	645.9	270.4	2,806.5
2009					971.5	690.0	281.4	3,087.9
2010	904.1	724.0	526.9	2,490.9	1,028.8	737.8	291.0	3,378.9
2015	1,169.2	1,014.1	864.0	3,354.9	1,354.1	1,057.8	1,509.0	4,887.9
2020	1,451.9	1,430.5	441.9	3,776.8	1,710.5	1,518.4	1,216.9	6,104.8
2025	1,732.3	1,958.1	-577.3	3,199.5	2,088.5	2,102.6	386.6	6,491.4
2030	1,998.8	2,600.7	-2,218.7	980.8[a]	2,475.4	2,807.7	-983.9	5,507.5
2035					2,864.3	3,624.2	-2,908.4	2,599.1[b]

[a] Estimates for later years are not shown, because the trust fund is estimated to become exhausted in 2032.
[b] Estimates for later years are not shown, because the trust fund is estimated to become exhausted in 2038.
Source: Board of Trustees (1998) and (2001(a)).

The answer lies in the assumptions about the state of the economy that the trustees are willing to make. First, consider the "Total Disbursements" columns for 1998 and 2001. The entries are fairly similar in both years' reports (e.g., for the year 2007, $599.0 billion for 1998 and $606.8 billion for 2001, or "only" $7.8 billion more for 2001), and a small part of the difference may be attributed to statistical adjustment. However, the principal reason that the two series are so similar is that the size of the beneficiary population is already known for each year. All that needs to be predicted for the estimation of disbursements is any increase in the cost of living upon which the annual cost of living adjustment is based.

The largest annual discrepancies between 1998 and 2001 are in the two "Total Income" columns. This then affects the "Net Increase in Fund" and the "Fund at End of Year" columns and, consequently, the estimate of the year the trust fund will be exhausted. The income for the OASDI trust fund mainly comes from the payroll tax that was created by the *Federal Insurance Contribution Act* (FICA) in 1935. Tax revenue is a function of the tax rate and the tax base. Both reports assume that the future FICA tax rate will remain as it is presently at 12.4 percent from the employer and the employee combined. Changes in the FICA tax base result from changes in the state of the economy and the level of employment, which are very difficult to predict, even in the short run.

During the 1980s, no one would have predicted that the U.S. economy would grow as rapidly as it did during the mid-1990s and even now. Therefore, the differences in "Total Income" for 1998 and 2001 simply reflect the fact that the trustees in 2001 were more optimistic about future economic growth and, consequently, in increases in the FICA tax base, than were the trustees in 1998.

Table 6 presents data from the Board of Trustees' reports for the Medicare Part A Health Insurance (HI) program for 1998 and 2001. The Medicare Part B Supplemental Medical Insurance (SMI) program also has a separate trust fund, but the Part B trust fund is financed very differently than the others. In their HI report for 1998, the trustees were pessimistic about the future of the HI trust fund. For every year between 1998 and 2007, "Total Disbursements" were predicted to exceed "Total Income," resulting in a negative "Net Increase in Fund." In 2008 the trust fund would have been exhausted.[22] In contrast, the 2001 report is optimistic. Consider the forecast for 2007 in both reports. For 2007, the 1998 report forecasts a "Fund at End of Year" of $9.5 billion, whereas the 2001 report forecasts an amount of $479.3 billion for the same year. Moreover, in the forecast for 2001, the HI "Fund at End of Year" increases from $207.9 billion in 2001 to $650 billion in 2010.

Additional difficulties arise in forecasting for the HI trust fund. The major difficulty stems from any effort to interpret and forecast the Medicare expenditure effects of the *Balanced Budget Act* (BBA) of 1997 and of the *Balanced Budget Refinement Act* (BBRA) of 1999. The 1997 BBA introduced a number of Medicare payment reforms that would have Medicare using a prepaid amount for long-term care and for home health services. It also created Medicare+Choice that would make more forms of managed care available to Medicare enrollees. Additionally, it partially changed the much-criticized formula[23] that was used to calculate the amount paid to managed care providers. The effect of the latter reform was that many managed care providers, particularly in rural areas, dropped out of the Medicare program complaining that they were not paid enough for the risk that they had to carry in Medicare+Choice.[24] The 1999

BBRA raised Medicare payment levels from those set in the 1997 BBA in response to provider complaints that they were not being paid enough.

Table 6.
Estimates of the HI Trust Fund 1998 and 2001 (billions)

Year	1998 Estimates				2001 Estimates				2001 vs. 1998	
	$ Income	$ Net Disburse-ments	$ Net Increase in Fund	$ Fund at End of Year	$ Income	$ Net Disburse-ments	$ Net Increase in Fund	$ Fund at End of Year	Differences in	
									$ Income	Disburse-ments
1998	135.8	143.6	-7.7	107.9	140.5	135.8	4.8	120.4	**4.7**	**-7.8**
1999	140.4	147.2	-6.8	101.1	151.6	130.6	21.0	141.4	11.2	-16.6
2000	145.0	149.5	-4.4	96.7	167.2	131.1	36.1	177.5	22.2	-18.4
2001	150.6	153.8	-3.2	93.5	172.8	142.5	30.4	**207.9**	22.2	-11.3
2002	156.5	160.6	-4.1	89.4	184.4	150.1	34.3	242.2	27.9	-10.5
2003	163.1	170.1	-7.0	82.4	195.0	153.6	41.4	283.6	31.9	-16.5
2004	170.2	180.9	-10.6	71.8	206.4	161.9	44.5	328.1	36.2	-19.0
2005	178.1	193.3	-15.2	56.6	219.0	171.4	47.6	375.8	40.9	-21.9
2006	186.0	206.7	-20.7	35.9	232.0	181.7	50.3	426.0	46.0	-25.0
2007	194.8	221.2	**-26.3**	**9.5**	245.9	192.6	53.3	**479.3**	**51.1**	**-28.6**
2008					260.2	205.0	55.1	534.5		
2009					275.5	218.4	57.0	591.5		
2010					291.5	232.7	58.7	**650.2**		

Source: Board of Trustees (1998) and (2001(b)).

