VOLUNTARY DEFINED BENEFIT PENSION SYSTEM
WILLINGNESS TO PARTICIPATE
THE CASE OF VIETNAM

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This paper investigates the determinants of the participation of workers from the informal sector in public voluntary pension scheme. Based on answers of workers of the informal sector in Vietnam about their willingness to participate in an actuarially fair pension system, it forecast their potential participation to the public voluntary pension scheme Vietnam is about to implement. This system includes institutional features common to many public pension systems: entitlement to pension income is related to a minimum contributory period of 20 years and, a minimum level of contribution related to the minimum wage is required for participation. The results show that these institutional features by worsening the already low inclination of workers to participate reduce significantly the capacity of the system to achieve high coverage rates in the long-term.

Keywords: social security and public pensions, informal sector, Vietnam, voluntary pension system, coverage

1. **INTRODUCTION**

Although policy makers around the world widely recognize that social protection programs such as disability insurance, survivor insurance and old-age pensions are welfare enhancing, social insurance coverage rates in developing countries especially when the systems are not mandatory are rather disappointingly low. Several reasons are proposed. Social security systems for non wage employed are often designed with the need of the wage-employed in mind. Part-time working and temporary employed without labor contract are often forgotten categories. All sort of regulations (taxes, licenses, etc) increase the cost of becoming formal by registering to social security (Holtzman, Packard Cuesta, 2000). Recent studies find also some evidence of self-selection of workers into jobs with/without social protection coverage. Surveys from Brazil and Mexico on workers preferences show that most of the 60/70 percent of the respondents prefer the independence and the higher earnings of the informal sector (Arias, Cunningham and Maloney, 2005).

This paper explores the reasons that explain the low participation to voluntary pension system and the policies that could help the voluntary pension system in Vietnam be more successful in covering the workers of the informal sector.

The study is based on a survey that was organized by Vietnamese Institute of Labor and Social Study and Analysis to understand the determinants of the willingness of the workers of the informal sector to participate in social insurance schemes[1]. The second section presents the methodology of this survey. The third section presents its direct results. Section 4 analyses the determinants of the willingness to participate in a pension system. Section 5 predicts, accordingly, the potential participation of the workers from the informal sector to the voluntary system currently planned in Vietnam. Section 6 draws the policy implications and Section 7 and 8 propose some solutions to increase the system's coverage. Section 9 measures the possible risks of dropping out associated to the policy of subsidies the participation of the poor and the non-poor. Section 10 concludes.

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[1] The survey included questions on participation into a pension system, a disability insurance scheme and a survivorship insurance scheme.

2. METHODOLOGY

The study uses the results of a survey conducted in 2005 by ILSSA to understand the determinants of the willingness of the workers of the informal sector in Vietnam to participate in a pension system.

Although the government's preliminary drafts indicated its willingness to create a voluntary system very similar to the current mandatory system established for the wage employed, the survey did not choose to ask the participants if they would agree to participate to such a system. The research decided, instead, to measure the willingness of the population to participate in an actuarial fair pension system which characteristics do not particularly favor any group.

Based on actuarial principles, a worker will be willing to participate to a pension system, if the level of well-being it can attain with the pension system's benefits is higher than the level it can attain without, by simply saving the same amount of contributions. Besides individual characteristics and socio-economic factors, the system's financial return or the present value of the expected pension benefits net of the contribution costs is, therefore, an important determinant of workers' willingness to participate.

 In a pension system like the mandatory system in Vietnam the financial return is not constant: for example, with the same amount of contributions men and women are not entitled to the same benefits. Similarly, the financial return does not increase regularly with the contributory length. The returns obtained by participants with less than 20 years are very low because participants are only entitled to one lump sum payment at retirement. There is a large step increase when the participants have contributed 20 years and are entitled to receive a pension. The returns then gradually increase to a certain point (25 to 30 years of contribution depending on men and women) after that they start decreasing because each additional year of pension payment lead to insignificant marginal increase of the benefits. Collecting answers about the willingness to participate to such a scheme would have produce results too dependent to the peculiar characteristics of that scheme.

In the VSIIS survey, participants were asked about their willingness to join a hypothetical and simplified actuarially balanced pension scheme that provides the same financial return to all. Participants were asked if they would join given the payment of a certain level of contribution and the expectation of a pension benefit of about the minimum wage[2] at the age of 60, or about half of the minimum wage at the age of 60 or at the age of 65. The contribution was calculated so that the present value of the sum of the benefits expected to be paid during the retirement period would be equal to the amount of capital saved at retirement if the participant would contribute without interruption until retirement age. Box 1 gives the details about the VSIIS pension scheme.

Box 1: Proposed Retirement Scheme in the VIIS

During the survey, respondents were proposed to participate to a hypothetical and simplified actuarially balanced pension scheme. Prior to the choices, detailed explanations were given about what is a pension scheme.

Participants were, then, asked about their willingness to join given the payment of a certain level of contribution. This amount was calculated so that the present value of the sum of the benefits expected to be paid during the retirement period would be equal to the amount of capital saved at retirement if the participant would contribute without interruption until retirement age.

The required amount of capital at retirement, S_T, was approximated using an approach similar to the one described in equation (1). The estimates was obtained through simulations in order to take into account of the Vietnamese population distribution of survival rates by age, and the expected adjustment of the benefits every two years according to the inflation.

(1) $S_T = B.\dfrac{1-(1+r)^{-R}}{r}$, where B is the level of pension income, R is the number of payments and r the financial return obtained on the funds during the retirement period.

Given the required amount of savings at retirement, S_T, the amount of contributions were obtained using equation (2):

(2) $c_a = \dfrac{S_T}{12}\dfrac{r}{(1+r)^{T-a}-1}$, where a is the age of the participant, c is the fixed amount of contributions paid each month during T-a successive years, and successively reinvested at the rate r.

The main implication of using an actuarially balanced pension schemes is that older generations are required much higher levels of contribution[31]. Because all the participants are assumed to join the pension system at the same time and retire at the same age, older workers have to accumulate the same amount of savings over a shorter period. As Graph 1 illustrates the level of contribution exponentially increases with age.

