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**"The Effects of Social Security on Private Savings: A Reappraisal of the Time Series Evidence"**

by

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## Abstract

Section I reviews some of the important contributions using time series evidence to estimate Social Security's impact on private savings. Essential to these studies is the use of a "Social Security Wealth" (SSW) variable, created by Martin Feldstein (1974), which defines the present value of future discounted Social Security benefits for the entire population under the assumption that each working person retires at the normal retirement age. Section II updates this Social Security Wealth series using both an approximation of Martin Feldstein's original algorithm and two additional methods suggested by Dean Leimer and Selig Lesnoy (1982). The methodology and assumptions are updated to better account for the richer types of data available today. Section III provides details on the regression specifications and data to be used. Section IV follows with the empirical results of these regression specifications and the point estimates of Social Security's effect on personal savings. Finally, in Section V provides an analysis of the effectiveness of these estimation techniques. This study finds some support that Social Security Wealth creates an adverse effect for private savings, as private savings is reduced by about half when using the most realistic assumptions for estimating Social Security Wealth, but the results are not robust across different types of specifications.

Social Security in the United States provides an enormously important social insurance system designed in part to provide the working population with post-retirement financial support. Because much of the population would not adequately save for their retirements, such a service could be considered a necessity. However, the United States' Social Security system is pay-as-you-go, meaning that the tax collections of current workers are used to pay for the benefits of current retirees. Thus, Social Security funds are not saved as would be the case if people were forced to rely on private savings (the sum of personal and business savings) to fund their retirements. The aggregate savings of the economy could decrease if there is a private savings decrease in response to Social Security, which is not offset by a comparable increase in public savings.[1] This possibility leads critics to charge that the Social Security program has large and significantly detrimental effects for society: less savings means less investment and a smaller capital stock in the future.

The available theory, however, is ambiguous with regard to the effects of Social Security on private savings. The life-cycle model of consumption, a model in which people save during their working years in order to consume from their accumulated savings during retirement, indicates that the wealth created from one's expected Social Security benefits could offset the need to save privately. This is known as the "asset substitution" effect and provides the strongest theoretical underpinnings for the adverse effect of Social Security on savings. A number of issues, though, question the overall relevance of the life-cycle model. First, the actual validity of the life cycle model is questionable as people do not always save adequately for the future, and the extreme uncertainty about conditions far into the future makes planning quite difficult. For this reason, people may save using rules of thumb, such as saving a constant fraction of their income, and minor changes in expected Social Security benefits would not affect savings. The model also assumes that people actually expect to receive the amount of Social Security they are entitled to under present law, a point disputed by survey data discussed in the Congressional Budget Office (1998, p. 6). One must also examine the "retirement effect," whereby people may decide to retire at an earlier age when Social Security is available and consequently may save more during their working years in order to accommodate a longer retirement.

Aside from the life-cycle model, credit constraints are also relevant. Individuals facing them may be unable to save more in response to a decreasing role of the Social Security program, they would merely have a

[1] Though, it should be noted that since 1983 more effort has been placed into enlarging the Social Security Trust Fund by collecting more in taxes than is paid in benefits. This is done to provide for the expected shock when baby

desire to borrow even less than they do. Furthermore, if in the absence of Social Security, children would increasingly provide money to help support their parents, then the impact of Social Security on savings would be mitigated. Likewise, if young people save as a precaution against uncertain events while they are young, rather than saving for retirement, then Social Security again would have less effect. Robert Barro (1978) also argued that the intergenerational transfer effect of Social Security is diminished when parents leave part of their collected benefits as a bequest or a gift to their children. Of course, all of these concerns may be relevant in our heterogeneous world. We see that the theoretical impact of Social Security on savings is ambiguous, and one must look to the evidence to find the actual impact.

Such is the goal of this paper. Section I reviews some of the important contributions using time series evidence to estimate Social Security's impact on private savings. Essential to these studies is the use of a "Social Security Wealth" (SSW) variable, created by Martin Feldstein (1974), which defines the present value of future discounted Social Security benefits for the entire population under the assumption that each working person retires at the normal retirement age. Section II updates this Social Security Wealth series using both an approximation of Martin Feldstein's original algorithm and two additional methods suggested by Dean Leimer and Selig Lesnoy (1982). The methodology and assumptions are updated to better account for the richer types of data available today. Section III provides details on the regression specifications and data to be used. Section IV follows with the empirical results of these regression specifications and the point estimates of Social Security's effect on personal savings. Finally, in Section V provides an analysis of the effectiveness of these estimation techniques. This study finds some support that Social Security Wealth creates an adverse effect for private savings, as private savings is reduced by about half when using the most realistic assumptions for estimating Social Security Wealth, but the results are not robust across different types of specifications.

