THE INTERPLAY BETWEEN SOCIAL SECURITY PENSION AND SAVING PLANS

THE ECONOMIC VALUE OF TAX INCENTIVES

Irini Dimitriyadis

Dept. of Math & Computer Sciences

Bahcesehir University

Istanbul, Turkey

Nikos Fragkos

Dept. of Statistics

Athens University of Economics

Athens, Greece

We assume that individuals would be creating Individual Pension Plan accounts as a complementary investment plan to their Social Security.

To make people get interested in such investment one way is for the Government to give TAX INCENTIVES:

Assume there are people at different tax brackets as a function of their income.

Suppose also that there will be investment accounts similar to the American IRA's (or different depending on the country) sold in banks, investment houses or perhaps Private pension Companies like in Turkey.

The system will work as follows:

The citizen will be investing a predetermined amount to the personal account every month, which will be invested in financial portfolios of his choice.

(The amount will have a minimum value so that the proceeds will have some economic value at the end of the accumulation period. There will also be an upper value.)

The yearly amount saved/investment will be tax-deductible.

We may also assume that the investment returns will be tax free.

This will create a second benefit to the participant but at the same time it will give rise to a **shortfall** (will create a decrease) of government revenues.

The proposal of this study is to create a mechanism so that the government will "sort of" get back what they have given throughout the accumulation period through the tax incentives.

We shall assume that the amount of the tax incentive (break, discount) will be accumulated at a nominal interest rate (e.g. the maximum duration government bond yield) on a "notional account".

At the point of retirement, the pensioner will have the accumulated amount of his savings free of taxes, but the government will also have created an accumulated amount of the "notional accounts" of the tax deductions which are a loss to the government.

The government makes the following claim to the pensioner:

"By giving you the tax deduction I have given you the chance to accumulate more money than you would otherwise have done if the tax deduction was not given.

So now it is time to *pay back*. How and why would you do that?

The **goal** is to decrease the stress on the public pension system by being fair.

The government will calculate an annuity value that corresponds to the accumulated value on the "notional fund". The annuity will not be designed like a commercial annuity, it will be calculated on its fair actuarial value, using a discount rate equal to that accepted for the public pension system. There will be no management or other charges that usually make a commercial annuity quite expensive.

The point is to use (evaluate) this annuity amount as a deduction on the public pension payment that the pensioner is entitled to get.

In this way the goal of decreasing the stress on the public system is achieved.

The question now arises of how fair is this proposal of the government to the pensioner?

We claim that the government by introducing this alternative is not "cheating" on the citizen, since by creating the incentive; they give the person the chance of getting a much higher investment return than the classical pension system provides him.

The government by giving the tax deduction at the beginning of the process has created an incentive to the citizen of investing in the financial markets, not only his real investment but also the savings from the taxes (i.e. the government's money).

To show the effect to both citizens as well as to the government we shall run the following scenarios:

A) We shall consider different levels of savings, at different tax brackets.
Consider for example 3 citizens
One at tax bracket 1 (lowest)
One at tax bracket 2
One at tax bracket 3
We assume that people will invest in line with their income (i.e. tax bracket)
For e.g. 1:500   2:1000   3:2000 (the **maximum** per month).

We shall calculate the total amount of tax deduction by assuming a certain percentage of each category in line with the community the system will be applied to.

B) We shall have different scenarios of investment return to see the benefit that investing in the IRA has created to the citizen.
C) We shall look at the sensitivity of the participation period. We shall of course assume a minimal such period (e.g. 10 years).
D) **A simple model**
E) Consider two people that are at **the same bracket (say the 20% bracket)**.
F) One will accept the government's proposal the other will not.
G) Assume both people have an equal income of K.
H) The person that accepts government's proposal will be **saving** an amount corresponding to 20% of the contribution to the personal pension system.
I) Assume the person will be investing 12.000 units per year; his "tax benefit" for the particular bracket will be 12.000*0.20 = 2.400 units.
J) This will be the amount that will be invested to the "notional account" of the government so that it keeps track of the loss that the tax advantage has created.

K) To create a basis for comparison, we assume that:

L) The second person (the non-government type) will do the following:

M) The person will set aside the same amount as the first, but the "net amount" that will go in to investment will be only 9 600 units.

N) We assume that they will have the same investment returns.

O) **At the end of the day we shall compare the two net values of the two persons.**

EVALUATION OF THE RESULTS: (investment returns follow N(3,1))

TIME PERIOD	ACCUMULATED VALUE		
	PARTICIPANT	NOTIONAL ACCOUNT	NON-PARTICIPANT
10years	180.333	34.203	144.166
20years	484.064	86.304	387.251
30years	1.033.022	171.658	826.418

EVALUATION OF THE RESULTS: (investment returns follow N(6,1))

TIME PERIOD	ACCUMULATED VALUE		
	PARTICIPANT	NOTIONAL ACCOUNT	NON-PARTICIPANT
10years	202.562	34.203	162.049
20years	616.901	86.304	493.521
30years	1.521.346	171.658	1.217.077

EVALUATION OF THE RESULTS: (investment returns follow N(8,1))

TIME PERIOD	ACCUMULATED VALUE		
	PARTICIPANT	NOTIONAL ACCOUNT	NON-PARTICIPANT
10years	224.661	34.203	179.729
20years	790.202	86.304	632.162
30years	2.259.282	171.658	1.807.426