Proposed Level of Contribution per Age
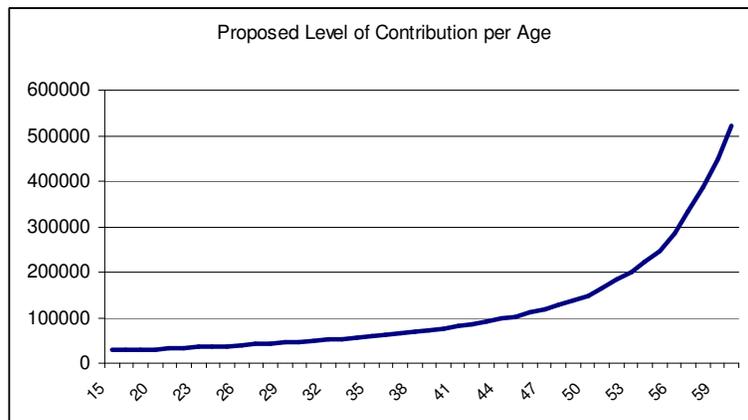
This principle that can be observed in the context of life insurance is rarely observed in public pension schemes where more often contributions are defined as a constant percentage of participants' income.

An iterative bidding process was established in order to elicit participants' preferences. Given a level of contribution related to their age, respondents were first required to consider whether they wanted to participate in the scheme that would entitle them to receive a pension income of about half the minimum wage at the age of 60^4.

To the difference of the contingent valuation surveys usually applied to estimate the willingness to pay for environmental issues, the level of contribution proposed to each respondent in the VSIIS did not randomly vary across respondents. The issue would be important if the survey wanted to measure how much the respondent price "a pension". This is, however, not the case because pensions are endogenous to the amount of contributions paid before retirement. A specific level of pension corresponds at each level of contribution. Within a certain age-group, the survey could have randomly proposed different levels of contribution and different levels of pension, the sample would have

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[4] Same age for men and women

however needed to be much larger to be able to observe relationships between the choices and the characteristics of the participants[5]. The survey therefore proposed only one level of contribution in relation to the age of the respondent.

Respondent's sensitivity to the level of contribution (and the financial returns) was obtained though the follow-up questions. For the households that did not show interested in participating at the first question, an option at retirement age of 65 with lower contributions was, then, offered. In case of another refusal, the same scheme was furthermore proposed with three even lower levels of contributions (and thus higher financial returns): 20 percent, 40 percent and 60 percent lower.

3. DIRECT RESULTS

Table 1 presents the rates of willingness to participate over the total population of the survey depending on which of the 6 levels of contribution consecutively proposed, the respondent finally accepted. Column 4 and 5 report the same distribution if participation is adjusted to ensure consistency with respondents self-reported monthly household savings capacity. Accordingly, 34.5 percent instead of 37.1 percent of the survey's participants would be ready to participate to the proposed pension scheme without any financial support.

About 49 percent of respondents refused all the propositions. The results in Table 2 indicate high contributions or lack of money to contribute as the main constraint to their participation.

Table 1 Distribution of pension by type acceptable to respondents				
	percent interested in pension	Confidence interval	percent interested in pension adjusted for savings capacity	Confidence interval
Respondents willing to participate				

Total	51.5	[46.8 - 56.3]	51.0	[46.3-55.8]
Ready to pay actuarially fair amount of contributions				
minimum wage at age 60[1]	17.2	[13.9-21.2]	13.3	[10.7-16.5]
half minimum wage at age 60	15.7	[13.5-18.2]	15.6	[13.2-18.4]
minimum wage at age 65	4.2	[3.0-5.8]	5.6	[4.2-7.3]
Accept if receive some financial support				
half minimum wage at age 65 (subsidized 20 percent)	3.8	[2.8-5.2]	4.6	[3.5-6.1]
half minimum wage at age 65 (subsidized 40 percent)	2.6	[1.9-3.7]	3.5	[2.7-4.5]
half minimum wage at age 65 (subsidized 60 percent)	8.0	[6.4-9.9]	8.4	[6.9-10.2]
Respondents not willing to participate				
Total	48.5	[43.7-53.2]	49.0	[44.2-53.7]
half minimum wage too low but not interested in higher levels[1]	4.3	[3.1-6.0]	4.3	[3.1-6.0]
Not interested	44.2	[39.3-49.2]	44.7	[39.8-49.6]
Total respondents	100.0		100.0	

Source: based on S. Bahles, P. Castel, 2005. Note: 1 participants that mention at the first quesiton that a pension equal to half of the minimum wage was to low were proposed to contribute a higher level (based on the same financial return) to obtain a pension equal to the minimum wage.

Table 2					
Reasons for non-participation in a pension scheme in percent by age group					
	Total	<30 years	31-40 years	41-50 years	51-60 years
Contributions too high	14.2	8.9	13.7	15.3	18.5
No money to contribute	42.1	40.1	38.8	46.4	41.6
Don't really understand	3.4	3.9	3.6	3.0	3.4
Wary of complicated paperwork	3.3	3.5	3.1	2.3	5.4
Low benefits	11.3	7.0	14.9	10.4	10.2
Have other source of support	3.7	4.6	3.4	3.1	5.0
Retirement age too high	9.2	11.0	8.9	9.5	7.2
Not interested	10.5	20.1	11.5	7.1	5.6
Other	2.4	1.0	2.1	3.0	2.9
Total	100.0	100.0	100.0	100.0	100.0

Source: S. Bahles, P. Castel, 2005

These estimates of potential coverage are much lower than the results obtained in the

GTZ-MOLISA survey in 2004 or the VSS survey of 2005 in which 77.7 percent and 65

to 91 percent of the respondents reported a need to participate or interest, respectively. These surveys like the VSIIS survey used in this study likely over-estimate the willingness to participate of the respondents. Respondents could have biased their answer for "presentational" reason such as to look good in the eyes of the survey administrator or unconsciously to flatter their own self-image. Experimentations in which people are faced with concrete choice that involve financial gains of different types, like in Eckel (2002)[6] are more attractive. They are, however, costly and can't be representative of large groups of the population. In the case of pension they are, furthermore, difficult to implement because pension issues requires long-term requirement and horizons.

The VSIIS survey tried to reduce these caveats and searched to follow the recommendations made for the design of stated preferences surveys[7]. The data was collected through personal interviews, after careful several rounds of testing of the questionnaire and training of the interviewers and supervisors. Respondents were given accurate description of the insurance scheme they were proposed, including explanations about insurance principles, and at the time they were questioned about their potential participation into the insurance scheme they were reminded the level of income they had reported earlier in the interview. These precautions maybe partially explain the reason that the VSIIS survey obtains much lower estimates of the willingness to participate than the surveys previously done in Vietnam.