**I. Review of the Literature**

Martin Feldstein (1974) led the charge against Social Security, arguing that the program decreased personal savings by 30-50 percent between the years of 1929 and 1971. He used an extended version of the life-cycle model of consumption and saving to analyze the effects of Social Security on private savings, making the age of retirement decision an endogenous reaction to Social Security. He also assumed that all personal savings is done for retirement, ignoring the possibility of precautionary savings or bequests. Consequently, the life-cycle model he used

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boomers begin retiring in the coming decade. This surplus in the trust fund is invested in special government bonds, implies two countervailing effects: the “asset substitution” effect from expected Social Security benefits that should decrease savings, and the “retirement effect” decision to retire at a younger age that may accelerate the savings process to accommodate an earlier and longer retirement. To test which effect is stronger, he used time series data in an attempt to see if trends in the levels of Social Security Wealth are correlated with trends in personal savings, controlling for other factors. If higher levels of consumption are correlated with higher levels of Social Security Wealth, other things being equal, then the conclusion is that Social Security has a negative effect on personal savings (since income is either consumed or saved). Feldstein used a basic consumption function for his regression, with personal consumption expenditure as the independent variable, and Social Security Wealth, disposable income, both current and lagged, and total household wealth as his primary dependent variables. For some regressions, he also included gross corporate retained earnings as a proxy for current and future capital gains, which people could expect to eventually receive but that would not be reflected in household wealth. Again, he concluded that Social Security Wealth substantially decreases the level of personal savings in the United States economy, demonstrating that the “asset substitution” effect of his extended life cycle model is quite strong.[2]

Barro (1978) started with the hypothesis that Social Security Wealth would not affect private savings; instead, it would only affect the amount of wealth that parents bequest to their children. His paper took Feldstein’s Social Security Wealth variable as given, but developed a more rigorous regression specification by adding retained earnings, the unemployment rate multiplied by disposable income, a measure of the stock of consumer durables, and the surplus of the government sector. Barro’s conclusion is that the time series evidence for the United States does not support the hypothesis that Social Security depresses private savings.

However, Feldstein made an error in calculating his Social Security Wealth variable, casting doubts on all of the time series work conducted before the discovery of the error by Dean Leimer and Selig Lesnoy in 1980. The error led SSW to grow much too quickly in the years after 1957, when a one time increase in benefits to widows in 1956 was accidentally repeated in all subsequent years. By 1971, the series was about 40% larger than it should have been. Aside from correcting the error, Leimer and Lesnoy (1982) also developed a number of other algorithms for the computation of Social Security Wealth. The reason for controversy on this topic is that no one really knows how people go about estimating what their future Social Security benefits will be. Feldstein assumed that

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and thus constitutes a form of savings.

individuals in all years expected the same "constant ratio" of benefits to their disposable income to continue indefinitely. Leimer and Lesnoy developed several other algorithms of increasingly complex but reasonable ways for people to calculate future benefits. The "current ratio" perception assumes that individuals are shortsighted and simply expect the ratio of benefits to income in the current year to be projected into the future. The "best information perception" assumes that individuals base their projections on the best available published information of each year. This method requires the most data collection, as actuarial projections will need to be collected for each year of study, rather than making generalized assumptions about these projections. Finally, the "perfect forecast perception" uses the historical data available at the present day and assumes that agents were able to accurately forecast the historical trends. Of course relying on this formulation would not make much sense. Nonetheless, since we do not have a clear picture of how SSW expectations are formed, the best economists can do is to try a number of different specifications for Social Security Wealth and hope that the resulting regression estimates for its effect are comparable, weighing the results of a study with the appropriateness of the assumptions used.

