

Social Security and Savings

Tracey Rochelle, Elon College

“Governments around the world now face the daunting challenge of a rapidly aging population. Although the baby boom generation has accepted this change in demographics, the problem is not transitory. The combination of better medical care, higher standards of living, and improved lifestyles is permanently and irreversibly increasing the fraction of the population over the age of 65 and, even more rapidly, of those over 75 and 85” (Feldstein 1997).

Politically, this topic has raised much attention in the media and in public concern. With the upcoming retirement of the baby boomers, social security is initially going to sustain financial difficulties. Problems have come about because in the past this generation funded the program, thus retired persons were actually collecting savings from the baby boomers inputs. This is happening because the government has been using the social security money to help cut the deficit and in other politically correct programs. However, now that the baby boomer's generation is retiring, and at such early ages, the public may witness total disregard for their well-deserved savings in retirement years. “A young worker entering the system is gambling on what benefits a congress and president 45 years from now will decide to bestow. Given the already low rate-of-return to young workers and the system’s coming financial shortfall, the political risk of staying with the current system far exceeds the market risk of private investment” (Tanner 1998).

There are many skeptics, in all generations, that deem the program to have failed, and claim that they will never see their savings invested in social security. People's fears are great because saving is key to ensure that people will not have to work any longer than they anticipate. It is also imperative that people can retire to a life of what they are accustomed to, so that they may consume at nearly the same rate they did while participating in the labor market.

The program of social security has recently been criticized. However, there is a more important issue at hand: How social security effects savings? An examination of the effects of social security and savings will help to determine how beneficial or detrimental this program is to society. Many theories suggest that social security decreases saving. However, I would like to suggest the following hypothesis: social security may decrease savings in some countries. However, in countries with different or varying saving rates the effect may be different. How can we compare high saving countries with low saving countries on the same scale? It is simple, that approach may alter the results of the effects of social security on savings. Therefore, an alternative approach must be taken. This growing issue is of great importance to saving in society.

Ultimately, we care about savings because it is positively related to growth in the economy. Saving allows stability, which is a cornerstone of economic growth and prosperity. Without savings the economy as a whole would fall. For example, if workers do not save and simply spend all of their income, the economy would be flourishing in the short-term. However, in the long run workers would spend all of their money while employed and live plentiful lives. However, after employees left their form of employment due to old age, illness, or competition the economy would be devastated. The economy would then suffer because the older citizens would not be able to participate in the market place and would have to depend on some sort of governmental program or family.(Worse case scenario they would become poverty stricken.) Regardless of what scenario takes place retirees will be dissaving. Whatever choice is determined will effect the economy in a negative manner if savings are not a planned part of employment.

The purpose of this paper is to investigate the effects of social security on savings rates. First, I will discuss the social security argument initially created by Feldstein (1974,1977)¹. The theories of the life cycle model, induced retirement, and the saving replacement effect will be examined. Next, regression analysis will be used to test which factors effect a country's rate of savings. I will decide which countries are high savers and which are deemed as low savers and determine the effects of social security for both groups. Finally, a conclusion will be given to discuss if social security rates and savings rates have a positive or negative relationship.

II. Theoretical Review

Much of the economic work on this topic has been led by Feldstein (1974,1977). Feldstein has conducted much research on the issue of social security and savings. I focus upon Feldstein's article "Social Security and Private Savings: International Evidence in an Extended Life-Cycle Model". His study explains that "the extended life-cycle model shows that the impact of social security on private savings depends on two opposing effects: wealth replacement and induced retirement. The net impact can be determined only empirically. The current study uses data for a cross-sectional sample of developed countries so as to evaluate both effects. The evidence indicates that increases in the extent of social security coverage and in the relative level of benefits substantially depress the rate of private savings" (Feldstein 1977)

Unlike Feldstein, I will further discuss the effects of social security on personal savings, as well as on national savings. In the following sections the microeconomic component will discuss the effects of social security on personal savings; the macroeconomic component will discuss the effects of social security on national savings.

A. Microeconomic Effects

What are the issues surrounding whether or not social security will decrease personal savings? To properly address this issue the extended life-cycle model of Feldstein (1974,1977) must be reviewed and defined. It is also important to note that the life-cycle model of Feldstein is an extension of Modigliani's (1963) model. The life-cycle model shows the significance of saving during working years for consumption in retirement years. Basically, people save for retirement.