4. THE DETERMINANTS OF INFORMAL WORKERS' WILLINGNESS TO PARTICIPATE

A worker will be willing to participate to a pension system, if the level of well-being it can attain with the pension system's benefits is higher than the level it can attain without, by simply saving the same amount of contributions, or by choosing another old-age income strategy like continuing working or getting the financial support of its friends

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[6] Eckel (2002) tested respondents' willingness to invest in the long-term by asking them to choose between receiving some cash today or higher amount in 7 years in education expenditures or as retirement savings.
[7] Naroo commission, the FAO doc. The VSIIS survey was designed by Sarah Bahles with inputs from P. Castel regarding the structure of the social insurance schemes. Researchers from ILSSA under the guidance of Lan Huong Nguyen Thi conducted the survey.

and relatives. Consequently, participation is related to financial indicators that reflect the costs and benefits of the system and individual, households and socio-economic factors.

$$(1) \quad W_i = G\{(\frac{b}{w_i}), (\frac{c_a}{w_i}), X_i, H_i, Z)$$

In the estimation of the relation (1), the study uses two variables reflecting workers willingness to participate. The first variable $W_{a,i}$ is defined by age group. It is equal to 0 if the person refused to participate to all the options proposed in the survey and 1 if the person accepted to participate to one of them.

The second variable $W_{k,i}$ reflects the willingness of the person i to participate in the pension scheme when the option k was proposed. It varies from 1 to 7. The values 7, 6 and 5 are attributed to the persons who accepted to participate at actuarially fair levels of contributions: in order to receive a benefit of about the minimum wage (level 7), a benefit of half of the minimum wage (level 6) or, a benefit of half of the minimum wage but at the age of 65 instead of 60 (level 5). The values 4, 3 and 2 are attributed to the persons who accepted to participate at lower than actuarially fair levels of contributions. In order to receive a benefit of half of the minimum wage at the age of 65, these persons required to pay contributions 20 percent lower (level 4), 40 percent lower (level 3), 60 percent lower (level 2) than the level initially proposed in level 5. Finally the level 1 is attributed to the persons who refused all the options.

The explanatory variables are the same in both cases, but in the estimations that uses $W_{k,i}$ the age is also included in the respondent's individual characteristics.

The variable b/w_i corresponds to the respondents' replacement rate. It is equal to the ratio of the level of benefit (identical for all[8]) to the respondent's household income per capita. As the Graph 2 shows, higher levels of willingness to participate are associated to higher levels of replacement rates. The variable c_a/w_i corresponds to the

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[8] In the estimation of $W_{a,i}$, the respondents who show desire to obtain higher level of benefit and who were ready to pay higher contributions accordingly are assumed to agree to the initial package.

respondent's contribution rate. It is equal to the ratio of the level of contribution initially proposed in the first question (identical for all the respondents of the same age group in the first question) to the respondent's household income per capita. Lower levels of willingness to participate are associated to higher levels of contribution rates (see Graph 1). The other variables are related to the respondent's individual, household and commune characteristics.

In Graph 1 and 2 respondents' replacement and contribution rates are calculated on households' income per capita, instead of on respondents' income. The reason is that although participating to a pension system is individual, the decision is likely taken also on the basis of the financial burden it represents for tall the household. Similarly, the participation is more attractive if the benefit replaces a substantial portion of the household's income.
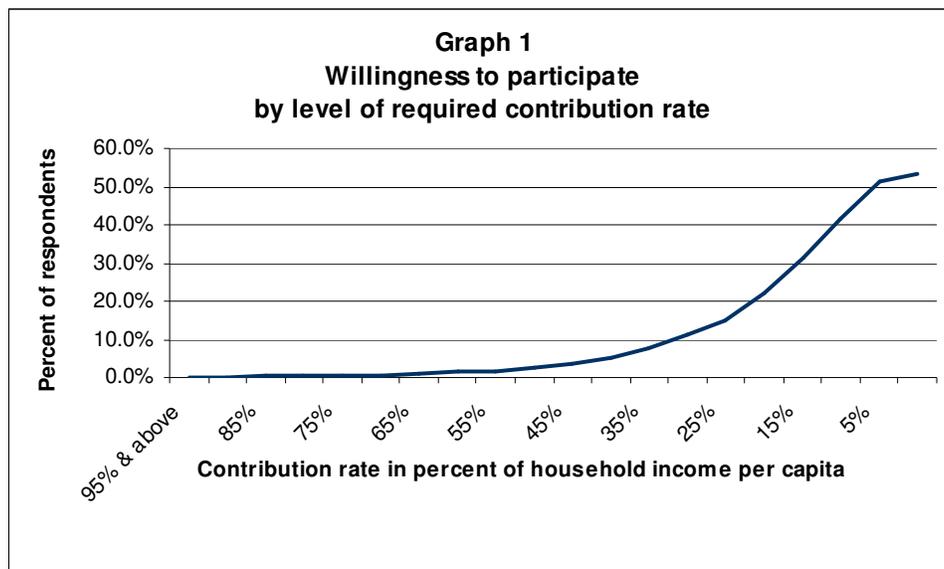
Graph 1
Willingness to participate
by level of required contribution rate

Note: cumulative participation rates are used, because persons who accepted to participate at a certain contribution rate are assumed to agree to participate at lower contribution rates.
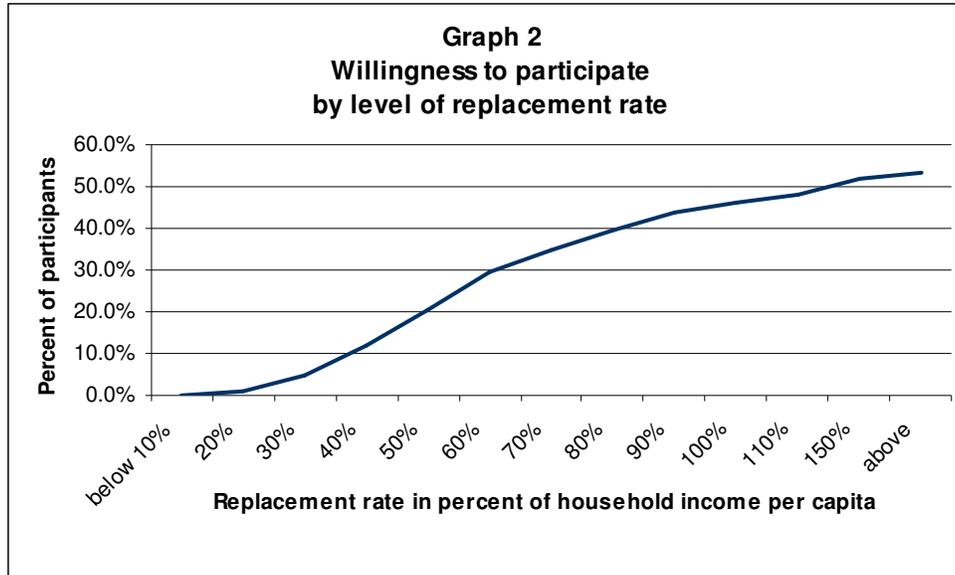
Graph 2
Willingness to participate
by level of replacement rate