Leimer and Lesnoy do show, however, that the impact of Social Security Wealth depends a great deal on the assumptions used to calculate it, and also on the time span under study. They created new assumptions to apply to the data, which updated some of Feldstein's old assumptions, and they used each of these two sets of assumptions (Feldstein's and their own) to calculate SSW for each of the algorithms. They find that for the years 1930 to 1974, neither the Feldstein assumptions nor their own assumptions produce a coefficient with statistical significance for the SSW variable under any algorithm. While not significant, all algorithms produce positive coefficients (decrease savings) with Feldstein's data assumptions, and all algorithms produce negative coefficients (increase savings) for Leimer and Lesnoy's assumptions. However, removing just the year 1930 leads all methods to have negative but insignificant effects for the Feldstein assumptions. Changing the estimation period to 1947-1974, they obtain statistical significance for SSW using the "constant ratio" and "perfect foresight" algorithms for both sets of assumptions, and in these cases the coefficient imply that SSW increases private savings. What is concluded from these divergent results is that one cannot place much faith in using the time series results to show that SSW decreases private savings. An insignificant relationship between SSW and savings could imply the applicability of

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[2]It is worth noting that Feldstein (1996) updated his methods and results to account for data up to 1992. His conclusion is that personal savings is decreased by 66% and, overall, private savings is decreased by nearly 60%.

the life-cycle model with the asset-substitution and retirement effects balance out. But it is also consistent with the notion that the life-cycle model is not suitable for understanding peoples' retirement savings patterns.

**II. Formulating the Social Security Wealth Variable**

Social Security Wealth is an estimate of the population's expected future Social Security benefits for any given year. Clearly, such projections of SSW depend on many diverse factors. These include the age, gender, and marriage composition of the labor force population participating in the Social Security program, the level of expected future benefits, and the level of workers' earnings. As outlined in the Social Security Trustees' *Report*, these factors in turn depend on future marriage and divorce rates, birth rates, death rates, migration rates, labor force participation and unemployment rates, disability incidence and termination rates, retirement age patterns, productivity gains, wage increases, inflation, as well as other economic and demographic factors. Three different methodologies are used here to construct the SSW variable. These include replicating the "constant ratio" and "current ratio" approaches, as well as using a more rigorous procedure to calculate the "best information perception." The study will cover the years 1975 to 1998. This reflects a period in which Social Security benefits were automatically adjusted annually by the growth in the Consumer Price Index (CPI-W). Prior to 1975, benefit increases were made in an ad hoc fashion at the whims of Congress, which would complicate people's expectations about their future benefits.

*Social Security Wealth Using the "Constant Ratio" and "Current Ratio" Algorithms*

For each year under study (1975-1998), the following formula can be used to calculate the expected gross Social Security Wealth for that year:

$$SSW_t = \sum_{\substack{males,\\ females}} \sum_{a=20}^{64} \left(\frac{\overline{B}}{YD}\right) * Y_t * N_{a,t} * S_{a,65} * \left(\frac{1+g}{1+d}\right)^{65-a} * \sum_{i=65}^{100} S_{65,i} * \left(\frac{1+g}{1+d}\right)^{i-65}$$

Moving from left to right, we see that the formula is used for men and women separately, which is important because each has different life expectancies. Next, the formula provides a sum over all ages in the working age population, from 20 to 64. For each age group, we next see that their expected benefits in constant dollars of year "t" are a discounted form of a ratio (B/YD) multiplied by the per capital disposable income. Under the "constant ratio" method, this value is set to 0.44, which is the average ratio of benefits for retired workers to disposable income in the years under study. For the "current ratio," the actual ratio for each year is used, and this ratio varies between 0.40 and 0.49. Next, $N_{a,t}$ is the number of fully insured people of age "a" of the appropriate gender in year "t." Fully insured individuals are defined as those who will be eligible for Social Security as a result of their own labor, but not those who will be eligible only through their spouse's labor. $S_{a,65}$ and $S_{65,i}$ represent the probability that an "a" year old man (or woman) will live to 65 (the normal retirement age under the Feldstein framework), and that a 65 year old man (or woman) will live to age "i," where "i" is larger than 65. These calculations stop at age 100, because the probabilities of living beyond that age become sufficiently small. $\left(\frac{1+g}{1+d}\right)^{65-a}$ and $\left(\frac{1+g}{1+d}\right)^{i-65}$ represent the discounting to be done to the expected benefit for each year it is received. "g" is the assumed growth rate of real per capita disposable income in constant dollars of year "t." For this study, a value of 2% is used, despite the actual average being 1.57% during the years of study, because this value must be projected far into the future and 2% is the value proposed by Feldstein. Finally, "d" is the discount factor assumed for people, how much less they value benefits in the future over just having the benefits today. In accordance with Feldstein, a discount factor of 3% per year is used. If the procedure was left as it is above, we would have our estimates for the SSW of retired workers. A correction is made to account for the retirement benefits of dependent spouses and widows. Such people received 22% of benefits in 1975 and 25.7% of benefits in 1998.