In analyzing the "Total Income" columns in Table 5, there is a close correspondence between the estimates of income for each year in both reports. One does not observe such a correspondence in the two HI Reports. The last two columns in Table 6 show the differences in "total income" and "total disbursements" between the 1998 and the 2001 HI reports. As can be seen, the difference in the forecast for "Total Income" grows ever larger between 1998 and 2007. Likewise, the negative forecasted difference in "Total Disbursements" also increases ever larger between 1998 and 2007. It is difficult to reconcile these differences. Both reports assume a constant combined employer/ employee HI payroll tax rate of 2.9 percent into the future. Ever since the *Omnibus Budget Reconciliation Act* (OBRA) of 1993, the HI tax base has been separated from the upper limit on the tax base for OASDI and is now "unlimited"; but it was "unlimited" in both 1998 and 2001. Therefore, it appears that the trustees in 2001 believed that greater economic growth would produce windfalls of income for the HI trust fund. The negative difference between the 2001 and 1998 reports for "total disbursements" no doubt reflects renewed optimism on the part of the trustees concerning the expenditure dampening effects of the 1997 BBA.

Unlike OASDI and HI, which are "entitlements," the Medicaid program is basically a means-tested welfare program. OASDI and HI are financed mainly by a payroll tax and income tax supports the federal share of Medicaid. State Medicaid programs must provide assistance to low-income Medicare enrollees. All Medicare enrollees living below the poverty level receive Medicaid assistance for the payment of Medicare premiums, deductibles, and cost sharing. These persons are known as "Qualified Medicare Beneficiaries" (QMB). Individuals at the lowest income levels are entitled to full Medicaid benefits that provide coverage for services not covered

by Medicare, such as outpatient prescription drugs. Medicare beneficiaries with income slightly higher than the poverty level receive assistance for the payment of Medicare premiums. These seniors are known as "Specified Low Income Beneficiaries" (SLMB). The federal share of Medicaid averages about 57 percent of total Medicaid expenditures, but varies by state according to state per capita income. High per capita income states, such as New York and California, only receive a 50 percent federal share, whereas low per capita income states such as Mississippi and West Virginia received a federal share of 76.8 and 74.8 percent respectively in 2000. In 1999, 14.6 percent of total state general funds were spent on Medicaid; in addition, 43.6 percent of all federal funds provided to the states were spent on Medicaid.[25]

Between 1959 and 1998, the percentage of all persons sixty-five plus living in poverty declined from 35.2 percent to 10.5 percent, although for senior women living alone, the poverty rate only declined from 63.3 percent to 21.7 percent.[26] This increase in the economic well-being of many senior citizens is reflected in changes in Medicaid data. In 1975, 3.6 million of 21.7 million seniors, or 16.6 percent, were enrolled in Medicaid; in 1998, four million of the over thirty-two million seniors, or 12.3 percent, were listed in Medicaid. However, even though elderly Medicaid beneficiaries only represented 11 percent of total Medicaid beneficiaries, they accounted for 31 percent of total Medicaid expenditures.[27] Medicaid is the primary source of long-term care insurance coverage for the elderly and disabled, including middle-income persons who exhaust their assets while in long-term care. Medicaid covers skilled nursing facility care, intermediate facility care for the mentally retarded, home health care, and home- and community-based services. Medicaid has increasingly borne a larger share of the nation's long-term care bill. In 1968, for example, Medicaid paid for 24 percent of total nursing home expenditures. By 1998, total Medicaid expenditures, state plus federal, for nursing homes were $40.6 billion, or 46 percent of total U.S. spending on nursing home care. As the Health Care Financing Administration (HCFA, now the Centers for Medicare and Medicaid Services) has observed: "Nursing facility expenditures also drive the distribution of Medicaid spending across enrollee groups, with the elderly and the disabled populations receiving the largest share of Medicaid expenditures."[28] Total Medicaid expenditures were $198 billion in fiscal 1998 and are projected by HCFA to reach $444 billion by 2010.[29]

Congressional Budget Office Forecasts for Social Security, Medicare, and Medicaid

The Congressional Budget Office (CBO) uses an economic model to make short- and long-run forecasts for the U.S. economy and for the federal government budget and its components.[30] The CBO presents its projections as "a useful benchmark because they demonstrate the extent to which changes in policy will be necessary and provide a rough estimate of their magnitude."[31] In the CBO model, economic growth basically depends upon three factors: (1) the number of hours of work in the economy, which is a function both of the population size and the mixes of age groups within the population; (2) the size of the capital stock, which is a function of federal budget surpluses that increase national saving and investment;[32] and (3) total factor productivity, which measures the amount of output that can be produced with given quantities of capital and labor and can be thought of as a measure of the level of technology. Federal government expenditures are a function of the tax base, which depends upon the size of the economy and the average tax rate. Historically, the average tax rate has ranged from 19 to 20 percent of the Gross

Domestic Product.[33] Table 7 shows the actual federal budget surplus for 1999 and CBO projections of budget surpluses to the year 2010.

In making its projections for Social Security, Medicare, and Medicaid expenditures as a percent of GDP, the CBO makes the projection amounts a function of how the budget surpluses in Table 7 are used. The CBO considers three options: (1) save off-budget surpluses (the $2.4 trillion), (2) save total surpluses (the $4.6 trillion), and (3) save no surpluses (e.g., give tax reductions and/or spend the surpluses on current government consumption—such as spending part of them on an outpatient prescription medication benefit for Medicare).