Note: cumulative participation rates are used, because persons who accepted to participate at a certain replacement rate are assumed to agree to participate at higher replacement rates.

A conditional (fixed-effects) logistic regression by age group was used to identify the determinants of the willingness to participate by age group $W_{a,i}$. A maximum-likelihood ordered logit regression in which parameters are estimated given the 7 possible choices of participation was used to identify the determinants of the willingness to accept one of the proposed type of participation $W_{k,i}$.

Table 3 presents the main results. The variables associated to coefficients significant at 10 percent or lower confidence intervals are indicated in bold.

Table 2				
Determinants of the informal workers' willingness to participate in a pension system				
	Equation 1		**Equation 2**	
Type of regression	conditional (fixed-effects) logit		maximum-likelihood ordered logit	
Number of observations	3208		3209	
Pseudo R2	0.2474		0.1950	
Dependent variable	Participate (1) Does not participate (0)		Ranked participation depending on the chosen option	
Explanatory variables	Coefficient	Level of signification[1]	Coefficient	Level of signification[1]
in the sales sector	-0.01	0.956	**0.22**	0.100
registered firm	-0.20	0.169	**-0.24**	0.044
in the sales sector & registered firm	**0.51**	0.031	0.15	0.421
tax level 2	0.24	0.236	**0.57**	0.002

level 3	**0.46**	0.057	**0.90**	0.000
level 4	**0.80**	0.021	**1.35**	0.000
level 5	**2.00**	0.000	**2.32**	0.000
in the construction sector	**0.28**	0.088	**0.33**	0.016
in the services sector	**0.29**	0.047	**0.33**	0.006
in farming	**0.27**	0.098	0.02	0.858
seasonal pay	0.46	0.213	0.10	0.725
in farming & seasonal pay	**-0.67**	0.085	-0.21	0.497
irregular pay	0.00	0.996	-0.08	0.477
with no period of income shortage in relation to current expenditures	**0.32**	0.001	**0.39**	0.000
education level 1 (no diploma)	0.01	0.948	0.01	0.929
level 2	0.29	0.052	**0.31**	0.017
level 3	**0.46**	0.013	**0.47**	0.002
level 4	0.38	0.127	**0.61**	0.002
level 6	**1.15**	0.029	**0.79**	0.023
saving rate on household's income per capita	**0.56**	0.001	**1.14**	0.000
expects family support in old-age	**0.22**	0.032	**0.21**	0.019
expects using savings in old-age	**0.50**	0.002	**0.52**	0.000
very patient	**0.50**	0.000	**0.43**	0.000
know about old-age scheme	**0.77**	0.000	**0.70**	0.000
share of self employed covered in commune	**5.84**	0.000	**6.52**	0.000
household's dependency ratio	**-0.94**	0.000	**-1.03**	0.000
number of working-age members in the household	0.06	0.167	0.03	0.380
tax rate on household's income per capita	**-0.56**	0.000	**-0.67**	0.000
can borrow at interest rate above 1%	-0.16	0.075	**-0.16**	0.035
contribution rate	**-2.13**	0.000	**-1.59**	0.000
replacement rate	**5.66**	0.000	**6.58**	0.000
income quintile (level 2)	**0.90**	0.000	**1.16**	0.000
level 3	**1.46**	0.000	**2.02**	0.000
level 4	**1.91**	0.000	**2.59**	0.000
level 5	**1.94**	0.000	**3.21**	0.000
registered poor	**-1.27**	0.000	**-1.67**	0.000
urban	**-0.49**	0.000	**-0.41**	0.001
age			**-0.02**	0.019
registered poor	**-1.27**	0.000	**-1.67**	0.000
urban	**-0.49**	0.000	**-0.41**	0.001
age			**-0.02**	0.019

Based on VSIIS results Note: 1/ The columns read as follow: a level equal to 0.10 indicates that the estimated coefficient is significantly different from 0 in a confidence interval of 10 percent.

The willingness to participate varies by sectors. Workers in the sales sectors (equation 2), the services and the construction sectors (equation 1 and

2) appear relatively more inclined to participate but in both equations those who have registered activities (the persons who work in an household enterprise activity and have a business license, are registered at a labor management agency or in a local market, pay taxes, have a bank account or, receive health and food safety inspection) are significantly less inclined. Farmers are inclined to participate but not those who have seasonal income (equation 1).

Regarding the type of payment (daily, weekly etc.) the results do not give strong results. Only farmers with seasonal income, as mentioned already, are less likely inclined to participate.

The stability of monthly income in relation to consumption needs of the household is strongly associated with higher willingness to participate in both equations. In the same way, positive coefficients are associated with higher saving rates and higher level of taxes, both indicators of wealth. Similarly higher income level is strongly related to higher willingness. Higher fiscal burden reflected by the tax rate per household income reduces, however, the willingness to participate. Living in a registered poor household and living in a household with a high dependency ratio (the share of elderly and children in the household) have negative impacts on participation.

Rural households are more inclined to participate. Persons who are very patient (that means who always accept in a "virtual" lottery[9] delayed payments in exchange of higher prizes whatever the size of the prize) are also more likely inclined to participate.

The persons who have thought of a strategy for their old-age either relying on their children or their savings are more inclined to participate. By contrast the persons living in households that have access to borrowing participate less likely.

Regarding individual characteristics, higher education levels are associated with higher willingness to participate.

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[9] Included in the survey

The coefficients associated to the pension system variables confirm as expected that participation increases with the replacement rate and decreases with the contribution rate (in relation to household's income).