The calculation of the present value of Social Security taxes follows a procedure similar to above:

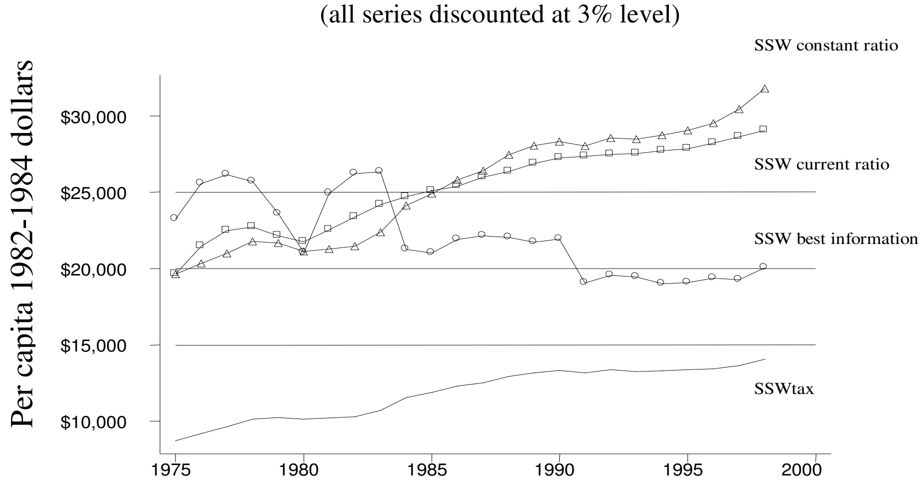
$$TAX_t = \sum_{\substack{males,\\ females}} \sum_{m=a}^{64} 0.0877 * Y_t * N_{a,t} * S_{a,m} * \left(\frac{1+g}{1+d}\right)^{m-a}$$

This formula accounts for males and females separately, adding their expected taxes to be paid throughout the remaining working years for each age "a" for each year "t." The proportion 0.0877 of disposable income represents the average ratio of Social Security taxes to disposable income throughout the years of study. Again, N represents the number of fully insured men (or women) of age "a" in year "t," S represents the probability of surviving from age "a" to age "m" bigger than "a," and separate rates were used for men and women. "g" is still 2%, and "d" is 3%. The tax series values are consistently less than the expected benefits, showing that the system is still not actuarially fair in that people can expect to receive more in benefits than they pay into the system at a 3% discount rate.

*Social Security Wealth Using the "Best Information Perception" Algorithm*

The "best information perception" approach follows the previous approaches in spirit, but adds additional rigor in two specific areas. First, in 1983, changes were made to the normal retirement age. This age had always been 65, but in 2003 it began adjusting upward such that in 2009 in becomes 66 and in 2027 it becomes 67. These changes start affecting people born in 1938, and 67 is the retirement age for anyone born after 1960. The "best information" approach uses 65 as the retirement age for years between 1975 and 1983, but for years 1984 and after, the new retirement ages are incorporated into the calculations. The second area of increasing rigor is that rather than using the growth rates of real per capita disposable income, this approach uses the projections for the real wage differentials provided by the Annual Trustees *Reports* of the Social Security Administration for each year since 1975 under the intermediate assumptions. The real wage differential is a measure of the difference between the annual growth in average wage levels and the annual growth in the Consumer Price Index. This differential is what is actually used by the Social Security Administration to calculate future starting benefits. For all years between 1975 and 1998, these projects are used to calculate the expected annual starting benefit for forty-seven years into the future. The annual starting benefit is based on the value of Social Security benefits to the retired worker of average earnings for the year "t." Once a person receives their expected starting benefit, it remains unchanged when measured in constant dollars of the year "t," because, since 1975, Social Security benefits have undergone an annual Cost of Living Adjustment (COLA) to keep up with the Consumer Price Index. Figure I shows the time series trends for these estimates.