Table 7
Budget Surpluses Under 2001 Policies* (billions)

Fiscal Year	Surplus		Total
	On-budget	Off-budget	
1999 (actual)	$1	$124	$124
2000	84	149	232
2001	102	165	268
2002	126	186	312
2003	143	202	345
2004	154	215	369
2005	169	232	402
2006	222	247	469
2007	260	263	523
2008	288	278	565
2009	332	293	625
2010	377	307	685
Total 2001–2010	$2,173	$2,388	$4,561

* Assuming that discretionary spending grows at the rate of inflation after 2000.
Source: Congressional Budget Office (July 2000).

The reader will recall that to "save" a budget surplus means buying back parts of the national debt held by the public.[34] As do the trustees for OASDI and HI, the CBO uses a range for its assumptions that are designated as "optimistic," "midrange," and "pessimistic." For example, ever since about 1960, all health care costs have grown at a more rapid rate than the GDP, rising from 5.2 percent of GDP in 1960 to 13.5 percent in 1998.[35] In making their projections, the Board of Trustees of the OASDI and HI trust funds assumed that the rate of growth in Medicare expenditures would slow on its own between 2010 and 2025 to about the rate of growth in wages. For its projections for Medicare and Medicaid expenditure growth, the CBO assumed that cost growth per enrollee in Medicare and Medicaid, in excess of wage growth, would slow from 2.1 percent (at present) to 1.1 percent between 2010 and 2025 and remain the same thereafter. However, as CBO points out, "the future path of health costs is extremely uncertain." What is fairly certain, though, is that if health costs were to continue to increase at rates such as those during 1970–2000, they would eventually consume much of the GDP and some economic force should eventually prevent that from happening.

The basic questions then are: when would an economic impact happen and at what percentage of GDP? Table 8 gives examples of the range of values used in the CBO cost projections for the year 2030 for Social Security, Medicare, and federal Medicaid expenditures. The key parameters are:

1. the annual excess growth in health care costs per enrollee (for both Medicare and Medicaid)

2. the old-age ratio

3. the annual growth in factor productivity

Projections produced by the midrange assumptions are given the most credibility in the discussion of projection results, with the "optimistic" and "pessimistic" parameter values used as upper and lower bounds for analysis.

Table 8.
Alternative Assumptions about Health Costs,
Population, and Productivity, Calendar Year 2030 (%)

	Assumption		
	Optimistic	Midrange	Pessimistic
Annual Excess Growth in Health Costs per Enrollee[a]	0.0	1.1	2.1
Old-age Ratio[b]	31.0	34.0	37.0
Annual Growth in Total Factor Productivity[c]	2.2	1.7	1.2

[a] Annual growth in costs per enrollee in Medicare and Medicaid in excess of nominal growth in wages, adjusted for the age mix of enrollees. For each alternative assumption, growth in health expenditures follows CBO's ten-year-baseline projections from 2000 to 2010 and then moves to the long-run rate shown above over the next fifteen years.
[b] The ratio of people age sixty-five and over to those ages eighteen to sixty-four. The assumptions about population under CBO's optimistic, midrange, and pessimistic alternatives match the low-, intermediate-, and high-cost population projections of the Social Security trustees.
[c] For the midrange assumption, annual growth follows CBO's ten-year-baseline projections from 2000 to 2010 and then moves to the long-run rate shown above over the next fifteen years. Annual growth under the optimistic assumption is 0.5 percentage points higher and that in the pessimistic alternative 0.5 percentage points lower, in each year.
Source: Congressional Budget Office (October 2000).

Table 9 is a synopsis of the CBO projections, from the actual known base values in 1999, for 2020 and 2040. Table 9 uses the midrange values of the three key parameter values in Table 8 (1.1%, 34.0%, and 1.7%). Social Security, Medicare, and federal Medicaid expenditures are expressed both as a percent of GDP, in any year, and as a function of the three "saving" assumptions about what is to be done with the on-budget and off-budget surpluses that are projected to occur during the time period 2000–2010, as shown in Table 7. The forecasted stock of debt, the GDP, and the GDP per capita that CBO's economic model produced are shown also. In 1999, Social Security benefit payments and Medicare and federal Medicaid medical vendor payments consumed 7.5 percent of GDP—totaling $9.3 trillion. The national debt that was held by the public amounted to 39.8 percent of the GDP and per capita GDP was $34,066. The

forecasted budget surplus scenarios in Table 9 range from the most favorable to the least favorable, from the point of view of producing economic growth.

If the total budget surpluses between 2000 and 2010 were saved, Social Security, Medicare, and federal Medicaid would consume a combined 11.6 percent of the GDP in 2020 and 16.2 percent in 2040.[36] Thus, over the forty-year period, these three expenditure items are expected to slightly more than double as a percentage of a much larger GDP (from 7.5% to 16.2%). The debt held by the public would be a negative 37.2 percent of the GDP, meaning that the U.S. Treasury would be holding stocks and bonds in an amount equal to 37.2 percent of the forecasted GDP of $54.6 trillion in 2040, or about $20.3 trillion in nonfederal assets. GDP per capita would be $144,828 (in current dollars and at 2040 prices).