Finally, and not the least, participation is strongly positively related to the respondents knowledge about retirement pensions and social insurance coverage in the commune. The indicator is based on interviewed households members answer about contributing or benefiting from a social insurance program (health insurance, early retirement or meritorious pensions etc.).

5. PREDICTED POTENTIAL COVERAGE OF THE VOLUNTARY PENSION SYSTEM IN VIETNAM

The results of equation 2 are used to predict the willingness of the workers of the informal sector of the VSIIS to participate in the voluntary pension system that is expected to be implemented in the coming years in Vietnam.

That system is largely inspired from the regulations set for the compulsory system with some exceptions.

- Unlike in the compulsory system, participation is voluntary.
- Like in the compulsory system, participation is related to the payment of a minimum level of contribution equal to 16 percent of the minimum wage in 2008. After 2010, such percentage is expected to gradually increase by 1 p.p. every two years until it reaches 22 percent.
- Like in the compulsory system, pension income entitlement requires a minimum length of 20 years of contribution. But, contrary to the compulsory system, participants can contribute until the age of 60 (men) or 55 (women) [10]. As a result, only men 45 years and less and women 40 years and less when they join the voluntary system can expect receive pension income at retirement.

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[10] The standard retirement age in Vietnam is 60 years for men and 55 years for women, the new law authorizes, however, participants of the voluntary pension fund to contribute for 5 more years after standard retirement age in order to be entitled to pension income.

- Like for private sector workers in the compulsory system, a retiree's pension is a proportion of his/her average reported incomes (on which contributions were made). This proportion depends on the retiree's gender and length of contribution. In the calculation, reported incomes are indexed by past CPI.

- Unlike in the compulsory system, there is no minimum pension in the voluntary fund

- Like in the compulsory system, participants who reach standard retirement age with less than 20 years of participation are entitled to a lump sum. A retiree's lump sum is a proportion of his/her average reported incomes (on which contributions were made). The proportion depends on the retiree's length of contribution. In the calculation, wages are indexed by past CPI.

The participation rates are predicted after replacing in the initial equation the value of the contribution rates and the replacement rates[11] by the levels taken by these variables in the voluntary pension system.

The minimum level of contribution is replaced by an amount equivalent to 15 percent of the minimum wage of 2005. In the voluntary system, the current minimum level of contribution is now equal to 16 percent of the minimum wage. The estimate does not use this level, however. It uses the minimum level of contribution that was required by the compulsory scheme at the time the VSIIS was done: that is 15 percent of the minimum wage observed in the year 2005, of about 300 000 VND[12]. Because living conditions and especially incomes have changed since 20005, this level is more likely representative of the relative financial burden of the contributions in 2005.

The levels of pension benefits are modified and replaced by the values expected in the voluntary system. These benefits vary with the length of contribution, the gender and the income on which contributions are paid (reported income). Workers can contribute higher levels than the minimum level of contributions. This study, however, assumes that all the participants participate to the new system with the lowest level of contribution. All the pension benefits are, therefore, calculated on an average reported

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[11] Both rates are calculated in relation to VSIIS respondent's household income per capita.
[12] This level is equal to 300 000 VND, it is equal to the weighted average of the levels set in October 2004 (290 000 VND) and October 2005 (350 000 VND).

income of 300 000 VND. The calculation takes into account the gender and the age of the person[13], but it does not take into account possible wage growth and prices adjustments.

Pension benefits are also calculated for the persons who are eligible to lump sum allowances. In the calculation the allowances are transformed into a 15 years flow of monthly incomes (annuities), given a financial return of 7.4 percent per year.

Graph 3 and Graph 4 compares by age group the levels of the contribution and the replacement rates in the VSIIS and the voluntary pension system.

Graph 3
Contribution rates
VSIIS and Voluntary pension systems
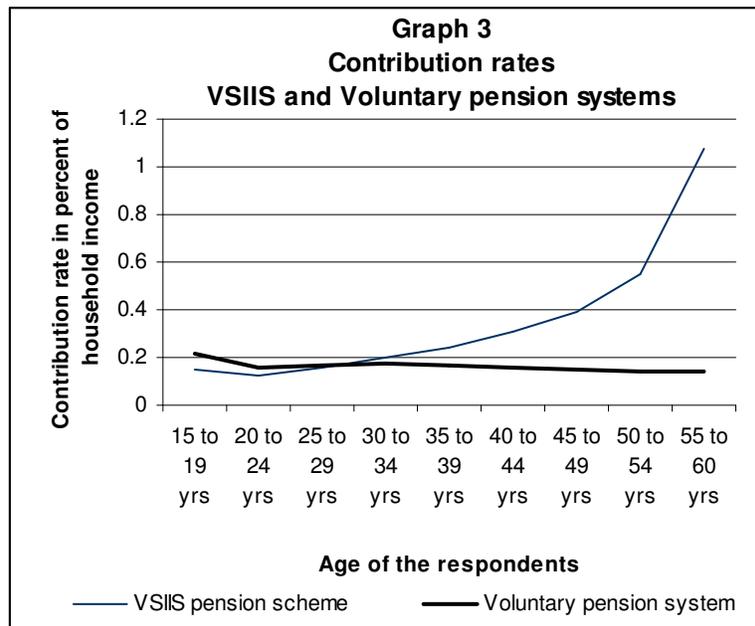
The contribution rates in the VSIIS increase exponentially with age, because the system is actuarially fair. By contrast the contribution rates in the voluntary pension system are rather flat. The reason is that all the participants contribute the same amount in VND and the range of households' income per capita in the informal sector is rather narrow. The cohort age 50 to 54 has the highest level of income per capita. It is 1.6 times higher than the average income earned by the persons in the age group 15 to 19 years and, 1.2 higher than the average income earned by the persons in the age group 20 to 24 years.

Opposite trends are observed on replacement rates. In the VSIIS, replacement rates are rather flat because the level of the pension benefit is the same for all the

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[13] In 2005.

participants, and the range of households' income per age group is narrow. Replacement rates in the voluntary fund decrease with age, because pension entitlements diminish when the length of contribution shortens. Replacement rates calculated on retirees' lump sums (after they are transformed into monthly annuities) abruptly fall.

