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A Gender Perspective on Elderly Work in Vietnam¹

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Abstract

Using data from the Vietnam Household Living Standard Survey (VHLSS) in 2006, this paper analyzes the current working status of the Vietnamese elderly and identifies the determinants of working status differentiated by gender. In general, our estimated results from various logit models show that, regardless of gender, older elderly, elderly living in northern and southern regions and urban areas, in households with more working-age people, in households receiving social security benefits, and in households with higher income tended to work less than did other elderly groups. Educational level and remittance receipt did not have any significant impact on elderly work. We also find that male elderly are more likely to work than females, but that the determinants of working status do not vary greatly by gender. Based on these findings, we formulate policy priorities toward the elderly, in which we emphasize the importance of policies to implement a comprehensive social security scheme to cope with an expected aging population, as well as to create jobs for working-age people in the still relatively young country.

Keywords: elderly work, gender, Vietnam

JEL classification: J14, J16, J21

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INTRODUCTION

The medium-variant population projections of the United Nations (2007) show that the number of elderly people (aged 60 and over) as a percentage of the world population will increase from 10 percent in 2005 to 22 percent in 2050, as a result of rapid declines in fertility rates and mortality rates along with substantial improvements in health care systems. The so-called “getting old before getting rich” issue will pose numerous policy challenges for governments in many developing countries to find ways to protect their elderly people. In addition to this demographic issue, profound social and economic changes stemming from modernization and urbanization may weaken family bonds, creating further policy challenges. These potential issues suggest an urgent task for the old-age security in developing countries, since many still have underdeveloped social security systems with extremely limited coverage (Schwarz, 2003; UN-DESA, 2007).

Although Vietnam is still a young country with a working-age population of more than 60 percent, it will also be experiencing the changes just described. According to the aforementioned population projections, the Vietnamese elderly will account for about 26 percent of the whole population in 2050, increasing from only 7.6 percent in 2005. Moreover, the remarkable successes stemming from the *Doi moi* (renovation) programs ignited in the late 1980s have not been able to provide benefits to all social strata, since many groups of people, including the elderly, are still living in poor and vulnerable conditions in rural, isolated, and disadvantaged areas (Le *et al.*, 2005; Tran, 2007). Only a small percentage of the Vietnamese elderly are receiving public pensions, while others are living on their own and/or supported by family members (MOLISA, 2005). In addition, a potentially worrisome matter for supporting the elderly is that the past decade has witnessed a continuous decline in the number of elderly who lived as dependents, and a continuous increase in the number of elderly who lived alone or in households with only elderly (Giang and Pfau, 2007a; ILSSA-UNFPA, 2007). Thus, any reduction in family support caused by all aforementioned trends will leave the elderly behind with further vulnerabilities. Under such challenges, among various risk-coping mechanisms, working is an important activity for the elderly to protect themselves, because it may help the elderly to have stable income and maintain their physical and mental health as well. As such, given limited social security coverage and the tendency toward declining family support, it is important that social researchers and policy makers explore working status of the elderly and find the possible determinants underlying such status. This in turn will provide valuable information for formulating social security policies.

The number of studies on the elderly population in Vietnam has grown rapidly since the last decade, and different survey data have been used to analyze the elderly people and their households. Giang and Pfau (2007a, b, 2008a, b) provide brief summaries of findings from these studies. At our best knowledge, however, only the research by Friedman *et al.* (2001) extensively discussed about elderly work using the data from a set of two regional surveys, which were conducted for the elderly in the Red River Delta (including Hanoi) in 1996, and in Ho Chi Minh City (HCMC) and its six adjacent provinces in 1997. Though these surveys provide various information on rural and urban diversity, household composition, and household relations in terms of support and care for the elderly, the samples were not representative for the whole elderly population in Vietnam. As such, using more updated and representative data, this paper will describe the current status and explore the possible factors underlying the working situation of the Vietnamese elderly. We will use a number of individual and household characteristics of the elderly for our research purposes.

The remainder of the paper is organized as follows. We will delineate data, methodology, and variables in Section 2. The empirical results and analysis will be presented in Section 3. In Section 4, we will discuss some policy implications. The final section will provide concluding remarks for the paper.