Feldstein (1974, 1977) notes that social security has several effects on individual behavior. For one, social security may induce older persons to retire earlier. In theory, this increase will stimulate the volume of savings for retirement. Ideally, there are two important implications for aggregate savings behavior; the saving replacement effect and the induced retirement effect. "The net effect of social security on saving by the non-aged depends on the relative strength of the 'saving replacement effect' and the 'induced retirement effects'. When a new social security program is introduced, it is likely to increase retirement rates as well as to substitute expected benefits for private saving. Eventually, however, the proportion of retirees reaches a limit and any increase in social security benefits reduces saving. More specifically, as the system matures, the 'induced retirement effect' will become increasingly small relative to the 'saving replacement effect'" (Feldstein 1977). Thus, leading both aspects of social security to induce an increase in leisure.

Social security encourages people in the labor force to retire at an earlier rate than normal. This is referred to as the induced retirement effect. This effect induces employees to retire with the idea that through social security, an ample amount of savings

will have been collected to ensure that the level of consumption will be what the employee desires upon retirement. Thus, the induced retirement effect has a negative effect on savings, due to the notion that employees believe that through social security they will be protected from a destitute life of retirement. These people believe that through the savings in social security they will have developed a large enough nest egg to be sufficient in their older years.

The saving replacement effect follows the idea that people believe that the government is saving for them through the mandatory social security program. Therefore, private savings are subsequently decreased since the government is already saving for people. People feel that the amount of money subtracted from their paychecks will be sufficient for living in a comfortable manner in their non-working retirement years. “Eighty percent of all Americans rely on Social Security as their primary income in retirement” (Moseley-Braun 1999).

The aspect of consumption is an important one in the case of social security and private savings. It is important for one to look at how the aged population participates in the market, because presently they are a large percentage of the U.S. population. Their participation in the economy is important for growth. The combination of the social security tax and the no income effect, and if work and retirement is fixed, suggests that social security will reduce savings. This reduction is just enough to imply that consumption of retired persons will be unchanged.

B. Macroeconomic Effects

Growth is one of the most important attributes to an economy, and its effects upon social security are significant. Growth will lead to an equilibrium aggregate ratio of

wealth to income that depends on the time preference of individuals, the life-cycle timing of earning and retirement, and the rate of interest. Without growth there will be no net aggregate savings. It is important to emphasize the theory stating that an increase in growth will be positively correlated with an increase in aggregate savings, and vice versa. In a growing economy a younger worker will save more than an older retiree had saved in working years. Savings of each generation exceeds dissavings of the concurrent retirees, leading to result in a positive net aggregate savings. Although, this idea of positive net aggregate savings works in theory, the idea that future generations are saving more than the past is not occurring in reality. Thus, we will not experience positive savings due to social security and induced retirement. In the extended life-cycle model the extent of retirement is endogenous and reflects the system of social security.

Feldstein (1974,1977) emphasizes the important distinction between a stationary economy and a growing economy. In a stationary economy, one that does not experience growth, social security would not alter the rate of savings. Although, workers would save less, the dissaving of retirees would decrease by equal amounts. The level of consumption for the aged is maintained by transfer payments financed by the payroll tax placed upon workers. In a growing economy the saving replacement effect of social security will lower the aggregate rate of saving, while the induced retirement effect increases the rate of savings. However, it is important to reiterate that Feldstein (1974, 1977) believes that the saving replacement effect is larger and more significant than the induced retirement effect. Thus, these two effects do not balance each other into equilibrium, rather the saving replacement effect will eventually lower the aggregate rate of savings.

III. Empirical Results

The theory implies that there are definite effects on savings. In this section, regressions will be performed to uncover the effects, if any, of social security on savings. The data are from the Historical Statistics of the Organisation for Economic Cooperation and Development (OECD), the Penn World Tables (1992), and the United Nations Statistical Yearbook.²

Unlike Feldstein's study (1974,1977), this study uses two different variables for the savings rate; personal savings and national savings. Personal savings is net household savings as a percentage of disposable household income. Net national savings is also measured as a percentage of GDP. It includes personal savings, government savings (deficit), and savings by foreigners in the economy.