Graph 4
Replacement rates
VSIIS and Voluntary pension systems
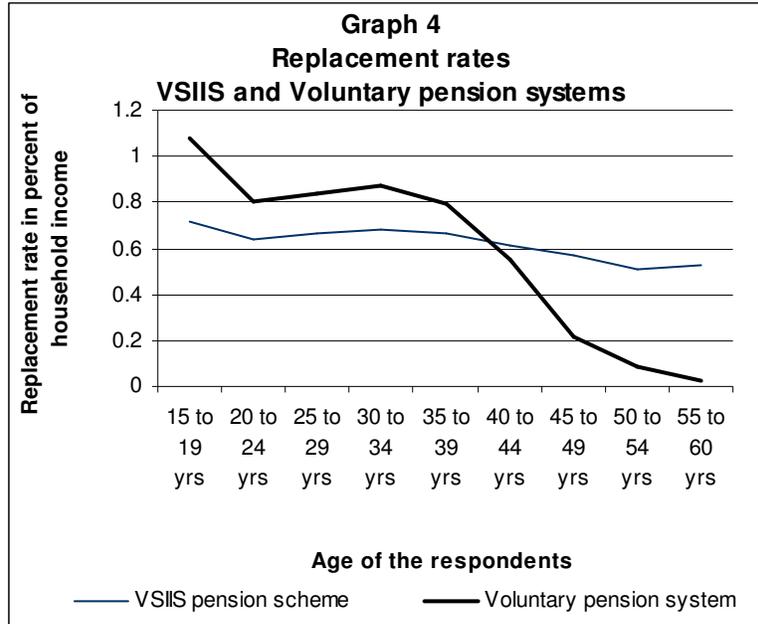
The results of the simulation are presented in Table 3. A worker is assumed to be willing to participate in the system if the sum of the probabilities associated to the rank 5, 6, 7 that give the probability of a respondent to accept to participate in the pension system at the proposed contribution rate is higher than zero. About 47.9 percent of the VSIIS respondents could be inclined to participate to the voluntary pension system described above. As the results reported in Table 3 show, the levels of potential participation drops after the age of 45. The low replacement rates obtained by the workers who join the system at advanced ages explain this result.

		Table 3		
Predicted potential participation to the voluntary pension system				
Age group	Participation rate	Quintile of household income per capita	Participation rate
15 to 19 yrs	60.6	Quintile 1 The poor[1/]	56.3
20 to 24 yrs	87.7		
25 to 29 yrs	86.3		
30 to 34 yrs	83.9	Quintile 2 The near poor	51.0
35 to 39 yrs	72.2		
40 to 44 yrs	41.5		
45 to 49 yrs	8.1	Quintiles 3,4,5 The better off	46.0
50 to 54 yrs	0.4		
55 to 60 yrs	0.2		
Total	48.8		48.8

Source: based on VSIIS results, on the population age 15-54 (women) and 15-59 (men)

6. POLICY IMPLICATIONS

The simulations of the package of the voluntary pension system suggest that if lower contributions effectively stimulate the participation, low pension benefits discourage participation too. These results have several policy implications.

First, it is rather inconvenient that the system discourages the participation of the older workers, since these workers (age 41 and above for the women and age 45 and above for the men) are the one who are more likely searching solutions to smooth consumption during old-age.

Second, the poor appear to be willing to participate in the pension system. It is likely that when proposed to effectively pay contributions, the poor will choose, however, other savings options that are more liquid and help them face a larger range of possible income shocks.

The consequences of the very low participation of the middle age worker and the poor populations will be that the voluntary system will have little visibility for many years. The system will potentially provide pensions to large cohorts of elderly only 20 years after its creation. Meanwhile, the efficiency of the voluntary pension system in reducing elderly vulnerability

will not be demonstrated. At the opposite, the system will likely appear to fail to provide income support to the elderly that will reach retirement age. The perception that the system fails in achieving its objective could discourage, furthermore, the willingness to participate of the overall population. The results of the estimations show that participation is strongly positively related to the respondents' knowledge about retirement pensions and high social insurance coverage in the commune. If such a vicious circle develops the voluntary pension system in Vietnam will likely reach only very low coverage rates of the workers of the informal sector.

Finally, regarding the financial burden of the contribution the link of the minimum contribution to the minimum wage could adversely lead to the increase of the cost of participation to the voluntary pension system if the minimum wage increases at a faster pace than the average income per capita in the rural areas and the small household units. In accordance to the national treatment principle of the WTO[14], Vietnam is confronted, now, with the need to rapidly unify the domestic and the minimum wages applied to the FDI enterprises. Because of the FDI high labor productivity growth, this convergence will likely need repeated large increase of the domestic minimum wage, hence large increase of the minimum level of contribution of the pension system. If incomes in the rural areas and households enterprises do not follow the same trend, the financial burden to participate to the voluntary pension system will become increasingly higher and for many workers of the informal sector unaffordable.