Table 9.
Projections for Social Security, Medicare, and (Federal) Medicaid
Expenditures as a Percentage of the GDP under Three Assumptions

	Actual	**Save Total Surpluses**		**Save Off-budget Surpluses**		**Save No Surpluses**		**Difference for**
	1999	**2020**	**2040**	**2020**	**2040**	**2020**	**2040**	**2040***
Social Security	4.1	5.1	6.0	5.2	6.4	5.2	6.9	0.9
Medicare	2.2	4.1	6.5	4.1	6.6	4.2	6.6	0.1
Medicaid	1.2	2.4	3.7	2.4	3.8	2.4	3.8	0.1
Total	**7.5**	**11.6**	**16.2**	11.7	**16.8**	11.8	**17.3**	2.1
Debt Held by Public[a]	39.8	-40.8	**-37.2**	**-7.2**	**62.3**	24.4	**184.1**	**221.3**
GDP ($ trillions)	$9.3	$24.0	**$54.6**	$23.7	**$51.1**	$23.4	**$46.6**	**-$8.0**
Population (000)	272,945	324,927	377,350	324,927	377,350	324,927	377,350	
GDP per capita	$34,066	$73,846	**$144,828**	$72,923	$135,544	$72,000	**$123,607**	**-$21,221**

a. Negative debt represents nonfederal assets held by government.
* Column 7– 3.
Source: Congressional Budget Office (October 2000).

Under "Save No Surpluses"—the least favorable scenario from the point of view of enhancing economic growth—Social Security, Medicare, and federal Medicaid would consume a combined 17.3 percent of the GDP by 2040. The national debt held by the public would be 184.1 percent of the GDP of $46.6 trillion and per capita GDP would be $123,607. If no surpluses were saved, Social Security, Medicare, and federal Medicaid payments would be 2.1 percentage points higher of a GDP that would have shrunk by $8 trillion. The difference in debt held by the public would be $221.3 trillion and per capita GDP would be reduced by $21,221. As would be expected, the 2020 and 2040 projections for saving only the off-budget surpluses fall midway between the two saving scenarios just considered. Social Security, Medicare, and federal Medicaid expenditures combined total 16.8 of a GDP of $51.1 trillion by 2040. Although the

debt held by the public falls to a negative 7.2 percent of GDP by 2020, it rises to a positive 62.3 percent of GDP in 2040.

Perhaps what is most alarming about the implications of these projections for Social Security, Medicare, and Medicaid is that they are predicated upon the historical average federal tax rate of 19 to 20 percent of the GDP. If, for example, the three programs together "only" consumed 16.8 percent of the GDP in 2040 under the "best" scenario, and the average tax rate only collects 19 to 20 percent of the GDP then, under a balanced budget scenario for the year 2040, only 2.2 to 3.2 percent of the GDP would be left over for spending on all of the other federal budget categories in Table 1, which seems absurd. Therefore, the federal government would either have large tax increases or run large budget deficits that may not be sustainable.

In all of these budget surplus scenarios, Medicare and Medicaid increase much more rapidly as a percent of GDP than does Social Security. That is because Social Security payments are capped by the COLA while Medicare and Medicaid payments per enrollee are not capped. In fact, if either total surpluses or only off-budget surpluses are saved, Medicare expenditures actually exceed Social Security expenditures as a percent of GDP by the year 2040. Under save total surpluses, Medicare would be spending 6.5 percent of the GDP of $54.6 trillion, or $3.5 trillion, by the year 2040 and save only off-budget surpluses, 6.6 percent of the GDP of $51.1 trillion, or $3.4 trillion.

In insurance terminology, Medicare and Medicaid are "defined benefit" plans. This means the government sets up a schedule of medical care services for which it will pay and then pays for the rendered services that are included in the benefits package. For purposes of saving on government medical care expenditures, some analysts argue that Medicare and Medicaid should be reformed into "defined contribution" plans. This means that for Medicare, each enrollee would received a fixed sum of money which could either be in the form of a voucher or the government announcing that it would only pay some fixed amount to all medical care providers combined for each enrollee for each year. In that way, government could introduce a payment cap for each Medicare and Medicaid enrollee each year similar to the COLA payment cap for Social Security enrollees. COLA is tied to the cost of living, but Medicare and Medicaid expenditures per enrollee have been rising at a more rapid rate than the cost of living per enrollee. Therefore, the question arises whether Medicare and Medicaid enrollees could afford to pay the difference between the government's defined contribution and the actual expenditure per enrollee.

The Distribution of Income and Assets by Age Group

Table 10 shows the distribution of income in 1998 by age group and it is apparent that the two distributions of household income are very different. Median senior household income is only $21,729, while the rest of households had a median income that was almost twice as large at $41,880. In the senior household income distribution, 33.8 percent had incomes below $15,000, while only 13.9 percent of the rest of households had lower incomes. At the opposite end, only 17.1 percent of senior households had income above $50,000, while 44.2 percent of non-elderly households had higher incomes. This 17.1 percent of senior households could afford to supplement a Medicare defined contribution.

While these data indicate much of the senior population segment has lower household income than the other households, they mask the fact that household income is only one measure of economic capacity. Home ownership, particularly if the home is owned outright, provides "free" rent to the household or an imputed income. Thus, for example, a seventy-five-year-old widow living on a Social Security income of $12,000 per year, living in her own home that is free and clear (having a market value of $100,000), would have an imputed income from the home of $6,500 per year (at a 6.5% interest rate). Her total household income, therefore, is not $12,000 per year but $18,500 per year.[37] Net worth is another measure of economic capacity, although both home ownership and net worth are probably highly correlated with household income.

Table 10.
Income for Households with Persons Aged 65 and Older
and for Households with Persons Younger than 65 Years, 1998

Household Income	Age 65[+]		Below Age 65	
	Number (000)	%[a]	Number (000)	%[a]
Under $10,000	3,836	**17.8**	6,859	**8.3**
$10,000 to $14,999	3,448	**16.0**	4,645	**5.6**
$15,000 to $24,999	4,893	22.7	9,694	11.8
$25,000 to $34,999	3,071	14.2	10,627	12.9
$35,000 to $49,999	2,631	12.2	14,029	17.0
$50,000 to $74,999	1,886	**8.7**	17,386	**21.1**
$75,000 and over	1,824	**8.4**	19,036	**23.1**
Total Households	21,589	100.0	82,285	100.0
Median Household Income	**$21,729**		**$41,880**	

[a] Percentages do not total to 100 because of rounding.
Source: U.S. Bureau of the Census (2000).