**FIGURE I: SOCIAL SECURITY WEALTH, 1975-1998**
(all series discounted at 3% level)



The “constant ratio” and “current ratio” series both trend upward over time. This is primarily the result of the steady growth in real wages that allows for benefits to grow faster than inflation over time. Also important is the increasing labor force participation of women, which allows more women to become eligible for benefits under their own earnings record rather than that of their spouse’s. The importance of this is that working women will receive larger benefits than dependent women, and so as female labor force participation increases, the per capita benefit level increases. Between 1975 and 1998, the percent of women who were fully insured grew from under 80 percent to over 90 percent for those aged 25 to 44, and grew from about 66 percent to over 80 percent from those aged 45 to 64. For the “best information” series, these upward general movements are less apparent, because the variation in real per capita income growth also plays a role, as well as the change in retirement age passed into law in 1983. The dip occurring in 1979 and 1980 can be explained by the very high future rates of inflation forecasted for those years, which led to negative real wage differentials in the immediate future and a general decrease in future starting benefit levels. In 1984, the dip occurs because of the legislated increases in retirement ages previously discussed. Neither of these impacts are reflected in the simplied assumptions of the “constant ratio” and “current ratio” series. Another drop occurs in 1991, as the projections for real wage differentials undertook a fundamental drop. For 1990 and before, the smallest value for the long term real wage differential was 1.7, but for 1991 and after its largest value was 1.1. This fact serves to decrease future starting benefit levels. As such, the “best information” perception is a much better reflection of reality than the other approaches.

**III. Regression Specification and Data Used**

In accordance with the literature on the subject, we use a modification of the traditional aggregate consumption function created by Ando and Modigliani (1963), which sets consumption as a function of permanent income and the stock of household wealth. The first regression specification is that used by Martin Feldstein (1974). He estimated the effects of Social Security Wealth by adding it to the Ando and Modigliani model and by defining permanent income as disposable income and disposable income lagged:

$$C_t = \alpha + \beta_1 YD_t + \beta_2 YD_{t-1} + \beta_3 W_t + \gamma SSW_t + \varepsilon_t, \qquad (1)$$

where C is consumer expenditure, YD is disposable income, W is the stock of household wealth at the end of the year (excluding SSW), SSW is the measure of Social Security Wealth, and ε represents the stochastic error term for missing factors. Feldstein also used a specification including retained earnings, which he thought of as a part of wealth owned by the households representing current and future capital gains:

$$C_t = \alpha + \beta_1 YD_t + \beta_2 YD_{t-1} + \beta_3 W_t + \beta_4 RE_t + \gamma SSW_t + \varepsilon_t \quad (2)$$

The third specification is motivated by Barro (1978). It adds the government sector surplus, the stock of consumer durables, and the product of unemployment and disposable income to the equation:

$$C_t = \alpha + \beta_1 YD_t + \beta_2 YD_{t-1} + \beta_3 W_t + \beta_4 RE_t + \beta_5 SUR_t + \beta_6 DUR_t + \beta_7 (U_t{*}YD_t) + \gamma SSW_t + \varepsilon_t \quad (3)$$

Personal consumption expenditure, disposable income, and government sector surplus are available from the Bureau of Economic Analysis' *National Income and Product Accounts*; Household net worth and the stock of consumer durables are available from the Federal Reserve Boards' *Balance Sheets for the United States Economy*; Retained earnings is from the Internal Revenue Service's *Statistics of Income,Corporation Income Tax Returns*; and the unemployment rate for the total labor force is from the Bureau of Labor Statistics. For these regressions, the aggregate data was deflated by total population and by the CPI-W to create a series of data in per capita 1982-1984 real dollars.

**IV. Empirical Estimations of the Social Security Wealth Effects**

Results of the regressions for equations (1) to (3) are presented in Table I for the three different measures of Social Security Wealth. Using Equation (1), statistical significance is obtained for all SSW coefficients. Interestingly, the equation using the "constant ratio" produced a large negative coefficient, with an impossibly large coefficient of 1.73 for disposable income. Meanwhile, the coefficient for the "best information" algorithm is 0.034 and the "current ratio" algorithm 0.125. Relevant to the empirical results is the effect that Social Security Wealth is estimated to have on personal savings. These percentages are provided for each regression in the far right column of Table I. The method used to calculate them is similar to that used in Feldstein (1974). For example consider the first equation in Table I for the "best information" algorithm. Using 1995 as a base year for calculations, the estimate of Social Security Wealth in aggregate nominal terms is $7,523.8 billion. Multiplied by the SSW coefficient of 0.034, the implied linear projection is that SSW increased personal consumption expenditure by $241.61 billion, and thus decreased personal saving by an equal amount. Next, we look to the Old Age and Survivors Insurance net contributions (payroll tax) for 1995 to see it is $304.62 billion. The next step, ignored by Feldstein in his 1996 update paper, is that we should subtract from the payroll tax the Trust Fund surplus generated in 1995, which is $45.04 billion, since this surplus will be added to the Trust Fund that is invested into government bonds and spent on special projects and programs. This leaves the net payroll tax that is being paid to 1995 beneficiaries, rather than being invested, of $259.58 billion. Multiplying this by the long run propensity to consume of 0.817 (the coefficient of disposable income in this specification), we see that $212.08 billion of this would have been consumed, and the other $47.5 billion would have been saved. Combining these SSW and payroll tax effects provides us with an estimate of $289.11 billion of lost savings. However, total personal savings was $302.4 billion for 1995. This implies that the combined effect of Social Security was to decrease private savings by almost 50% in 1995. In other words, a one dollar increase in SSW is projected to cause a 3.4 cent decrease in personal savings, implying an overall 50% decrease in personal savings. Feldstein then generalizes this number for all years, and he would say that Social Security decreases private savings by 50%.