The obligation of a minimum contribution as well as the requirement of 20 years of contribution to be entitled to pension income are, however, rules that intend to protect the financial balance of the pension system. They reduce free-riding behaviors. Without a minimum level or length of contribution, some participants would contribute very low amounts or over very short periods. Reasonably, the accumulation of low amount of contributions at retirement should simply entitle to very low pensions. However, because providing very low pensions to elderly could appear socially unacceptable, there are risks that the pension system or the State budget could be forced to top up the "too low
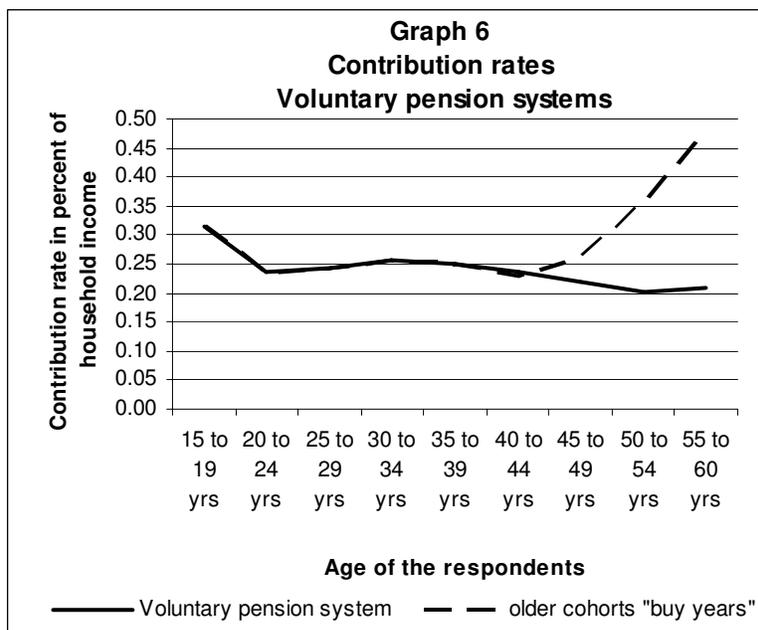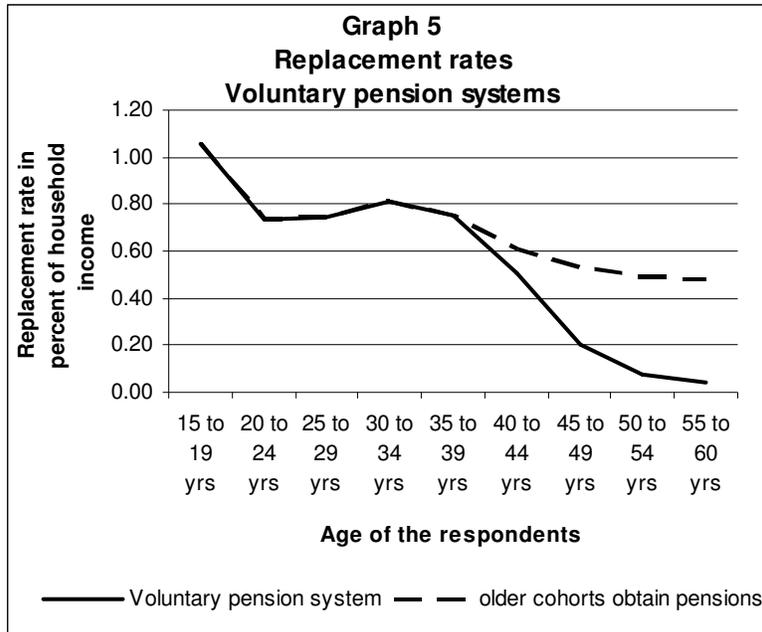
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[14] Vietnam join the WTO in 2005

pensions" to a certain socially acceptable minimum. These transfers would benefit the poor but also to the non poor who would obtain a "free-ride". They would also undermine the financial sustainability of the system.

So instead of eliminating these obligations the next two sections investigate the possibility to propose to the middle aged workers to "buy" years of contribution and the possibility to subsidize the participation of the poor and the near poor.

7. **IMPROVE THE ATTRACTIVNESS OF THE SYSTEM: THE MIDLED AGE PARTICIPANTS**

Instead of reducing the minimum length of the contributory period, this study investigates the possibility to propose to the middle aged workers to "buy" the number of contributory years that are missing so they are entitled to pension income. In the simulation, buying years corresponds to contribute proportionally higher amounts of contribution. The impact of such policy package on replacement and contribution rates are described in Graphs 5 and 6. The replacement rates continue to decrease with age but the drastic drop observed in Graph 4 has disappeared. The consequence is that middle age workers (above age 40 in the case of the women and above age 46 in the case of the men) are required proportionally higher contributions than 15 percent of the minimum wage (Graph 6).

Graph 5
Replacement rates
Voluntary pension systems

Replacement rate in percent of household income

| | 15 to 19 yrs | 20 to 24 yrs | 25 to 29 yrs | 30 to 34 yrs | 35 to 39 yrs | 40 to 44 yrs | 45 to 49 yrs | 50 to 54 yrs | 55 to 60 yrs |

Age of the respondents

—— Voluntary pension system — — older cohorts obtain pensions

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Graph 6
Contribution rates
Voluntary pension systems

Contribution rate in percent of household income

| | 15 to 19 yrs | 20 to 24 yrs | 25 to 29 yrs | 30 to 34 yrs | 35 to 39 yrs | 40 to 44 yrs | 45 to 49 yrs | 50 to 54 yrs | 55 to 60 yrs |

Age of the respondents

—— Voluntary pension system — — older cohorts "buy years"

As the results in Table 4 indicate, such policy would have a large impact on the willingness to participate: the overall coverage is between 12.7 and 13.9 p.p. higher than under the basic package.

	Table 4 Predicted potential participation to the voluntary pension system Variants of policy Participation in % of informal workers of the same age			
	Basic package: participants with less than 20 years of contribution receive a lump sum		Participants age above 40 (women) and above age 45 (men) pay higher contribution so to obtain a pension	
Age group	Contribution 15% of the minimum wage	Contribution 22% of the minimum wage[1]	Younger cohorts' contribution 15% of the minimum wage	Younger cohorts' contribution 22% of the minimum wage[1]
15 to 19 yrs	60.6	53.2	60.6	53.2
20 to 24 yrs	87.7	84.4	87.7	84.4
25 to 29 yrs	86.3	84.9	86.3	84.9
30 to 34 yrs	83.9	81.1	83.9	81.1
35 to 39 yrs	72.2	69.0	72.2	69.0
40 to 44 yrs	41.5	38.2	52.1	48.2
45 to 49 yrs	8.1	7.7	49.3	45.1
50 to 54 yrs	0.4	0.4	37.4	32.8
55 to 60 yrs	0.2	0.2	20.4	19.0
Total	48.8	46.7	62.7	59.4

Note: 1/the law foresees the gradual increase of the contribution rate from 15 to 22 percent of the minimum wage.

8. SUBSIDIZING THE PARTICIPATION OF THE POOR AND THE NEAR POOR

Instead of eliminating the obligation to pay a minimum contribution, the policy package presented in Table 5 proposes to fully subsidize the participation of the poor and partially subsidize the participation of the near poor. The participation of the near poor to the system if subsidized is obtained by adding the probability of each individual to fall into the categories (4, 3 and 2). The results in Table 5 indicate that if the contribution of the near poor is subsidized, the participation of this group could be increased by between 5.8 and 12.3 p.p.