Table 11.
Home Ownership Rates and Family Net Worth—Mean and Median
Net Worth in Constant (1998) Dollars by Age Group, 1992 and 1998

Age of Family Head	Home Ownership Rate		1992			1998		
				Net Worth (000)			Net Worth (000)	
	1992 (%)	1998 (%)	% of Families	Mean ($)	Median ($)	% of Families	Mean ($)	Median ($)
Under 35 years old	37.6	39.3	25.8	53.1	10.4	23.3	65.9	9.0
35 to 44 years old	65.1	66.9	22.8	152.7	50.9	23.3	126.2	63.4
45 to 54 years old	75.1	75.7	16.2	304.4	89.3	19.2	362.7	105.5
55 to 64 years old	80.2	80.9	13.2	384.9	**130.2**	12.8	530.2	127.5
65 to 74 years old	77.1	79.3	12.6	326.1	112.3	11.2	465.5	**146.5**
75 years old & over	—	—	9.4	244.4	99.2	10.2	310.2	125.6
All Families	—	—	100.0	212.7	56.5	100.0	282.5	71.6

Source: U.S. Bureau of the Census (2000).

Home ownership rates increase with age, although they fall off slightly after age sixty-five (Table 11). In 1992, median net worth peaked at $130,200 for the fifty-four to sixty-four year-

old-age group, and then slightly declined for the two age groups sixty-five to seventy-four years old and seventy-five years and older. Nevertheless, median net worth for these two sixty-five plus age groups was still higher than for any age group below fifty-four years old. In 1998, median net worth peaked at $146,500 for the sixty-five to seventy-four years old age group. Median net worth of $125,600 for those seventy-five years and older was only about $2,000 less than the $127,500 for the fifty-five to sixty-four years old age group.

How then should the data in Tables 10 and 11 be interpreted? An unspecified household group of persons age sixty-five plus in the year 2001 have fairly high incomes, high rates of home ownership, and high net worth. They are entitled to the same Medicare benefits as the widow who receives less than $10,000 per year, does not own her home, and may have zero net worth. Although these well-to-do seniors now must pay income taxes on a portion of their Social Security benefits, they pay no income taxes on the insurance value of their Medicare benefits. Remodeling Medicare from a defined benefit insurance plan to a defined contribution insurance plan would not affect these affluent seniors; however, the other seniors would find they would pay a greater percentage of their relatively lower income for medical care.

Policy Implications of the Findings in this Paper

The structure of federal expenditures has changed significantly in the last twenty years. By 2000, most of the expenditure categories had declined as a percentage of the total budget. Medicare and Medicaid, however, had the two largest percentage *increases* from 1980 to 2000. Interest paid on the national (publicly held) debt was $220.3 billion, the fourth largest expenditure category in 2000, and only $70 billion less than national defense expenditures. Social Security expenditures did not increase much as a percentage of the budget, because expenditures per enrollee have been capped by the COLA and, until now, elderly persons have increased only slowly as a percentage of the total population. The demographics with seniors will begin to change dramatically in the year 2010, when the so-called baby boomers retire and also become eligible for Medicare enrollment. Funds have already been set aside in a federal "lock box" (the U.S. Treasury) for the short-run and intermediate-run for Social Security and Medicare Part A benefit payments. The "lock box" does *not* hold enough bonds to sell to investors to meet the long-run commitments of Social Security and Medicare Part A brought about by the rapid demographic change and steadily rising health care costs.

The popular press describes this situation as a "crisis" for both programs. An examination of how *Medicare Part B* and Medicaid are financed shows that neither are financed by a payroll tax and Medicare Part B has a trust fund while Medicaid does not. Table 12 shows the past history and trustee projections for the Medicare Part B trust fund. There are two important dimensions about the data in Table 12: first, the Part B trust fund is projected *never* to be exhausted, even in the long run; and second the federal contribution to this trust fund's total income has increased ever since 1970 and is now, and is projected to be, about 74 percent into the future. Since the federal government largely finances itself by means of income taxes, this means that Medicare Part B will be financed more and more with revenue from progressive income taxes.[38] In short, there is no "crisis" for Medicare Part B, except that per enrollee costs are increasing at a more rapid rate than the COLA so increasing amounts of federal general tax revenues would be transferred to pay for Part B.

Table 12.
Operations of the SMI Trust Fund, Calendar Years 1970–2010

	Total Income	Government General Fund Tax Revenue Contributions as a % of Total Income	Total Disbursements	Balance at End of Year
Historical Data				
1970	$2,201	49.7	$2,212	$188
1975	4,673	56.7	4,735	1,444
1980	10,874	68.6	11,245	4,530
1985	25,106	72.7	23,880	10,924
1990	45,913	72.0	43,987	15,482
1995	60,306	64.7	66,599	13,130
2000	89,903	73.3	90,663	44,027
Intermediate Estimates				
2001	97,898	74.0	103,773	38,152
2002	112,971	74.0	113,818	37,305
2003	123,038	74.1	121,706	38,637
2004	131,407	73.8	130,250	39,794
2005	141,228	74.0	139,778	41,243
2006	150,833	74.0	149,423	42,653
2007	160,603	74.0	159,198	44,058
2008	173,396	74.0	170,660	46,794
2009	186,398	74.0	183,048	50,144
2010	200,105	74.0	196,282	53,967

Source: Board of Trustees (2001(c)).

