The benefit that the retiring population expects to receive is a function of their social security contributions

# Philippine Social Security System: Incentive Effects on Human Capital Investment

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The Philippine social security system is handled by two government agencies, the Social Security System (SSS) and the Government Service Insurance System (GSIS). The SSS serves the needs of the private sector, and the GSIS, those of government employees. These two agencies employ the fully-funded or reserve-fund system of financing the social security mechanism.

The United States social security system, on the other hand, utilizes the pay-asyou-go approach or the income-transfer system.

In an income-transfer system, the benefit accruing to the retiring population is a function of the current working population's income. The benefits are "taxed" on the income earned by the present working generation. These are then transferred to the current retired population who concurrently spends them.

In a fully-funded system, the benefit that the retiring population expects to receive is a function of their social security contributions, plus the interest earned by these contributions.

On the premise that increases in a child's education will lead to better job opportunities and, hence, higher income for the child when he enters the workforce, the incentive effect on human capital investment brought about by the social security system will be evident in an income-transfer system. The Philippine social security system may, therefore, not provide this incentive, since the retirement benefits are independent of the child's future income.

Two points must be taken into consideration: first, the adequacy of the retirement benefits and, second, support expectations of parents on their children.

If Filipinos perceive the retirement benefits as adequate, they may be inclined to save less for retirement, freeing this portion of income for further investment in their children's education or investment in capital assets.

If Filipinos perceive the benefits as inadequate, they are forced to save more for retirement to augment their retirement income. Since high yielding, sophisticated financial instruments are beyond the reach of the majority of Filipinos, the next best choice for them is probably to save by investing in their child's education.

If Filipinos depend much on their offspring for their retirement benefits in terms of income support, they may want to invest in their children's education.

### **RATIONALE OF THE STUDY**

This study investigates the possible incentive effects on investment in human capital brought about by the Philippine social security system. Although empirical evidence has confirmed this incentive effect under the United States social security system, which is an income-transfer system, confirmation of this hypothesis has not yet been delved into under a fully-funded system, such as the Philippine social security system. The results of the study, aside from the confirmation or rejection of this proposition, may at the same time implicitly shed light on the strength of cultural beliefs and how these influence the economic decisions of the people.

## STATEMENT OF THE PROBLEM

**D**oes the Philippine social security system (SSS and GSIS), a fully-funded system, provide an incentive for one generation to save for retirement by investing in the human capital of the next generation?

# **OBJECTIVES OF THE STUDY**

- 1. To investigate whether the Philippine social security system provides an incentive for one generation to save for retirement by investing in human capital of the next generation.
- 2. To determine the significance of the Philippine social security system in providing such an incentive.

# METHODOLOGY

wo main methods of analysis are used in this study. First is the utilization of a time series econometric model, covering the years 1967 - 1986. This econometric model is expected to determine the significance of the social security contributions in providing an incentive for parents to invest in human capital. It also aims to indicate the direction of causation of the social security on human capital investment, whether social security contributions have a positive correlation with education expenditures, illustrating the incentive effect, or a negative correlation, thus verifying the theoretical prediction that there is a disincentive effect in human capital investment.

The models, which are conceptually similar to Pogue and Sgontz's study (1977), are as follows:

COE = BO + B1 RPDY + B2 FCPI + B3 SSS + eEXP = BO + B1 RPDY + b2 FCPI + b3 SSS + e

- COE is the real expenditure on public and private education at all levels, excluding state universities and state colleges, 1972 prices.
- EXP is the total current expenditure in private and public sector education for all levels less government subsidies at 1972 prices.
- RPDY is the real personal disposable income at 1972 prices.
- SSS is the real annual social security contributions at 1972 prices.
- FCPI is the ratio of CPI of food to CPI of service at 1972 prices.

is the error term. This will capture any unexplained variation unspecified in the model.

The models specify that the social security variable be the explanatory variable to illustrate the cause-effect relationship between social security contributions and expenditures on education.