Table 5 Predicted coverage of the VSIIS informal workers in the voluntary pension system to be implemented in Vietnam Basic package and variants in case of subsidies				
Participation rates at the proposed level of contribution				
1. Basic package	48.8			
2. Older cohorts access to pension	62.7			
3. Minimum contribution equal to 22% of the minimum wage	46.7			
4.All together	59.4			
Participation rates if the participation of the poor and the near poor are fully or partially subsidized				
	Total	Better off	Near Poor	Poor
Basic Package	48.8	46.0	51.0	56.3
Poor fully subsidized, near poor partially subsidized	57.8	46.0	56.8	100.0
Access of older cohorts to pension income	62.7	63.6	59.8	62.8
Poor fully subsidized, near poor partially subsidized	71.1	63.6	68.5	100.0
Minimum contribution increased to 22% of the minimum wage (no subsidies)	46.7	44.6	48.2	52.9
Poor fully subsidized, near poor partially subsidized	56.4	44.6	54.3	100.0
All together	59.4	60.6	56.4	58.1
Poor fully subsidized, near poor partially subsidized	68.6	60.6	68.7	100.0

9. RISK OF OPTING OUT WHEN ESCAPING POVERTY

Some risks are associated to the policy that subsidies the participation of the poor and the near poor. Because participation is voluntary, poor who escape poverty, and near poor who become better off can abandon the system when their living conditions improve and their participation is partially or not subsidized anymore. These possible behaviors reduce the potential efficiency of the policy.

Table 6 presents a prediction of the change in the participation rate of the poor in the case they escape poverty, and move up to the second quintile. It presents also estimates of the change in the participation rate of the near poor if they become better off and move up to the third quintile. In the second quintile the poor turn into near poor and benefit

only from partial subsidies on contributions. In the third quintile the near poor turn into better off and do not benefit from any subsidies on contributions. The calculation assumes that the household income per capita of the poor is suddenly increased to the minimum level observed in the second quintile 210 000 VND per month. The income of the near poor when moved to the third quintile is increased to 265 000 VND per month.

Table 6 Risk associated to voluntary participation (Scenario 4: pensions provided to older cohorts instead of lump sums and minimum contribution rate at 22% of the minimum wage)				
	Initial no subsidies	With subsidies on premium	If become near poor	If become better off
Poor	58.1	100.0	45.6	
Near poor	56.4	65.7		44.7

The estimates suggest a large desertion: more than half of the participants automatically enrolled when poor would drop out when participation is only partially subsidized. The departure is smaller but still rather large among the near poor who turned into better off (31.9 percent).[15]

These results are worrying, but they could be partly offset if the policy is successful in reaching large coverage rates. Giving the possibility to the older workers to buy additional contributory years and subsidizing the participation of the poor and the near poor will largely increase the potential coverage of the voluntary pension system. Higher coverage will help improve participants' knowledge and trust in the system that in turn will contribute to increase the willingness to participate. If such a virtuous circle develops, the pension system in Vietnam could achieve large coverage rates of the workers of the informal sector.

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[15] = [65-7-44.7)/65.7].

10. CONCLUSION

Although policy makers around the world widely recognize that social protection programs such as disability insurance, survivor insurance and old-age pensions are welfare enhancing, social insurance coverage rates in developing countries especially when the systems are not mandatory are rather disappointingly low.

This study, that investigates the determinants of the willingness to participate in a pension system by the workers of the informal sector in Vietnam, confirms the relatively low desire of these workers to participate in such scheme even if the proposed scheme is based on actuarial principles. Although willingness to participate is positively associated to higher wealth, education and saving capacities, other factors related to the residence, access to credit, fiscal burden, knowledge about social security and attitudes toward long-term planning are important. Like many public schemes, the voluntary scheme envisaged to be implemented in Vietnam could motivate higher participation by requiring lower contributions than a system strictly built on actuarial principles. However, institutional features will probably prevent the system to reach significant coverage. The link of pension income entitlement to the minimum requirement of 20 years of contributions will significantly reduce the willingness to participate of the older generation. The determination of the minimum contribution in relation to the minimum wage could possibly reduce the access to the low income earners. In that context a vicious circle could undermine the development of the voluntary system in Vietnam. Because middle age workers will likely not participate, for a long period after its creation the system will not provide meaningful pension benefit. Better off people reaching retirement will receive rather low benefits. At the same time, the population will observe that the system does little to reduce poverty among the elderly. These trends will more likely reduce the young generations' willingness to participate and they will reduce the general public support to the system. In the long-term the system might achieve very low coverage rate, as a result.

Accordingly, some argue that the provision, like in South Africa and Brazil, of non-contributory pension to the elderly that reach the age of retirement age (or a higher age) without enough income would be more effective to protect elderly against poverty. Until

the government capacity to enforce tax collection increases, the structure of the economy changes, and the earning capacity of the bottom half of the labor force grows it is difficult and not desirable to extend contributory social coverage to the entire population (Estelle James, 1999).

This study investigates another approach. It suggests that policies that allow middle age workers to contribute and obtain a pension income at retirement as well as policies that subsidize the participation of the poor and the near poor could significantly improve the system's attractiveness and coverage in the years that follow its implementation. The rapid demonstration that the system is efficient at providing pension income at retirement and at reducing poverty among the elderly could then develop a virtuous circle.

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ANNEX 1 MONTHLY CONTRIBUTION AMOUNTS BY AGE TO PARTICIPATE IN RETIREMENT PENSION BENEFITS

unit: VND/month

Starting contribution at the age of	Pension benefits: 150,000 VND per month (Q.15)	Pension benefits: 300,000 VND per month (Q.17)	Pension benefits: 150,000VND per month at 65 (Q.18)
60	521500	1043000	246916
59	449069	898138	223049
58	386698	773397	201489
57	332990	665980	182013
56	286741	573483	164420
55	246916	493832	148527
54	223049	446098	138024
53	201489	402978	128265
52	182013	364026	119195
51	164420	328840	110766
50	148527	297054	102934
49	138024	276049	96897
48	128265	256529	91215
47	119195	238390	85865
46	110766	221533	80829
45	102934	205868	76089
44	96897	193795	72215
43	91215	182429	68538
42	85865	171730	65049
41	80829	161659	61737
40	76089	152178	58594
39	72215	144430	55938
38	68538	137077	53402
37	65049	130098	50981
36	61737	123474	48670
35	58594	117188	46464
34	55938	111876	45007
33	53402	106804	42966
32	50981	101963	41019

31	48670	97341	39159
30	46464	92928	37520
29	45007	90013	36084
28	42966	85933	34703
27	41019	82037	33375
26	39159	78318	32098
25	37520	75040	30870
24	36084	72168	29228
23	34703	69407	28110
22	33375	66751	27034
21	32098	64197	26000
20	30870	61740	25005

These levels were calculated assuming that on average people that retire at age 60 live until age 78.8, the growth rate of nominal salaries is equal to 6.7 percent, the inflation rate is equal to 5 percent and the interest rate is equal to 6.2 percent.