Meritorious Team Prize—$7,500

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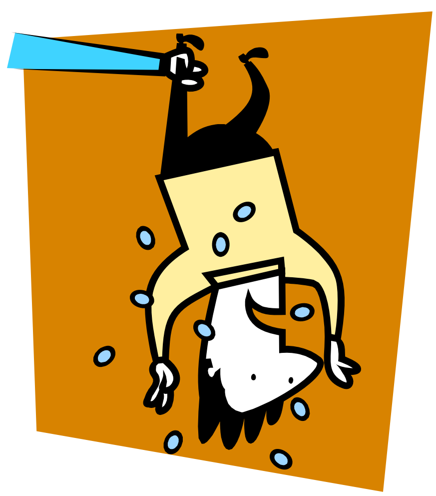
Solving the Social Security Stalemate:
An Optimal Solution



Summary

Social Security, founded as part of the New Deal in the 1930s, has been a huge success. Poverty among retired Americans has nearly been eliminated through a simple system: retirees are supported by members of the population who are currently working. In turn, when those workers retire, they will then be supported by the next generation of working Americans.

However, if current trends continue, Social Security will be bankrupt by 2043. The reason for its projected collapse is that improved healthcare and medical technology have increased the life expectancy of the average American, prolonging the period that they will receive Social Security benefits. The result is a declining worker-to-beneficiary ratio, meaning that the burden of supporting an ever increasing number of retirees falls on the shoulders of a comparatively smaller body of workers.

As with any financial entity, there are two basic ways to remedy the problem: increase income or cut costs. Experts have developed a number of proposals in both categories, including an increased payroll tax rate, elimination of the taxable income cap, increasing the normal retirement age, or, more recently, the privatization of Social Security advocated by the Bush administration. Each of these possible solutions has advantages and disadvantages, and thus far efforts to alter the existing system have stagnated.

We propose a two-part plan to ensure Social Security's survival for at least the next 75 years. According to a recent estimate from a Social Security Trustees Report, an injection of an additional $100 billion into the Social Security program during the first year of changes and a proportionately higher addition each subsequent year would be sufficient to save Social Security. To reach our $100 billion target, $55 billion for Social Security will come from the preservation of the estate tax, which President Bush has recently avowed to reduce. The remaining $45 billion will come from a revised payroll tax structure. The cap on taxable income ($90,000) will be eliminated, and the top 5% of wage earners in the United States will pay a lower, flat payroll tax rate of 8.7%, which is the amount necessary to achieve the target $45 billion in tax income. Through our proposed changes, we believe that the current level of benefits can be maintained while limiting the burden on taxpayers.

Social Security

In 1935, President Franklin Delano Roosevelt signed the Social Security Act into law as part of the New Deal, creating what is currently the largest government program within the federal government of the United States. In 2004, Social Security paid benefits of approximately $500 billion. The theory behind the program is that each generation of retiring workers will be supported in retirement by those currently working. Social Security was a great success in its early years, especially in combating the Great Depression, when 50% of senior citizens were below the poverty line, because the system could fund itself despite having no money with which to begin.

Throughout its history, Social Security has been funded through an annual income tax. Self-employed taxpayers pay a fixed percentage (now 15.3%) of their annual earnings. Employed workers pay half of this fixed percentage through a direct payroll tax on their income while their employers pay the other half. In a surplus year, in which tax revenue exceeds the benefits that need to be paid that year, the leftover money is invested in securities of the United States government on which a rate of interest is credited. Therefore, Social Security can draw from both that year's tax revenue and interest on its accumulated government securities. Social Security consists of four separate trust funds: the Old Age and Survivors Insurance (OASI) Trust Fund, the Disability Insurance (DI) Trust Fund, the Hospital Insurance (HI) Trust Fund, and the Supplementary Medical Insurance (SMI) Trust Fund.

Problems of Social Security

Social Security has worked so well in the past because the economic burden of providing benefits to a relatively small retired population was assumed by a comparatively large workforce. In 1950, there were 16 workers to support each beneficiary of Social Security. Thus the program's revenue far exceeded its payout in benefits. The ratio of workers to beneficiaries decreased to 5.1 : 1 in 1960 and by 2005 was down to 3.3 : 1. This phenomenon can be explained by a variety of related factors. Largely due to improved medical technology and more readily available healthcare, the average lifespan has steadily increased. People are retiring at the same age that they did in 1935 but living longer. This combination of factors has two clear results:

(1) A greater portion of the population reaches the age normally associated with retirement.