Using Equation (2), which adds retained earning, the results are all quite similar as with (1). In this case, the coefficient of 0.033 for the "best information" algorithm implies a 48% decrease in savings. As for the other methods for defining SSW, the "constant ratio" method still produces an impossible coefficient for disposable income (1.59), and it provides another negative coeffient for SSW, which implies a positive relationship between Social Security and private savings, though in this case it is not significant. Meanswhile, the SSW coefficient for the "current ratio" is quite large, implying a decrease in personal savings of 84%.

Equation (3) presents the same type of results as Barro found with his regressions over 20 years ago, at least for the "best information" SSW variable. Essentially, the coefficient in the "best information" is now smaller than in the previous counterparts, and it has also lost its statistical significance at the 5% level. As with Barro's regressions, these results remove some of the impact of SSW in determining savings, though Feldstein would ascribe this result to having too many covariates with too few years of data. As for the other three SSW variables, the coefficient for the "constant ratio" is now larger than zero, but can hardly be distinguished from zero. The coefficient for the "current ratio" approach is significant and positive, and it implies an 87% decrease in personal savings.

Examining these three specifications, the SSW variable based on the "best information" algorithm have produced coefficients of magnitude and significance as Feldstein had found in his work. Additionally, as Barro expected, the significance of these coefficients diminished when his additional variables were added to the regression. However, the two SSW variables based on the simpler Feldstein estimation methods (the "constant ratio" and "current ratio") produced results that were generally economically implausible, either from the standpoint of disposable income or from the coefficient for SSW. Perhaps because these variables resulted in a general upward trend in SSW similar to the trend in disposable income, the problems of multicollinearity and of having too few years of data were too severe to obtain adequate results. The approaches also seem inferior to the “best information” approach as, for example, the legislated increases in retirement ages were widely reported and would have undoubtedly affect peoples’ expectations about the future Social Security benefits.

**V. Conclusions**

Using time series evidence to compute the effects of Social Security on private savings is an idea popularized in the 1970s. This paper has updated the SSW variables and the regression analysis to include the years up to 1998. There is value in doing this, because the data available about fully insured people is much better today than in the 1970s when all work had to be done using estimates from labor force participation rates. Under the “best information” algorithm, the conclusion of Martin Feldstein still holds true in that SSW appears to be negatively related to private savings. Little confidence can seemingly be placed in the other results because of their erratic SSW or disposable income coefficients, and of course this leaves open the possibility that the results from the “best information” algorithm appear “reasonable” only by chance. The results provided here should provide mild support to the notion that SSW decreases personal savings, even if the findings are not all that robust. But even if this negative relationship held, it is not meant to imply that Social Security should be ended. The costs of the program must be weighed against its benefits, and the role that Social Security plays in providing economic security to millions of elderly people is a very strong positive needing to be fully appreciated in any type of cost-benefit analysis.