In general, the regression models as suggested by Feldstein (1977) can be written as:

$$(1) \text{ HouseS\%} = \beta_0 + \beta_1(\text{SS\%}) + \beta_2(\text{LF\%}) + \beta_3(\text{G}) + \beta_4(\text{LIFE}) + \beta_5(\text{INCOME}).$$

$$(2) \text{ NetS\%} = \beta_0 + \beta_1(\text{SS\%}) + \beta_2(\text{LF\%}) + \beta_3(\text{G}) + \beta_4(\text{LIFE}) + \beta_5(\text{INCOME})$$

SS% is a transfer as a percentage of GDP, LF% is the labor force participation rate, G is the growth rate of real GDP per capita, LIFE is life expectancy at birth years, and INCOME is real GDP per capita or income. The coefficient (β_1) used for social security is predicted by Feldstein (1974,1977) to be negative because the theoretical review suggests that social security decreases savings. The labor force participation coefficient (β_2) is expected to be positive due to the notion that people need income in order to save, thus when one works they earn and eventually save. The income growth coefficient (β_3) is thought to be positive because younger workers are saving at higher

rates than older workers have in the past. The life expectancy coefficient (β_4) is estimated to be positive due to the expectation that people are going to live longer. Thus, people will work longer in order to save for a greater period of retirement. The income level coefficient (β_5) is also anticipated to be positive because without income, people cannot save.

However, unlike Feldstein (1974,1977) I will attempt to control for high saving countries. For the purpose of this study, “high savers” has been defined to be the countries with savings rates averaging over 10% per year.³ I also include another variable in the following two regressions, the high saving interaction level.

$$(3) \text{ HouseS\%} = \beta_0 + \beta_1(SS\%) + \beta_2(LF\%) + \beta_3(G) + \beta_4(LIFE) + \beta_5(INCOME) + \beta_6(HS) + \beta_7(HSI)$$

$$(4) \text{ NetS\%} = \beta_0 + \beta_1(SS\%) + \beta_2(LF\%) + \beta_3(G) + \beta_4(LIFE) + \beta_5(INCOME) + \beta_6(HS) + \beta_7(HSI)$$

If the country is a “high saver” it will equal 1, otherwise it will equal 0. The high saver interaction is defined as the high savers multiplied by the social security percentage of GDP. A control was established for year effects by including dummy variables.

The results of these four regressions are given in Table 1. The first set of regressions can be most easily compared to Feldstein (1977). While some of the results are consistent with his, the main results were dramatically different. The most important variable in these regressions is social security spending. Recall that Feldstein (1977) found that higher levels of social security spending led to a decrease in savings. However, this was not the case in my first set of regressions. In the first regression social security does not significantly affect the household savings rate. However, in the second regression, where the dependent variable is net national savings, there is a positive and significant relationship between social security and savings.

Many of the other results, however, are consistent with Feldstein's (1977) results. Income growth has no significant effect on household savings rates. But, the theory predicts that income growth only has macroeconomic effects. Growth does have a positive effect on net national savings. In both regressions life expectancy is positive and very significant. The income level has no significant effect on savings. Labor force participation appears to have a negative and significant effect on household savings. This is inconsistent with Feldstein (1977). This may be caused due to the different data used between these two studies. Feldstein (1977) only included the aged labor force participation, where I included the entire population. Feldstein's results led to a positive relationship between labor force participation of aged and the savings rate, whereas my results led to a negative relationship. However, when net national savings is the dependent variable, labor force participation has a positive effect on savings.

The third and fourth regression results differ due to the addition of the high saver and high saver dummy-interaction variables. When the high saver dummy variable is added to the regression, social security spending has a negative and significant effect on savings, but only for the countries with high savings rates. The interaction variable determines how much social security in the high saving countries is counted as a percent of GDP. In both regressions the high saver interaction variable was negative and significant. Feldstein (1977) did not include such variables and this may account for the differences in the results. Thus, in higher saving countries increased social security spending actually decreases savings (Chart 1). In countries with low savings rates household savings are unaffected by social security spending. However, in the fourth

regression an increase in social security spending leads to an increase in net national savings for countries with low savings rates (Chart 2).⁴

IV. Summary

This study investigated the effects of social security spending on savings rates across countries with varying levels of savings. Feldstein (1974,1977) argued that there are two effects that create a negative relationship between social security and savings – the saving replacement and induced retirement effects. Contrary to Feldstein’s (1974,1977) results, the present study suggests that social security spending only depresses saving in countries with high savings rates. The difference between this study and Feldstein’s (1974,1977) was that I accounted for differing behavior of households across countries.