(2) People who reach retirement remain retired longer.

With the baby boomers beginning to retire in 2008, the ratio will likely fall to 2 to 1 by the mid-2030s (Fig. 1).

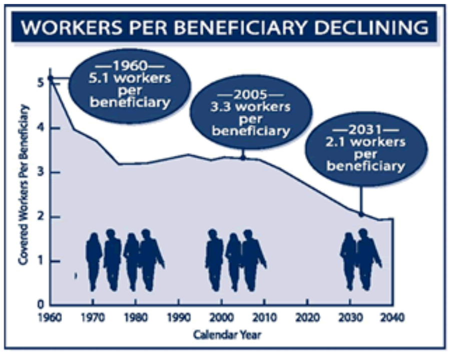


Fig. 1

The declining worker-to-beneficiary ratio has troubling financial consequences for Social Security. As the number of beneficiaries increases faster than the number of workers, Social Security will struggle to take in enough tax revenue to meet its obligations to retirees. Currently, income exceeds cost, but if the current system is not revised, outgo will exceed tax income by 2018 (Fig. 2). When securities interest is factored into the equation, outgo will finally exceed total income in 2028. By 2043, the assets of the various Social Security trust funds will be entirely exhausted and Social Security will be bankrupt. Even before the system is bankrupt, many of the benefits that retirees are entitled to will no longer exist.

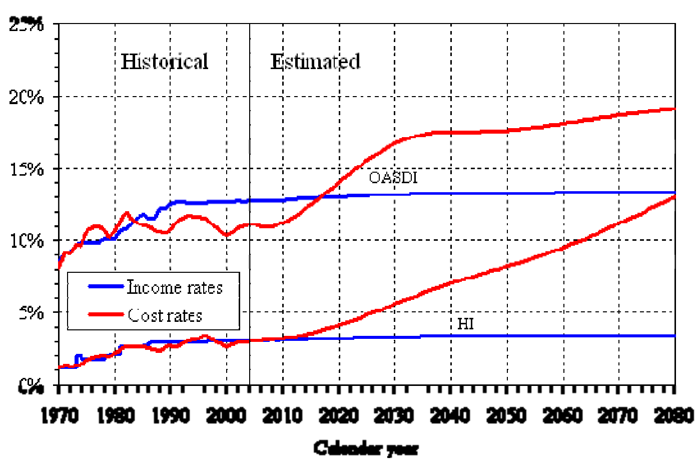


Fig. 2 (Y-Axis = Percentage of taxable payroll)

The current Social Security system is clearly not viable.

Objective

To guarantee the viability of Social Security and maintain the present level of benefits for at least 75 years while placing minimum burden on taxpayers.

Assumptions

(1) Analysts' projections of Social Security expenditures and income are correct.
(2) The life expectancy will continue to rise at the rate of current trends due to ever improving medical technology and healthcare.
(3) Changes in the public's decision making (regarding purchases, investments, etc.) as a result of changes in the Social Security structure are negligible.
(4) The worker to beneficiary ratio will continue to decline at projected rates.
(5) The system we propose will be enforced properly.
(6) Average returns from investment in the stock market will be consistent historical data.
(7) Based on data from the state of California, we infer that the national average for workers per household is approximately 1.4.
(8) The data used that is 0-5 years old is sufficiently accurate as to not skew our model.
(9) The AARP estimates cited are accurate.

Evaluations of Possible Solutions

Increase Income

As in any business, the most direct way to compensate for increasing expenditures is to raise revenue. Experts have proposed a variety of methods to raise revenue for Social Security, each with its own advantages and disadvantages to be analyzed.

Increase the Payroll Tax Rate

Potential additional income if implemented for 2005 = $87.7 billion

Since its inception, Social Security revenue has been increased by raising the payroll tax rate. Up to this point, this method has been a successful strategy for keeping pace with the declining worker-to-beneficiary ratio. In each decade since Social Security tax was first collected, rates have increased. However, the rate has remained the same 15.3% since 1990 (Table 1).