Briefly, we find that regardless of gender, older elderly, elderly living in northern and southern regions and urban areas, in households with more working-age people, and in households with higher income tended to work less than did other elderly groups. Educational level did not have any impact on working status of the elderly. In addition, the elderly living in households receiving social security benefits tended to work less, while those in households receiving remittances did not show a clear difference. We also find that male elderly are more likely to work than females, but that the determinants of working status do not vary greatly by gender.

DATA, METHODOLOGY, AND VARIABLES

Data

To pursue the research objectives, we will use the Vietnam Household Living Standard Survey in 2006 (namely, VHLSS 2006). This is one of the five household surveys in Vietnam over the past decade conducted by the General Statistics Office (GSO) along with other international agencies, as a part of the World Bank's Living Standard Measurement Surveys (LSMS).

The data are representative for the entire Vietnamese population, both urban and rural areas, and across the regions. The survey is organized by household, but it also includes some characteristics for individuals in the household, such as age, gender, relationship to the household head, marital status, working status, wage or salary, health, and educational attainment. This structure lets us identify the elderly people (aged 60 and over), as well as the elderly households (which include at least one elderly). The VHLSS 2006 includes 39,071 people in 12,020 households, in which the number of elderly people and the number of elderly households are 3,865 and 2,838, respectively. At the household level, the survey provides such extensive data as sources of income, business and agricultural enterprises, detailed household expenditures, ownership of consumer durables, poverty incidence, poverty alleviation programs, social insurance, wealth, and housing conditions. With regard to work status, we can identify whether individuals worked for salary, in agriculture, or in other non-agricultural employment. The same as previous surveys, VHLSS2006 did have some drawbacks, which in turn limit our analysis to some extent. For instance, besides wages, most income sources are only identified at the household level, so it is not clear which member is the source of the income.

Methodology

As mentioned earlier, the main aim of this paper is to examine the current status and determinants of employment for the Vietnamese elderly, with the analysis provided separately for each gender. Thus, we will first provide the current status of elderly work by gender along with other individual and household characteristics. We will then identify the determinants of working status. Individual characteristics we consider include age, marital status, and educational level, and the household characteristics include residential areas, residential regions, household living arrangements, household composition, household income quintile, as well as receipt of social security benefits and remittances. We first consider overall working status, and then analyze further by differentiating between three types of working status: (i) working for wage or salary, namely **salary work**; (ii) self-employment in agriculture, forestry, and aquaculture, namely **agricultural work**; and (iii) self-employment in production other than agriculture, forestry, and aquaculture (such as trading or household business), namely **non-agricultural work**.

Identifying Determinants of Elderly Working Status

In order to identify the determinants of elderly work, we will construct a common logit model for three separate samples: male elderly, female elderly, and all elderly. Variables representing individual and household characteristics of the elderly will be

considered under this logit model. An elderly person i ($i=1, 2, \dots, N$, where N is the total number of elderly people) was working if he/she falls into one of the above-mentioned working categories. The logit model exploring the possible factors underlying working status of an elderly person is as follows:

$$w^* = \beta_i X_i + e_i, \quad (1)$$

Where w^* is a latent variable representing propensity to work that is observed through w ($w=1$ if working, and $w=0$ if non-working), X_i represents a collection of relevant characteristics of the elderly and their households, β_i s are the respective coefficients, and e_i is error term.

In addition, for each independent dummy variable, one of the sub-groups representing that variable will be chosen as a reference group. For instance, as will be mentioned later, the variable “age” includes three sub-groups, i.e. 60-69; 70-79; and 80 and over, and we will choose the 60-69 group to be the reference group. A negative and statistically significant coefficient shows that the comparative group worked less than did the reference group, while a positive and statistically significant coefficient indicates that the comparative group worked more than did the reference group.

Variables

In the logit model, the variables representing individual characteristics of the elderly include:

- (1) **Age:** The elderly will be divided into three groups, including young elderly (aged 60–69), older elderly (aged 70–79), and oldest elderly (aged 80 and over). We will use the young elderly as the reference group.
- (2) **Marital status:** We will compare married elderly and non-married elderly. The latter includes widowed, divorced, separated, and never-married elderly, and this group will be the reference group.
- (3) **Educational level:** We will compare elderly without any qualification to elderly with diplomas/qualifications, who are the reference group.

Also, we will use the following variables representing household characteristics of the elderly in our logit model:

- (1) **Residential regions:** We will consider three regions in Vietnam, including the northern region (comprising Red River Delta, Northeast, and Northwest), central region (comprising North Central Coast, South Central Coast, and Central Highlands), and southern region (comprising Southeast and Mekong River Delta). The central region will be the reference group.