The first model, with COE as the dependent variable, represents the actual reality the country is in, where government provides subsidies for education.

The second model, with EXP as the dependent variable, illustrates a hypothetical situation where the country does not give any subsidy for education. It must be noted, however, that for the EXP variable, where subsidies are deducted, this does not represent the true expenditure on education if the government were to really stop providing subsidies. This variable serves only as a rough estimate of what would have been the true figure. Hence, the first model is an actual representation of the reality, while the second model seeks to answer a "what-if" question.

The RPDY figures represent the amount that may be allotted by the parent generation for each member of the child generation. This variable is expected to exhibit a positive correlation with both COE and EXP, since increases in personal disposable income increases expenditure on education.

The FCPI is expected to be negative, since the expenditure level of individuals is more sensitive to price changes in food relative to other goods and services, e.g., education. Expenditure decisions between food and other essential services hinge heavily on their relative prices, inasmuch as the budget of individuals is tight.

The SSS variable may exhibit a positive or a negative correlation with the dependent variable, depending on the perceptions of Filipinos on the adequacy of retirement benefits and the strength of their support expectations.

# **QUALITATIVE ANALYSIS**

Lamberte (1985) found that the retirement agencies are adequate, on the condition that benefits are adjusted promptly with the changing price levels. The variable used to arrive at this conclusion is the replacement ratio, i.e., the ratio of cash benefits to income lost due to a specific contingency.

The adequacy was also assessed by relating the benefits with the average cost of obtaining basic needs. It showed that 1987 retirees and past retirees are relatively well benefited as long as adjustments were made regularly. However, when the benefits are compared with the legislated minimum wage, they are said to be inadequate. Somehow, in this aspect, past retirees are at a disadvantage. It must be kept in mind that the social security system is still fulfilling its aim of giving partial income support to its members.

In terms of support expectations, De Vos (1984) presented a survey showing a high percentage of Filipinos (89 percent) expecting some kind of financial support from their offspring after retirement. However, this reliance upon the children is inversely related to family income, husband's occupational status, and the respondent's education. Financial aid to parents could only be given by children who have well-paying jobs. And it is a common belief that getting such jobs would require a high educational attainment.

Education has always been highly valued in Philippine society. Since 1965, 3.5 percent to almost 4.0 percent of the household expenditures have been quite consistently allotted for education. Enrollment statistics, from elementary to college, show an increasing trend. In schoolyear 1957 - 1958, 17.97 percent of the total population were enrolled, and this swelled to 25.59 percent in schoolyear 1986 - 1987.

Citing an ILO-NEDA study, Antonio Periquet Jr. considered the Filipinos "overeducated." He came to this conclusion after comparing the social rate of return and the private rate of return. Social rate of return of investment in education is the rate that society enjoys from allocating resources to a certain

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investment activity. Private rate of return, on the other hand, means the return of investment on education by an individual. Periquet found the social rate of return to be less than the private rate of return. This means that the subsidies allotted for education, in general, are greater than the marginal taxes paid by the student beneficiaries after graduating from college. This implies that not only does the individual lose, but the society loses even more on its educational efforts.

# **RESULTS OF THE MODELS**

The first model yielded a positive correlation between COE and SSS, a t-statistic of 3.99 and an  $r^2$  of 0.77. The RPDY variable is positively significant in the two models, while the FCPI variable was negatively insignificant in both models. To examine further the results of the first model, the researchers used the Durbin-Watson test at 5 percent significance. The presence of autocorrelation was determined through the use of this test. The test was inconclusive; hence, the authors resorted to the Cochrane-Orcutt iterative procedure to treat the model. When the Cochrane-Orcutt process was employed, autocorrelation was eliminated.

F-test was used to determine whether the explanatory variables significantly affected the dependent variable. Since the computed F (24.74) exceeded the appropriate critical value of F taken from the F distribution at 5 percent level of significance (3.24), the authors concluded that the equation was significant.