In conclusion, it was important to take into account the different patterns of saving rates in high and low saving countries. By doing so, it was shown that social security does not necessarily decrease savings in all countries. These results have important policy implications. They suggest that social security programs are not necessary in all countries. In low saving countries a mandatory saving plan will ensure that people will save for retirement. Since growth depends on savings, social security programs may actually help economies with low savings rates, such as the United States. However, in countries with high household savings rates social security may not be necessary. These households are already saving without the help of social security. Any increase in social security spending will only lead to a decrease in household and national savings rates.

Table 1: Regression Results

	Adj R	Constant	SS%	LF%	G	LIFE	INCOME	HS	HSI	1984	1985	1986	1987	1988	1989	1990	1991
1	.465	-233**	-.081	-.576**	.0174	3.509**	.00016			-1.55	-2.77	-3.18	-3.52*	-2.62	-2.62	-1.44	-.248
	n=144	(-6.59)	(-.803)	(-4.36)	(.0638)	(8.073)	(.642)			(-.768)	(-1.39)	(-1.65)	(-1.71)	(-1.31)	(-1.31)	(-.774)	(-.136)
2	.376	-234.7**	.179**	.224*	1.14**	2.99**	-.0003			-1.18	-1.26	-.278	-.429	-.430	.335	1.34	1.71
	n=144	(-7.65)	(2.03)	(1.95)	(4.83)	(7.94)	(-1.37)			(-.672)	(-.735)	(-.166)	(-.254)	(-.241)	(.193)	(.835)	(1.085)
3	.55	-121.88**	-.111	-.830**	-.274	2.18**	.00038	12.75**	-.417**	-.829	-2.173	-2.763	-3.27*	-2.67	-1.987	-1.205	-.372
	n=144	(-3.16)	(-.975)	(-6.38)	(-1.07)	(4.64)	(1.61)	(3.69)	(-2.30)	(-.446)	(-1.194)	(-1.566)	(-1.84)	(-1.41)	(-1.086)	(-.709)	(-.2235)
4	.82	-41.40**	.127**	-.217**	.637**	.684**	0.00	22.16**	-.725**	.081	-.225	.451	.563	1.04	1.44	1.755**	1.501
	n=144	(-2.13)	(2.22)	(-3.30)	(4.95)	(2.88)	(.633)	(12.73)	(-7.93)	(.087)	(-.245)	(.506)	(.627)	(1.091)	(1.56)	(2.045)	(1.786)

Notes:

Model 1: Household savings rate as dependent variable

Model 2: Net national savings rate as dependent variable

Model 3: Household savings rate as dependent variable including high savers and high savers interaction

Model 4: Net national savings rate as a dependent variable including high savers and high savers interaction

* = 10% rejection

** = 5% rejection

Chart 1: Predicted Household Savings Rate from Model (3)

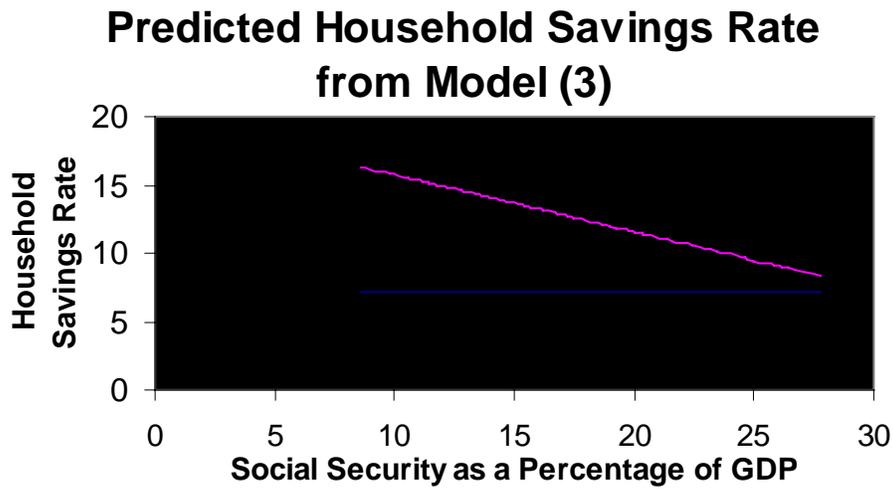
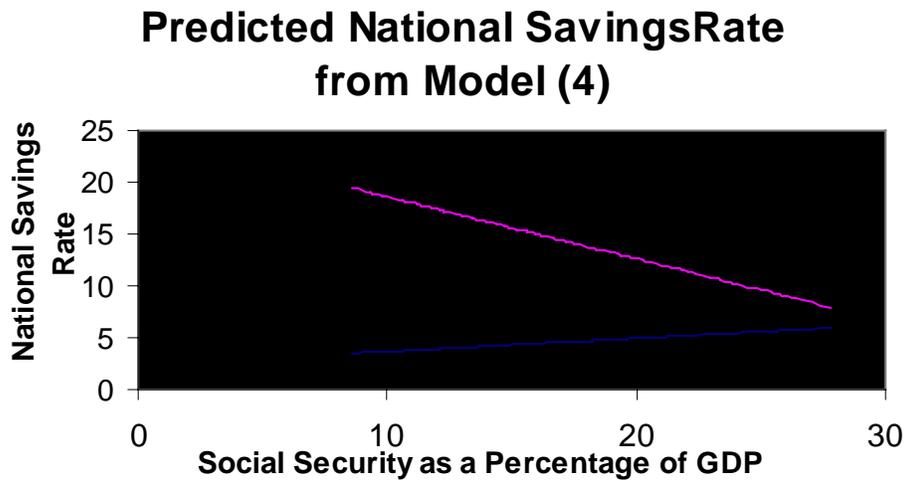