Calendar Year	S.S. Tax Rate as a Percentage of Taxable Earnings	Percent Increase over Last Decade
1960-61	4.5	-
1969-70	6.9	53.3%
1979-80	8.1	17.4%
1990	15.3	88.9%
2000	15.3	0%

Table 1

According to a report by the Social Security Trustees, a 1.89 percentage point raise in the Social Security payroll tax would prevent costs from exceeding tax revenue for the next 75 years. This increase would bring the tax rate to 17.19%. The total tax income for Social Security was $709.8 billion in 2004 with the 15.3% payroll tax rate. The 17.179% rate would bring the tax income to $797.5 billion.

$709.8 Billion * (100/15.3) = $4,639.22 Billion Total Earnings,

$4,639.22 Billion * .1719 = $797.5 Billion.

If this higher payroll tax rate were applied for the 2005 fiscal year, it would result in an additional $87.7 billion for Social Security. Even further, as Social Security's tax income increases each year according to trends, the additional funding will further exceed $87.7 billion each successive year.

The 1.89 percentage point raise, which is a 12.4% increase over the current rate, is a comparatively lower increase than the percent increases per decade prior to 1990 given in Table 1. Essentially, this type of rate increase has proven to be a successful strategy and would ensure the viability of Social Security for the next 75 years.

However, there are various negative consequences to a raise in the payroll tax rate. Of course, already heavily taxed Americans would be reluctant to give away more of their income and not see any benefits until they reach retirement. A raise in payroll taxes would adversely affect the poor while having no effect on the highest earners, who get taxed only according to the $90,000 cap on taxable income. This solution is also incredibly short-sighted. Although it would help Social Security survive the next 75 years, continuing to raise the payroll tax rate would eventually be unpalatable because there is a limit to how much the public can be taxed.

Adjust the Cap on Income Taxable for Social Security

Potential additional income if implemented for 2005 = $125.1 billion

The current cap on taxable income is $90,000, meaning that 15% of total earnings go untaxed. If the cap was raised or eliminated altogether, Social Security's tax revenue would increase by more than $100 billion:

Tax Revenue in 2004 with the $90,000 Cap = $709.8 Billion,

$709.8 Billion * (100/15.3) = $4,639.22 Billion Total Taxed Earnings with Cap,

$4,639.22 Billion = .85 * Total Taxed Earnings without a Cap,

Total Taxed Earnings without a Cap = $5,457.65 Billion,

$5,457.65 Billion * .153 = $834.9 Billion Tax Revenue without a Cap.

Without a taxable earnings cap, an additional $125.1 billion dollars would flow into Social Security each year. Using the fact that the Trustees report deemed the $87.7 billion that would have been gained through a payroll tax increase sufficient for 75 more years of survival, the $125.1 billion gain from a cap elimination would be more than sufficient.

The only negative aspect of this policy is that the rich would pay an exorbitant amount of Social Security tax when they likely will not have to rely on Social Security at all. This could make the affluent entirely opposed to Social Security.

Raise Taxation on Social Security Benefits

Potential Reduction of Social Security Shortfall = 10%

Some have proposed that paying Social Security benefits to affluent retirees is a waste of money, but if they did not receive benefits this would be unfair: affluent retirees would be punished for their success. A better solution is to raise the taxation rate on the Social Security benefits. One of the major factors for determining the benefits that retirees receive is their lifetime earnings. Therefore, affluent retirees receive large sums of Social Security benefits. If there were a tax on these benefits, then these high-income retirees would make a greater contribution to the system than other retirees while not being harmed financially in the process. Analysts at AARP suggest that this policy could reduce the projected shortfall by up to 10%.

Preserve the Estate Tax and Dedicate it to Social Security

Potential Reduction of Social Security Shortfall = 27%

A major part of President George W. Bush’s tax cut plan is the gradual reduction of the estate tax. The estate tax is a tax on money inherited by a person or organization upon the death of the person or organization that previously controlled the money. It is otherwise known as an inheritance tax. Bush has proposed that by 2009, only estates valued at more than $3.5 million will be taxed, rather than the current $1 million limit. According to Joint Committee on Taxation estimates, his plan represents a $55 billion tax reduction. If the current estate tax were preserved and the $55 billion collected from taxes on estates valued between $1 million and $3.5 million were diverted to Social Security, this revenue could go a long way toward saving the system. AARP estimates that this could reduce the shortfall by about 27% while affecting only a small portion of the population.