A 3.99 t-statistic of SSS variable reflects that it is significant and an SSS positive coefficient indicates a positive relationship with COE.

An adjusted  $r^2$  of 0.75 manifests that the explanatory variables are enough to explain the dependent variable.

In the second model, the SSS variable is insignificant because of a -1.13 t-statistic. The adjusted  $r^2$  exhibits 97 percent variable of explained variables. It passed both the Durbin-Watson test and F-test.

When the FCPI variable was dropped from both models, there was no significant change in the results.

The final results of the models are as follows:

COE = -973.84 + 2.05 SSS + 0.03 RPDY + e (-1.83)(3.13) (3.28) EXP = -265.25 + -0.06 SSS + 0.02 RPDY + e(-6.38) (-0.98) (22.33)

A sensitivity test was conducted to show the upper limit and the lower limit of the first model where the FCPI variable was dropped and the serial correlation was eliminated. Substituting the results of the model in the equation for the sensitivity test-b3 +  $t_{0.025}$ (sb3), where s is standard error at 95 percent confidence interval with n-k degrees of freedom, the lower limit was 0.648 and the upper limit was 3.42.

# IMPLICATIONS FROM THE MODELS

**T**he first model implies that the social security system provides an incentive effect to invest in subsidized education. It supports the analysis of the model that the partial income support given by the Philippine social security system would encourage parents to find a way to accumulate wealth upon retirement via investment in education. When education is subsidized by the government, parents consider it inexpensive to send their children to school. Since it would mean less expense for them, the parent generation would benefit from it in the future. This includes the income benefit they would get. There is, therefore, an incentive effect on human capital investment.

The second model denotes a non-existent relationship between SSS and EXP, which means it does not necessarily follow that the partial income support by a fullyfunded social security system would encourage parents in a hypothetical society where government does not provide any subsidy on education. The result of this model should be interpreted with caution inasmuch as the value of EXP is not the true value of expenditure on education in a society where this service is not subsidized. The value of EXP is only a rough substitute for what may be the real value.

### CONCLUSION

The study started with the differentiation of the methods of financing the social security system, and hypothesized that under a fully-funded system of social security, there would not be any incentive effect to invest in human capital, because the expected benefit is a function of the working years' contribution plus interest. In contrast, in an incometransfer system, the expected benefit is a function of the future working population's income and the size of the tax base. A survey supports the view that Filipinos generally still believe that their children will support them in their old age. Thus, they invest in their child's education as a form of saving for old age. If social security gives adequate income support upon retirement, there may be no need to save by investment in the future generation's education. Regardless of the adequacy of the social security, this insurance system may have an educational effect upon the working generation, making them realize the importance of saving, thus encouraging them to invest in human capital.

Qualitative analyses and the employment of a time series econometric model were

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the tools used to confirm or reject the

hypothesis.

The results of both qualitative and quantitative analyses point to the conclusion that social security provides a significant incentive effect to invest in human capital in a society where government provides subsidies. In a society where this service is not subsidized, the Philippine social security system produces no significant effect on human capital investment.

Several implications may be inferred. First, the significant incentive effect of social security on capital investment points to the known fact that social security only provides a partial income support upon old age. Thus, the generation of parents has to save on its own. Also, the form of saving that the parents perceive to be the most profitable is education.

#### **Results of First Model**

	Coefficient	T-stat.
С	-973.84	-1.83
SSS	2.05	3.13

RPDY	0.03	3.28
R-squared	0.809239	
Adjusted R-squared	0.771086	
D.W. Stat.	1.662836	
F-stat.	21.21076	

### **Results of Second Model**

c	Coefficient -265.25	T-stat. -6.38
SSS -0.06	-0.98	
RPDY	0.02	22.33
R-squared	0.976201	
Adjusted R-squared	0.973401	
D.W. Stat.	1.998794	
F-stat.	348.6610	

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