One can also argue that Medicare Part B is more equitably financed than either Social Security's or Medicare Part A's regressive payroll. Since Medicaid does not have a trust fund, there is no worry about exhausting it some time in the future, as with Social Security and Medicare Part A. As explained earlier, the federal share of financing Medicaid has been about 57 percent of total Medicaid expenditures; therefore, it is progressively financed the same as Medicare Part B. The states finance Medicaid's remaining 43 percent using a mix of income taxes, sales taxes, and property taxes. Given a mix of revenue sources, it seems safe to assume that the state share is less progressively financed than the federal share, but more progressively financed than either Social Security or Medicare Part A.

Additional insight into this so-called "crisis" may also be gained by analyzing the experience of other countries that have an aging population as a percentage of the total population even larger than the United States. Table 13 contains data for the twenty-nine member countries of the Organization for Economic Cooperation and Development (OECD). Some developed countries already have, or will have, sixty-five plus population ratios that the United States will not attain until about 2025. For example, Italy had a sixty-five plus population ratio of 18.1 percent in

2000 and a projected 20.5 percent for 2010; Japan and Greece have similar sixty-five plus populations. The United States had, and will have in 2010, one of the lowest sixty-five plus population ratios.

Table 13.

Organization for Economic Cooperation and Development Countries, Percentage of the Population Age 65$^+$, Actual and Projected, and Health Expenditures and Tax Revenues as a Percent of GDP

Country	Percent 65$^+$ 2000	Percent 65$^+$ 2010 (projected)	Health as Percent of GDP (1997)	Taxes as Percent of GDP[a]
Australia	12.4	15.2	8.4	33.1
Austria	NA	NA	8.3	47.6
Belgium	16.8	18.1	7.6	49.9
Canada	12.7	15.5	9.2	42.8
Czech Republic	13.9	15.8	7.2	39.6
Denmark	NA	NA	8.0	57.4
Finland	NA	NA	7.4	50.0
France	16.0	17.3	9.6	50.2
Germany	16.2	20.1	10.7	46.0
Greece	17.3	19.8	8.6	47.7
Hungary	14.6	15.6	6.5	39.7
Iceland	NA	NA	7.9	37.0
Ireland	NA	NA	6.3	33.4
Italy	18.1	20.5	7.6	46.3
Japan	17.0	21.9	7.2	30.5
South Korea	7.0	10.6	6.0	25.1
Luxembourg	NA	NA	7.0	NA
Mexico	4.3	6.3	4.7	NA
Netherlands	13.6	16.0	8.5	43.2
New Zealand	NA	NA	7.6	40.8
Norway	NA	NA	7.5	51.0
Poland	12.3	13.1	5.2	41.0
Portugal	15.4	17.1	7.9	42.4
Spain	16.9	18.5	7.4	37.2
Sweden	NA	NA	8.6	58.7
Switzerland	NA	NA	10.0	NA
Turkey	6.0	8.1	4.0	NA
United Kingdom	15.7	17.0	6.8	40.3
United States	12.6	14.4	13.9	31.0

All taxes. In the United States, this includes federal taxes, payroll taxes, and state and local taxes.
Source: U.S. Bureau of the Census (2000).

21

In order to test the two hypotheses that an older population should engender higher health-care expenditures as a percent of GDP, and that an older population would imply greater dependency, and thus a higher level of taxation, two simple linear regressions of the form were run: $Y = a + bX + e$; where Y was health expenditures as a percent of GDP in the first equation, and tax revenues as a percent of GDP in the second equation; X was the percentage of the population aged sixty-five plus in 2000 in both equations. Table 14 contains the regression results. The beta coefficient in both equations is positive and statistically significant at the five percent level. Variations in the percent of the population aged sixty-five plus "explain" 41 percent of the variation in tax revenues as a percent of GDP and 16 percent of health expenditures as a percent of GDP. These statistical results are interpreted as meaning that an aging population necessitates both higher health expenditures and higher tax revenues, based upon the experience in other countries.

Table 14
OECD Regression Results

	Dependent Variables	
	Health Expenditures as a Percent of GDP	Tax Revenues as a Percent of GDP
Constant	7.476	4.775
	$(2.431)^a$	(1.528)
Percent of Population Age 65+	0.794	0.244
	(2.076)	(3.196)
R^2	.20	.41
$\overline{R}^2$	.16	.37
Sample Size	19.0	17.0

[a] T values in parentheses.

To summarize the essence of the future financial problems for Social Security, Medicare, and Medicaid, the following ten propositions are reasonable:

- Three quarters of the revenue comes from taxes that are regressive to income having become an ever-larger percentage of total federal tax revenues over time.[39]

- Social Security and Medicare Part A have trust funds that are actuarially out of balance (i.e., the present value of projected benefit payments per enrollee is much greater than the present value of projected payroll tax revenues per enrollee, at current payroll tax rates).

- The trust funds are simply accounting fabrications that have nothing to do with the basic underlying economic reality of a strong versus a weak economy and the ability to tax it.[40]

- All things being equal, the economy in the future will be relatively stronger rather than relatively weaker if present-day budget surpluses are saved and invested rather than spent on consumption.

- In the future, Social Security, Medicare, and Medicaid will consume an even larger percentage of the GDP and the federal government budget than they do now.

- Tax reductions that spend the budget surpluses between 2001 and 2010 will shift much of the increased economic burden onto a future generation, allowing the present generation to have more opportunities for consumption in the present.

- Some of this increase in burden could be alleviated by using the budget surpluses between 2001 and 2010 to buy back the presently existing $3.633 trillion publicly held debt, removing $220 billion in annual interest payments from the federal expenditures budget.

- Even saving the surpluses, the historical average federal tax rate of 19 to 20 percent of the GDP would not be high enough to finance the increasing GDP percentage consumed by Social Security, Medicare, and Medicaid.

- Proposed solutions include: increasing federal tax rates, or reducing other federal discretionary expenditures—perhaps drastically—or incurring large—possibly unsustainable—federal budget deficits, or reducing payments for all three programs.