- (2) **Residential areas:** We will compare elderly living in urban and rural areas. Those living in rural areas will be the reference group.
- (3) **Household composition:** We will use a variable representing the percentage of the elderly household's members who are of working age (15-59 years old) in order to evaluate the importance of the potential working force in an elderly household. In addition to this, we will also consider who is the head of the household, since this may be a significant factor influencing working decisions of the elderly as well as other household members. We will compare the elderly households headed by a female with the elderly households that are not headed by a female, in which the latter group will be the reference group.
- (4) **Living arrangements:** We divide the elderly households into four groups: (i) the households with only elderly; (ii) the households where the elderly live with children and were household heads; (iii) the households where the elderly live with children and were dependents, and (iv) other elderly households (where elderly were living with, say, grandchildren or other relatives). The last group will be the reference group.
- (5) **Receiving social security benefits:** We will use the elderly households that were not receiving any social security benefit as the reference group. Social security benefits comprise social insurance benefits (pension, on-time sickness, and job loss allowance), and social welfare allowances.
- (6) **Receiving remittances:** We will use the elderly households that did not receive any remittances as the reference group. Receipts of remittances include both internal and international remittances.
- (7) **Household income quintile:** We divide elderly households into five income groups, in which the first group was the poorest and the fifth group was the richest. The poorest group will be the reference group.

ANALYSIS OF EMPIRICAL FINDINGS

Our discussion will first provide a number of characteristics and the current working status of the Vietnamese elderly. Then, we will present our findings on the possible determinants of working status.

Demographic Characteristics and Working Status of the Elderly in Vietnam

Table 1 provides general information about the Vietnamese elderly and their working status in 2006.

[Table 1 about here]

About 44 percent of the Vietnamese elderly were working in 2006. About 52 percent of male elderly were working, while only 38 percent of female elderly were working. The propensity of males to have higher employment rates is found across all the category groups, with two exceptions that we will note. By age, young elderly accounted for less than 50 percent of the elderly population, while the oldest elderly accounted for about 15 percent. We see that employment rates decrease by age. Meanwhile, about 60 percent of the elderly were married. The majority of those not married were widows, with divorced, separated, and never married elderly accounting for only 4 percent of the elderly population. Married elderly generally experienced higher rates of employment than did the non-married elderly. By gender, we find the first important exception, as unmarried females had higher employment rates than unmarried males. This may mean the primarily widowed female elderly are forced to join the labor force, or it could more likely be a mirage as unmarried males tend to be older than unmarried females due to their shorter life expectancies and the high marriage rates.

Regarding educational level, the elderly without any diplomas/qualifications generally had higher rates of employment. One explanation for such a situation is that the majority of the elderly who did not have any diplomas/qualifications were living in rural areas, and they were mostly working in agricultural production. Conversely, most of the elderly with diplomas/qualifications were living in urban areas, and they were mainly working for salary or non-agricultural production.

In terms of residential areas, almost 28 percent of the Vietnamese elderly were living in urban areas, and the remaining 72 percent of the elderly were living in rural areas. In general, Table 1 shows that urban elderly had a significantly lower rate of employment (28 percent) than did rural elderly (50 percent). Most employment activities in rural areas are for agriculture, which is labor intensive. Also, as young people migrate to urban areas, older laborers are really needed in rural areas. Similarly, the results for residential regions indicate that elderly living in the central region had a higher rate of employment than did those living in the northern and the southern regions. The central region engages in more agricultural production as well.

By living arrangements, about 74 percent of the elderly were living with their children (54 percent were living as household heads, and about 20 percent were living as household dependents). About 22 percent of the elderly were living in the households with only elderly (including elderly living alone and other elderly living together). In

comparison with the previous findings in Giang and Pfau (2007a), the percentage of households with only elderly increased, while the percentage of the elderly living with children decreased over the past decade. As shown in Table 1, the elderly living in the households with only elderly and as household heads had higher rates of employment than did other elderly groups. The elderly living as dependents had lowest rate of employment.

Table 1 also shows that elderly living in the households receiving social security or remittances generally had lower rates of employment than did non-recipients. As both social security benefits and remittances can be alternative sources of income for the elderly, their impacts on an elderly's employment decision are important for social policy formulation. The other exception related to gender is found here, as female social security recipients are slightly more likely to work than male social security recipients.