Invest Some of the Trust Fund in Indexed Funds

Potential Reduction of Social Security Shortfall = 15 – 45%

By law, Social Security trust funds can only be invested in government bonds and securities. Although it would be controversial, investing the money in indexed stock market funds would yield higher returns in the long run. Historically, stocks held for a long time return a higher investment than government bonds and securities. Risks would be relatively low since a large organization like Social Security could survive the ups and downs of the market. Canada recently adopted direct investment for its social insurance program and *Business Week* has deemed it a successful approach. This approach would also boost private industry by putting more capital into the private sector.

However, such a dramatic change would not be without opposition. Critics argue that the government should not invest in the market because government investment may give some companies unfair advantages over others. In addition, the government would have less capital as it would be invested in private stocks.

Reducing Costs

Rather than trying to increase income to match rising costs, another strategy is to cut back costs to make Social Security easier to fund. However, these approaches should be considered cautiously, because benefits, as a percentage of prior earnings, are already lower today than they have been in the past. There are possible ways to reduce Social Security expenditures.

Raise the Retirement Age

Potential Reduction of Social Security Shortfall = 36%

People today are living longer than they ever have before. This is evidence that medical technology and healthcare are keeping the elderly fairly healthy. If people are healthier in old age today than they were when Social Security was established in 1935, then why are they retiring at the same age? The age eligibility for full benefits is slowly increasing from 65 to 67. It will reach 67 in 2027, for workers born in 1960. One solution to Social Security’s problems is to continue raising the normal retirement age according to the rising life expectancy. Based on life expectancy data, mathematical analysis shows that the retirement age should be higher than it currently is:

1980 Life Expectancy = 70.82 years,

1980 Normal Retirement Age = 65 years,

2003 Life Expectancy = 75.4 years,

Proportionally: (65 / 70.82) = (Suggested Retirement Age / 75.4),

Suggested Retirement Age = 69.2 years.

Clearly, this raise in retirement age for full benefits would keep the worker-to-beneficiary ratio at a reasonable level. According to AARP projections, raising the retirement age to 70 would cut the Social Security shortfall by approximately 36%.

Adjust the COLA (Cost-of-Living Adjustment)

Potential Reduction of Social Security Shortfall = 18%

Social Security's annual COLA (cost-of-living adjustment) adjusts benefits to keep up with inflation. The COLA is determined according to the Consumer Price Index (CPI), which has been known to overestimate inflation by failing to account for the changing purchasing decisions consumers make as prices rise. The Bureau of Labor Statistics has suggested a more accurate CPI that would produce slightly smaller COLA increases based on lower inflation estimates. According to Alan Greenspan, the altered COLA would cut the long-term shortfall by 18%.

Index Benefits to Prices, Not Wages

Potential Reduction of Future Benefit Growth = up to 46%

One factor in determining Social Security benefits is the general rise of average wages over time. "Wage indexing" has successfully reduced the percentage of retirees living in poverty from 35% in 1960 to 9% today. However, President Bush and others have proposed indexing benefits to prices, not wages. Prices generally rise more slowly than wages, and “price indexing” would effectively slow the growth of future benefits as much as 46% over the next 65 years. Cutting benefits this much could have severe consequences, such as a three-fold increase in retiree poverty, which would place a heavy burden on other public programs.

Another idea is the combination of both types of indexing. Wage indexing could be used to protect the benefits of low-income workers while price indexing could be used to reduce the benefits of high-income workers. However, if the high-income workers’ returns on Social Security taxes were reduced too much, they would oppose Social Security altogether.

Privatization of Social Security: President Bush’s Proposal

In theory, George Bush’s plan to allow Americans to place some of their Social Security contributions in private accounts could both reduce expenditures and increase the benefits available to retirees. This type of plan has been adopted in other countries such as Great Britain, Argentina, and Australia and was even proposed by President Clinton. The private accounts could be invested in stocks, bonds, or “no-risk” treasury instruments bought directly from the treasury. George Bush contends that the additional earnings made through private investment will more than make up for the cutback in benefits. However, partial privatization of Social Security has both advantages and disadvantages.

Advantages

(1) Poor people would have a better chance to retire wealthy

Poorer people generally do not have enough of a surplus to invest in stocks, bonds, or other wealth-building assets. Privatization of Social Security would allow them to receive the benefits of investing. A family or individual that earns an average of $30,000 annually over their lifetime would retire as millionaires based on the historical average return of 10% in the U.S. stock market. Americans would still receive some money from the Social Security trust funds.