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## TABLE I

### THE EFFECTS OF SOCIAL SECURITY WEALTH ON CONSUMER SPENDING, 1975-1998

| EQN. | YD | YD -1 | W | RE | SUR | DUR | U*YD | SSW | | DWS | SSW Effect |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | **.817**<br>**(8.16)** | .183<br>(1.76) | .014<br>(1.33) | | | | | best | **.034**<br>**(2.51)** | 1.60 | 50% |
| (1) | **1.73**<br>**(4.50)** | .071<br>(.70) | **.034**<br>**(3.75)** | | | | | constant | **-.386**<br>**(-2.52)** | 1.86 | -- |
| (1) | **.663**<br>**(5.26)** | .125<br>(1.22) | .015<br>(1.34) | | | | | current | **.125**<br>**(2.18)** | 1.81 | 82% |
| (2) | **.864**<br>**(7.95)** | **.232**<br>**(2.02)** | 0<br>(0) | .089<br>(1.23) | | | | best | **.033**<br>**(2.37)** | 1.85 | 48% |
| (2) | **1.59**<br>**(3.54)** | .106<br>(.86) | .024<br>(1.06) | .038<br>(.42) | | | | constant | -.319<br>(-1.63) | 1.87 | -- |
| (2) | **.701**<br>**(5.47)** | .187<br>(1.71) | -.007<br>(-.40) | .142<br>(1.87) | | | | current | **.137**<br>**(2.38)** | 2.17 | 84% |
| (3) | **.788**<br>**(5.18)** | .161<br>(1.20) | -.005<br>(-.21) | .157<br>(1.35) | -.099<br>(-.29) | .479<br>(1.43) | .206<br>(.28) | best | .024<br>(1.43) | 1.98 | 44% |
| (3) | .565<br>(.86) | .079<br>(.59) | -.023<br>(-.72) | .238<br>(1.72) | .031<br>(.09) | **.789**<br>**(2.11)** | .689<br>(.98) | constant | .108<br>(.40) | 2.10 | 82% |
| (3) | **.489**<br>**(2.91)** | .074<br>(.71) | -.010<br>(-.49) | **.211**<br>**(2.28)** | -.122<br>(-.45) | **.740**<br>**(2.95)** | .049<br>(.08) | current | **.171**<br>**(2.98)** | 2.27 | 87% |

Note: Figures in parentheses are t-statistics. Coefficients in boldface are statistically significant at the 5% level. All equations include a constant term and are estimated using the *Cochrane-Orcutt* procedure for autocorrelated disturbances. The Durbin-Watson statistics presented are the transformed Cochrane-Orcutt values. "SSW Effect" presents the estimated decrease to personal savings caused by Social Security, calculated under the framework outlined in Section IV. The SSW variables "best," "constant," and "current" refer to the "best information perception," "constant ratio," and "current ratio" algorithms, all discounted at the 3 percent level.

**TABLE II**

**VALUES OF THE SOCIAL SECURITY WEALTH VARIABLES**

( per capita dollars, deflated by 1982-1984 CPI-W index )

| YEAR | “best” | “constant” | “current” | “taxes” |
|---|---|---|---|---|
| 1975 | 23227.11 | 19634.75 | 19644.48 | 8734.20 |
| 1976 | 25594.41 | 20350.49 | 21462.94 | 9194.05 |
| 1977 | 26163.14 | 20998.80 | 22478.22 | 9633.55 |
| 1978 | 25708.57 | 21769.68 | 22707.35 | 10140.06 |
| 1979 | 23613.85 | 21675.32 | 22153.26 | 10249.36 |
| 1980 | 21039.39 | 21126.36 | 21760.62 | 10140.36 |
| 1981 | 24933.82 | 21283.96 | 22523.14 | 10204.62 |
| 1982 | 26237.97 | 21468.88 | 23373.62 | 10282.19 |
| 1983 | 26346.22 | 22385.95 | 24178.71 | 10710.25 |
| 1984 | 21249.68 | 24134.46 | 24710.10 | 11535.19 |
| 1985 | 21020.21 | 24908.92 | 25090.03 | 11893.76 |
| 1986 | 21911.17 | 25830.14 | 25404.33 | 12299.25 |
| 1987 | 22130.85 | 26422.28 | 25998.12 | 12505.48 |
| 1988 | 22036.13 | 27470.34 | 26382.48 | 12932.11 |
| 1989 | 21721.38 | 28077.54 | 26891.80 | 13171.42 |
| 1990 | 21928.31 | 28318.10 | 27264.45 | 13305.47 |
| 1991 | 19059.63 | 28046.97 | 27354.30 | 13167.39 |
| 1992 | 19564.84 | 28571.70 | 27487.18 | 13361.78 |
| 1993 | 19442.52 | 28480.77 | 27552.69 | 13238.17 |
| 1994 | 18997.46 | 28735.87 | 27733.39 | 13294.73 |
| 1995 | 19082.69 | 29073.90 | 27846.01 | 13374.57 |
| 1996 | 19386.00 | 29533.35 | 28226.62 | 13415.74 |
| 1997 | 19281.40 | 30431.43 | 28650.58 | 13616.60 |
| 1998 | 20050.91 | 31802.08 | 29071.54 | 14055.90 |

Note: The SSW variables “best,” “constant,” and “current” refer to the “best information perception,” “constant ratio,” and “current ratio” algorithms, all discounted at the 3 percent level. The variable “taxes” is the expected present value of tax collections for Social Security, assuming a 3% discount rate.