- It is unlikely that any Social Security, Medicare, or Medicaid benefit payments that serve the senior segment of the population will be decreased, given the senior citizens' future voting power and the increasing political influence of AARP.[41]

Pertinence to the State of Arizona

Because Social Security and Medicare are federal programs, the considerations that apply to them at the national level continue to apply at the state level. Arizona's Medicaid program, the Arizona Health Care Cost Containment System (AHCCCS), uses competitive bidding to establish rates that it will pay for acute and long-term care of the indigent. Furthermore, all care provided under AHCCCS is mandated to be managed care. Through the successful passage of a referendum item in the November 2000 elections, AHCCCS eligibility would be extended to every person and household that has an income at or below the federal poverty level (which is expected to add about another 125,000 persons to the AHCCCS rolls). Arizona also has one of the highest percentages of the uninsured of any state. AHCCCS receives 65.9 percent of its total expenditures in federal Medicaid sharing. In the last few years, the supply of nursing home beds has expanded considerably as the result of more generous AHCCCS reimbursement.[42] Senior citizens are also expected to grow as a percentage of the total population in Arizona at a more rapid rate than at the national average.[43] Therefore, one would expect AHCCCS to consume a greater percentage of the state budget in the future, particularly for long-term care. As is true at the national level, the burden of financing the increased demands upon AHCCCS will be an inverse function of the rate of growth of the state's economy.

Conclusion

This paper highlights the importance of economic growth as the key factor in assessing the burden that an aging segment of society might impose upon the rest of society. Likewise, another key factor is the rate of growth in per capita health care costs. The ability to influence either factor through the political process is a function of the voting public's understanding of the basic nature of the public policy problems at hand. Sloganeering about "giving the people's money back" in tax reductions—when possibly unsustainable federal budget deficits loom in the future—or "putting a lock box on Social Security"—when Medicare and Medicaid expenditures

per enrollee will soon exceed Social Security expenditures per enrollee—is not a good beginning for public understanding. Hopefully, this paper represents a small step toward a better understanding of the fiscal problems that an aging society presents.

Notes

1. On the basis of purchasing power parity ratios, the United States ranked fourth; Luxembourg ranked first.

2. World Health Organization, *The World Health Report 2000—Health Systems: Improving Performance* (Geneva: World Health Organization, 2000, June).

3. U.S. General Accounting Office, *Private Health Insurance: Continued Erosion of Coverage Linked to Cost Pressures,* GAO/HEHS-97-122 (Gaithersburg, Md.: U.S. General Accounting Office, 1997, July).

4. U.S. Bureau of the Census, *Statistical Abstract of the United States 2000* (Washington, D.C.: U.S. Government Printing Office, 2000).

5. B. A. Weisbrod, "The Health Care Quadrilemma: An Essay on Technological Change, Quality of Care and Cost Containment," *Journal of Economic Literature* 24 (2, 1991): 523–52.

6. M. L. Berk, and A. C. Monheit, "The Concentration of Health Care Expenditures, Revisited." *Health Affairs* 20 (2, 2001): 9–18.

7. J. A. Poisal, L. A. Murray, G. S. Chulis, and B. S. Cooper, "Prescription Drug Coverage and Spending for Medicare Beneficiaries." *Health Care Financing Review* 20 (2, 1999): 15–27.

8. J. Lubitz, L. G. Greenberg, Y. Gorina, L. Wartzman, and D. Gibson, "Three Decades of Health Care Use by the Elderly, 1965–1998." *Health Affairs* 20 (2, 2001): 19–32.

9. M. L. Berk, A. C. Monheit, and M. M. Hagan, "How the U.S. Spent Its Health Care Dollar: 1929–1980." *Health Affairs* 7 (4, 1988): 46–60.

10. U.S. Bureau of the Census, 2000.

11. There are two general types of government bond. One type is called a "revenue" bond. The revenue bond is usually tied to a project, such as for financing a toll road. The government will use the revenue from the toll road to pay the principal and interest on the bond. If there is not sufficient revenue, the payment of interest on the bond is forestalled. This type of bond is usually used by state and local governments. The other general type of bond is known as a "full-faith-and-credit" bond. With this type of bond, the government pledges to pay the principal and interest based upon its ability and power to collect taxes from the population.

12. For example, the government of Norway has lately been using its budgetary surpluses to buy corporate bonds in the countries of the European Union (EU). State and local governments in the United States have about $2.5 trillion of their employees' pension funds invested in corporate bonds U.S. General Accounting Office, *Budget Surpluses: Experiences of Other Nations and Implications for the United States,* GAO/AIMD-00-23 (Gaithersburg, MD: U.S. General Accounting Office, 1999, November).

13. In Figure 1, for purposes of clarity and simplicity of exposition, I have used only the Medicare Part A trust fund as "Medicare." Indeed, there are eleven major federal trust funds, such as the airport and airway trust fund and the highway trust fund (U.S. Bureau of the Census, 2000). The Medicare Part B trust fund is a hybrid and barely deserves the name of "trust fund." On this point, see Vogel (1999).

14. Each year in April, the Board of Trustees of the Social Security and Medicare trust funds issues a separate report for each program. The annual reports list the holdings of U.S. government bonds in

each trust fund, together with the dates of maturity of each set of bonds and the interest rates paid. Of course, when the bonds mature, they are replaced with a new set of bonds, with later maturity. For example, see Board of Trustees, Federal Old-age and Survivors Insurance and Disability Funds, *2001 Annual Report of the Board of Trustees of the Federal Old-age and Survivors and Disability Insurance Trust Funds* (Washington, D.C.: U.S. Government Printing Office, 2001(a)).