(2) Privatization would make up for inevitable benefit cuts

Due to the declining worker-to-beneficiary ratio, either taxes must be raised or benefits must be cut. Since tax increases are unpopular and George Bush is opposed to them, benefits will have to be cut. Private accounts would allow a larger accumulation of wealth that would make up for the inevitable benefit cuts.

(3) The stock market would receive an initial increase in value

The implementation of private accounts would inject more money into the stock market. By supply and demand, the value of the stock market should theoretically go up.

(4) Individuals would have more incentive to do well financially

Many Americans believe that the government should be there to bail them out, but privatization would motivate people to work harder, earn more, and more seriously consider retirement planning. In addition, since every citizen would own some type of stock, people would be encouraged to help their companies and the U.S. economy.

(5) Individuals who die before retirement could pass on funds

With the current system, if a person earns $40,000 per year during his working life, he would accumulate over $4 million by age 65 at a 10% return rate. If this individual dies before collecting benefits, this sum would go to the government. Private accounts would allow the individual to leave it to charity or a relative.

(6) Investment in the private sector would stimulate the economy

New investment would provide companies with capital to expand their businesses.

Disadvantages

(1) Poor portfolio management could leave some retirees short of funds

Past success of stocks does not necessarily guarantee future success. The market could experience a downturn and people’s livelihoods could be in jeopardy if they did not plan their investments well. Retirement livelihood is not something that people should be willing to gamble with.

(2) Large groups of retirees could suffer due to market fluctuations

Although the value of stocks generally increases in the long run, there are periodic downturns in the market. What happens if retirees hit the age of 65 in the middle of a market downturn? It could take one to two decades for the stocks to rebound, so retirees could be living with lower earnings than they anticipated.

(3) Even more money will be taken out of an already underfunded system

Reducing the amount of income to Social Security is a risky endeavor, as the program could collapse even with benefit cuts.

(4) The transition costs for privatization would be high and would add to the deficit

The costs associated with setting up a system would be very high. In fact, the transition could add over a trillion dollars to the already large deficit, which would be a burden for future generations.

(5) Current investment options offer the same benefits as private accounts

The private Social Security accounts will be redundant with options that already exist, and redundancy is not worth the cost required to undergo privatization.

Despite its advantages, the Bush plan represents a radical change that would put people's retirement livelihoods in their own hands. This would jeopardize Social Security's status as an economic safety valve for the American people, giving individuals the chance to prepare poorly for their futures.

Our Optimal Solution to the Social Security Problem

According to the Trustees Report, a 1.89 percentage point increase in payroll tax would be just enough to save Social Security during the next 75 years. Earlier in the paper, it was calculated that this would create an additional \$87.7 billion for Social Security in the first year of the tax increase. This amount of additional funds necessary to ensure the viability of Social Security can be used as a benchmark on which to base other strategies. Our conservative target for the additional amount of income to be injected into Social Security during the first year is \$100 billion.

Part I: Preservation of the Estate Tax

Of all the evaluated proposals, the one that is beneficial while causing the least harm is the preservation of the estate tax, out of which some money will be diverted to Social Security. In fact, taxes would not have to be increased; the estate tax should simply continue at its current rates. The only difference is that the tax revenue President Bush was planning to cut (tax revenue from the transfer of \$1 million to \$3.5 million estates) should go to Social Security. As previously determined, this would give Social Security at least another $55 billion annually.

Part II: An Altered Payroll Tax System

The preservation of the estate tax and its $55 billion contribution to Social Security during the first year means that we need to come up with an additional $45 billion for the first year in order to meet our target. In 2004, the total tax income of Social Security was $709.8 billion. Because our goal is to add $45 billion to this tax income total, we want to raise the tax income to $754.8 billion. In doing so, the combination of estate tax money and payroll tax money would give Social Security another $100 billion.

Our solution requires two changes:

(1) elimination of the taxable income cap, and

(2) a different (lower) payroll tax rate for the top 5% of income earners.