**TABLE III**

**VALUES OF THE CONSUMPTION FUNCTION VARIABLES**

( per capita dollars, deflated by 1982-1984 CPI-W index )

| DATE | C | YD | W | RE | DUR | SUR | U |
|---|---|---|---|---|---|---|---|
| 1975 | 8816.83 | 10109.88 | 41931.95 | 4860.68 | 4595.40 | -593.04 | 8.5 |
| 1976 | 9216.60 | 10419.77 | 44343.55 | 5230.33 | 4729.34 | -424.84 | 7.7 |
| 1977 | 9528.73 | 10703.42 | 44848.53 | 5493.33 | 4874.68 | -336.90 | 7 |
| 1978 | 9795.54 | 11058.33 | 46539.78 | 5718.18 | 5067.60 | -184.21 | 6.1 |
| 1979 | 9701.11 | 10988.88 | 47676.03 | 5828.08 | 5050.20 | -69.28 | 5.8 |
| 1980 | 9339.21 | 10700.17 | 47784.71 | 5668.47 | 4863.23 | -285.01 | 7.2 |
| 1981 | 9248.41 | 10693.08 | 46365.71 | 5565.60 | 4699.84 | -255.45 | 7.6 |
| 1982 | 9241.26 | 10696.80 | 46604.07 | 5457.73 | 4564.41 | -589.33 | 9.7 |
| 1983 | 9777.99 | 11059.25 | 48428.06 | 5448.37 | 4652.93 | -743.70 | 9.6 |
| 1984 | 10230.91 | 11824.68 | 49827.76 | 5356.24 | 4791.13 | -688.37 | 7.5 |
| 1985 | 10639.46 | 12105.99 | 53640.52 | 5357.78 | 4961.63 | -694.63 | 7.2 |
| 1986 | 11075.74 | 12480.86 | 57708.45 | 5332.82 | 5317.52 | -734.89 | 7 |
| 1987 | 11368.48 | 12665.20 | 58824.82 | 5187.63 | 5517.12 | -541.46 | 6.2 |
| 1988 | 11704.97 | 13085.19 | 61304.12 | 5206.32 | 5722.42 | -479.13 | 5.5 |
| 1989 | 11858.07 | 13241.46 | 63696.70 | 5017.93 | 5812.49 | -428.60 | 5.3 |
| 1990 | 11880.62 | 13313.49 | 61249.61 | 4372.09 | 5786.05 | -536.43 | 5.6 |
| 1991 | 11701.47 | 13185.37 | 62853.57 | 4246.03 | 5701.64 | -634.40 | 6.8 |
| 1992 | 11926.75 | 13470.54 | 63349.45 | 4054.25 | 5680.49 | -842.87 | 7.5 |
| 1993 | 12141.38 | 13451.27 | 64011.61 | 4529.82 | 5745.40 | -747.07 | 6.9 |
| 1994 | 12425.34 | 13608.23 | 63441.31 | 4473.37 | 5864.39 | -559.30 | 6.1 |
| 1995 | 12602.92 | 13753.39 | 67706.79 | 5557.05 | 5876.63 | -486.97 | 5.6 |
| 1996 | 12796.56 | 13872.08 | 70822.71 | 6154.57 | 5878.48 | -334.24 | 5.4 |
| 1997 | 13096.08 | 14135.61 | 76724.78 | 6743.08 | 5902.27 | -115.58 | 4.9 |
| 1998 | 13559.15 | 14646.26 | 82769.92 | 7357.89 | 6094.88 | 108.69 | 4.5 |

Note:
C: Personal Consumption Expenditure. Source: Bureau of Economic Analysis
YD: Disposable Income. Source: Bureau of Economic Analysis
W: Household Net Worth at end of year. These numbers have removed the nonprofit organizations component. Source: Board of Governors of the Federal Reserve System, *Balance Sheets for the U.S. Economy*
RE: Gross Retained Earnings. Source: Internal Revenue Service, *Statistics of Income, Corporation Income Tax Returns*, annual.
DUR: Stock of Consumer Durables. Source: Board of Governors of the Federal Reserve System, *Balance Sheets for the U.S. Economy*
SUR: Government Sector Surplus. Source: Bureau of Economic Analysis
U: Unemployment Rate. Source: Bureau of Labor Statistics