15. For example, see Congressional Budget Office (2001, February).

16. The bondholders have the first claim on any profits, while the stockholders have the residual claim.

17. The acronyms that are used for the Social Security and Medicare programs (OASDI) can be somewhat confusing. The acronym for both programs combined is OASDHI. The retirement part of the program, or, "Social Security" is OASI and the disability part of the program is DI, both of which are cash income programs. The medical care part of the program for the elderly and disabled, or, "Medicare," is called HI, and is an in-kind program, as opposed to a cash income program. Medicare Part A is often called HI (hospital insurance), and Medicare Part B is often called SMI (supplemental medical insurance). OASI was created in 1935, DI in 1956, and HI in 1965. The disabled, including those persons with end-stage renal disease, did not become eligible for Medicare until July 1, 1973.

18. Indeed, in 1945, there were 41.5 workers for every Social Security beneficiary! (Social Security Administration, 2000).

19. P. A. Samuelson, *Economics* (New York, N.Y.: McGraw Hill, 1980).

20. U.S. Bureau of the Census, 2000.

21. The Board of Trustees of the OASDHI trust funds consists of six members: the Secretary of the Treasury, the Secretary of Labor, the Secretary of Health and Human Services, the Commissioner of Social Security, and two "public" members, who serve four-year-concurrent terms and whose appointment is subject to confirmation by the Senate. The Administrator of the Health Care Financing Administration serves as Secretary to the Board of Trustees.

22. Unlike with the OASDI Report, the trustees only give a moving ten-year forecast for the HI trust fund data in Table 6. Thus, the forecast in the 1998 Report is for 1998–2007, and for the 2001 Report, 2001–2010. Although the trustees do not reveal why the time span for the OASDI Report is longer than that for the HI Report, I suspect that it is because it is much more difficult to predict the magnitude of medical care expenditures than it is to predict Social Security benefit payments, for the reason already given previously in the text explaining how OASDI benefit payment forecasts are done.

23. R. J. Vogel, *Medicare: Issues in Political Economy* (Ann Arbor: University of Michigan Press, 1999).

24. Board of Trustees, 1998; Board of Trustees, Federal Hospital Insurance Trust Fund, *2001 Annual Report of the Board of Trustees of the Federal Hospital Insurance Trust Fund* (Washington, D.C.: U.S. Government Printing Office, 2001(b)).

25. Health Care Financing Administration, *A Profile of Medicaid: Chartbook* (Baltimore, Md.: Health Care Financing Administration, 2000, September).

26. Social Security Administration, *Annual Statistical Supplement to the Social Security Bulletin* (Washington, D.C.: U.S. Government Printing Office, 2000).

27. Health Care Financing Administration, 2000.

28. Health Care Financing Administration, 2000.

29. Health Care Financing Administration, 2000.

30. Congressional Budget Office, *The Budget and Economic Outlook: An Update* (Washington, D.C.: Congressional Budget Office, 2000, July).

31. Congressional Budget Office, *The Long-term Budget Outlook* (Washington, D.C.: Congressional Budget Office, 2000, October).

32. The implicit assumption here is that most federal government expenditures, such as for Medicare and Medicaid, are for purposes of consumption (of medical care, for example). When government runs surpluses, it buys back debt held by the public. The "public" then invests the cash proceeds from the sales of bonds to the government in new factories and equipment.

33. Some comparisons in this paper have been made as a percentage of GDP or as a percentage of GNP, depending upon the source. Gross Domestic Product refers to all income produced within the U.S. Gross National Product refers to GDP, plus net income from abroad (U.S. Bureau of the Census, 2000).

34. In the case of saving off-budget surpluses, it would mean using Social Security and Medicare surpluses for buying corporate bonds and/or for buying the bonds of other governments (state and local or foreign).

35. Congressional Budget Office, 2000, July.

36. These scenarios assume that Social Security benefit payments, and Medicare and federal Medicaid medical vendor payments, would continue to be made out of general fund tax revenues, even if the OASDI and HI trust funds were to be exhausted.

37. Using 1979 data, Smeeding (T. M. Smeeding, *Alternative Methods for Valuing Selected In-kind Transfer Benefits and Measuring Their Effect on Poverty*. Technical Paper 50 [Washington, D.C.: U.S. Department of Commerce, 1982]) showed that the poverty rate among seniors was 14.7 percent, when only money income was used as the measure of the poverty rate. After including the market value of government-subsidized food and housing, the poverty rate for seniors dropped to 12.9 percent. When the market value of subsidized medical care and long-term care were also included, the senior poverty rate declined to 4.5 percent, or a 10.2 percentage-point decline from the money-income-poverty rate.

38. A tax is considered to be regressive when it collects a higher percentage of a poor person's income than of a rich person' s income. Sales taxes are thought to be regressive, because a poor person usually spends a higher percentage of his/her income than does a rich person. The OASDI tax is regressive, because it has an annual upper limit on the earnings tax base. A proportional tax collects an equal percentage rate from both rich and poor persons. The upper limit on the HI tax base was removed in 1993 and the HI tax became proportional (i.e., both the poor person and the rich person pay a 2.9 percent tax—employer/employee combined—on *all* of their earnings). A progressive tax has a lower average rate on a lower income and a higher average rate on a higher income. The "ideal" progressive tax would have tax rates increasing at a more rapid rate than the income or earnings base.

39. Vogel, 1999.

40. Both the Board of Trustees and the CBO ignore the contents of the trust funds when they make their long-range projections, and use expenditures in the two programs as a percent of GDP. They assume, in footnotes, that OASDI and HI will continue to make benefit payments, presumably from the federal general tax fund, even if the two trust funds become exhausted.

41. Vogel, 1999.

42. P. A. Rivers, "Health Economics of Aging Trends, Potential Issues and Questions" (School of Health Administration and Policy, Arizona State University, 2001).

43. Rivers, 2001.