According to recent statistics, the top 5% of wage earners (those making $107,000+; see assumptions) in the United States earn 22.4% of the overall income. Essentially, we want the bottom 95% of wage earners to continue paying the same 15.3% payroll tax rate while creating an entirely separate rate for the top 5%. Because the cap is eliminated, the payroll tax rate for the top 5% can be lower than the current rate and at the same time provide Social Security with more tax income. The one variable in this approach is the payroll tax rate for the top 5% of wage earners that will increase Social Security's tax income to the $754.8 billion target. This rate can be solved for the following:

$709.8 Billion * (100/15.3) = $4,639.22 Billion Taxable Income with Cap,

$4,639.22 Billion = .85 * Taxable Income without Cap,

Taxable Income without Cap = $5,457.65 Billion,

$5,457.65 Billion * 22.4% = $1,222.51 Billion of Income for Top 5%,

$5,457.65 Billion - $1,222.51 = $4,235.14 Billion of Income for Bottom 95%.

Solve for payroll tax rate on top 5% in order to achieve $754.8 Billion goal.

Bottom 95%	**Top 5%**
$4,235.14 Billion * .153 = $648 Billion	$1,222.51 Billion * Top 5% Rate

$754.8 Billion - $648 Billion = $106.8 Billion from Top 5%,

$1,222.51 Billion * Top 5% Rate = $106.8 Billion,

Top 5% Rate = 8.7%.

According to our model, an elimination of the cap and an 8.7% payroll tax rate for the top 5% of income earners would be enough to increase the payroll tax income by the targeted $45 billion. This payroll tax rate should benefit the nation greatly while hurting a small portion of the population only slightly. With the 8.7% rate, someone earning up to approximately $158,000 annually would actually pay fewer taxes than he would under the current system:

$90,000 Cap * .153 = $13,770 in Taxes,

$13,770 = .087 * X,

X = $158,276 (Equity Point under the New System),

Clearly, this tax policy would adversely affect only a very small portion of American workers. The effects of our system are shown in Table 2.

Income	**Taxes Paid under Current Policy (if Self-employed)**	**Taxes Paid under Our Policy**	**Net Gain / Loss**
$30,000	$4,590	$4,590	$0
$60,000	$9,180	$9,180	$0
$90,000	$13,770	$13,770	$0

$120,000	$13,770	$10,440	+$3,330
$150,000	$13,770	$13,050	+$720
$180,000	$13,770	$15,660	-$1,890
$210,000	$13,770	$18,270	-$4,500
$500,000	$13,770	$43,500	-$29,730

The only foreseeable problem with this policy is that people could take advantage of the cut-off of the top 5% income bracket.

Combined with the $55 billion from the preserved estate tax, total Social Security revenues during the first year that these changes are implemented would increase by $100 billion. A trial period for our proposal is suggested. This type of revenue increase has been deemed by the Trustees Report as sufficient for ensuring the viability of Social Security during the next 75 years. Our policy provides the best of both worlds: maintaining the current level of Social Security benefits while limiting the burden placed on taxpayers.

Sources

"Life Expectancy by Age, 1850-2003." Infoplease. © 2000–2005 Pearson Education, publishing as Infoplease. March 5, 2006 (http://www.infoplease.com/ipa/A0005140.html).

"Per Capita Personal Income." Infoplease. © 2000–2005 Pearson Education, publishing as Infoplease. March 5, 2006 (http://www.infoplease.com/ipa/A0104547.html).

"Historical Income Tables - Income Equality." US Census Bureau. May 13, 2004 (http://www.census.gov/hhes/income/histinc/ie3.html)

"United States." The World Factbook. November 1, 2005 (http://www.odci.gov/cia/publications/factbook_old/geos/us.html)

Tanner, Michael. "Keep the Cap. Why a Tax Increase Will Not Save Social Security." June 8, 2005 (http://www.cato.org/pubs/briefs/bp93.pdf)

"Economic Snapshots." Economy Policy Institutes. February 7, 2005 (http://www.epinet.org/content.cfm/webfeatures_snapshots_20050217)

"Income Stable, Poverty Up, Numbers of Americans Wish and Without Health Insurance Rise, Census Bureau Reports." US Census Bureau (http://www.census.gov/Press-Release/www/releases/archives/income_wealth/002484.html)

"Higher Social Security cap a two-edged sword for GOP." US News. March 1, 2005 (http://www.post-gazette.com/pg/05060/464453.stm)

John, David C. "Raising the Social Security Payroll Tax Cap Does Not Fix Social Security." February 16, 2005 http://www.heritage.org/Research/SocialSecurity/wm667.cfm

"Social Security Online" (http://www.ssa.gov/)

"Administrative Costs of Private Accounts in Social Security." March 2004 (http://www.cbo.gov/showdoc.cfm?index=5277&sequence=0)