Chart 2: Predicted National Savings Rate from Model (4)



REFERENCES

- Ando, Albert, and Modigliani, F. "The 'Life Cycle' Hypothesis of Saving: Aggregate Implications and Tests." *American Economic Review*, 1963, pp. 55-84.
- Crane, Edward H. "The Case for Privatizing America's Social Security System." Address. Speech presented to the S.O.S. Retraite Sante, Paris, France, available: <http://www.socialsecurity.org/pubs/testimony/art-22.html>, 1997.
- Council of Economic Advisers. *Economic Report to the President*. Washington, D.C.: Government Printing Office, 1997.
- Etzioni, Amitai. *Should We End Social Security? A Community Approach*. September 1998, pp. 5-15.
- Rodriguez, Jacobo L. "Europe's Retirement Blues." Mimeo. International Center for Pension Reform, 1998.
- Feldstein, Martin S. "Induced Retirement and Aggregate Capital Accumulation." *Journal of Political Economy*, September 1974, 82(5).
- Feldstein, Martin S. "Social Security and Private Savings: International Evidence in an Extended Life-Cycle Model." *The Economics of Public Services an International Economic Association Conference Volume*, Boston, MA: Harvard UP, 1977.
- Feldstein, Martin S. "The Case of Privatization." *Foreign Affairs*, July 1997, 76(4).
- Organisation for Economic Co-operation and Development. *Historical Statistics of the OECD*, Paris: OECD, 1996.
- Tanner, Michael. "In Us We Trust: Take the System Private." *Washington Post*, March 22, 1998.
- Myles, John and Quadagno, Jill. *States Labor Markets, and the Future of Old-Age Policy*, Philadelphia: Temple UP, 1991.
- Summers, Robert and Heston, Alan, "The Penn-World Tables." *Quarterly Journal of Economics*, May 1991, 106(9).
- United Nations. *Population Division and Statistics Division of the United Nations Secretariat*. Washington DC: United Nations, 1998.
- Rainwater, Lee and Rein, Martin. *Public/Private Interplay in Social Protection*, New York: M.E. Sharpe, 1986.

Moseley-Braun, Carol. "Saving Social Security." *CATO Institute*, Washington D.C., 1999.

United Nations. *The United Nations Statistical Yearbook*, United Nations, New York, 1997 (42).

¹ Feldstein (1974) looked at United States savings from 1929-1971, while Feldstein (1977) looked at a cross section of countries.

² The variables from the Historical Statistics of the OECD are of the following; SS%, LF%, and C. G was found in the Penn World Tables, and R was found in the United Nations Statistical Yearbook. The years 1984-1991 were focused upon. The following countries were used in this research; The United States, Japan, France, Italy, The United Kingdom, Canada, Australia, Austria, Belgium, Denmark, Finland, Greece, Netherlands, Spain, Sweden, and Switzerland.

³ High saving countries are of the following; Austria, Japan, Netherlands, and Switzerland.

⁴ These predictions were obtained using the estimated equations implied by Models 3 and 4. Mean values for the significant variables were used to generate the predicted responses given various levels of social security expenditures.