Finally, while not shown, further decomposition into different working types indicate that female elderly had higher rates of employment in agricultural production than did male elderly, while they had lower rates of employment in salaried and non-agricultural work than did males.

Determinants of the Elderly Employment

As mentioned, we will use logit models for three samples of elderly under different working categories. This will help to see how male elderly and female elderly are different in working status, after controlling for their individual and household characteristics.

[Table 2 about here]

Table 2 provides our estimates for the elderly who were employed in any of three work categories. The table generally shows that there is not much difference in the determinants of work across gender. For both genders, there is a higher tendency to work at a statistically significant level among younger elderly, married elderly, elderly in the central region, elderly in rural areas, elderly in households with less working age people, elderly in low income households, and elderly in households not receiving social security. Characteristics which do not play a significant role for both genders include education level and remittance receipt. Though Pfau and Giang (2008) show that remittances are important for reducing poverty of the elderly households, one possible explanation for our finding is that remittances might not crowd out other income sources of the elderly households, and thus the elderly did not depend much on remittances in deciding to work. Meanwhile, the only category showing pronounced gender differences is household living arrangements. Males in only elderly households are more likely than females to work, compared to the reference group, while females in households where elderly are dependent

on their children are less likely to work than males, compared to the reference group. Working rates are also higher in female headed households.

Agricultural work is the main factor that seemingly drives most of these results. For example, most of the married elderly were living in the multi-generational families in rural areas, where they were engaged in agricultural production. In the households headed by a female, the elderly generally tended to work more than did those living in the households headed by male. One important reason is that many households headed by a female are located in rural areas, and substantially engaged in agricultural production. As such, an elderly can be a laborer in the household production. In urban areas, elderly usually have more stable and alternative income sources could explain their lessened work needs. Social security is also more common in urban areas, and Giang and Pfau (2008a) find that social security benefits are a positive factor to reduce vulnerability of the elderly to poverty.

[Table 3 about here]

Next, Table 3 presents our estimates for three working categories using the same individual and household characteristics of the elderly in three samples. We will note when these disaggregated working statuses provide different results than Table 2. Generally, the determinants of agricultural work most closely match the overall determinants, as agricultural work makes 72.6 percent of all working elderly jobs, but the determinants of salaried work often differ. For instance, marital status, region, percent of household of working age, and social security receipt are not significant factors in explaining salaried work, unlike for other kinds of work. Also, females without education qualifications are significantly less likely to engage in salaried work than educated females, though there is still no difference for men.

Some other findings and explanations for these findings are as follows. As mentioned earlier, married elderly were usually heads of multi-generational families in rural areas, which had a larger size than those of non-married elderly, and as such they might need to work for the household production. For agricultural work, the results show that the elderly living in the northern and the southern regions generally tended to work less than did the elderly living in central region. For non-agricultural work, the elderly living in the northern region tended to work more than did the elderly living in the central region, while the elderly living in the southern region and the central region did not show any differences for this work. Such differences between working elderly in three regions could be explained by the differences in economic structure between these regions, in which the northern and the southern regions have more developed industrial clusters,

which in turn diversify household production, than did the central region where agricultural production activities are still predominant. Conversely, the elderly living in urban areas tended to work more in salary work and non-agricultural production than did their counterparts in rural areas.

There were also no differences between the elderly working for salary that were living a household headed by a male or a female, as all coefficients are not statistically significant. In the agricultural production, however, the results show that the elderly living in a household headed by a female generally tended to work more than did the elderly living in a household headed by a male. Conversely, the elderly living in a household headed by a female generally tended to work for non-agricultural production less than did the elderly living in a household headed by a male. These findings could result from a fact that most of the elderly households headed by females were in rural areas, and they were much engaged to agricultural production rather than trading or business activities.

In terms of living arrangements, there were generally no significant tendency to work for salary and non-agricultural production for both male and female elderly. In the pooled data, the estimated results show that, for salary work, the elderly living in the other arrangements (such as with grandchildren or other relatives) tended to work more than did other elderly groups. Particular findings regarding living arrangements are that the elderly, both male and female, living in the households with only elderly or in the households where they were heads tended to work in agricultural production more than did the elderly living in other arrangements, while the elderly living as dependents tended to have agricultural work less than did the elderly living in other arrangements.

However, the estimates for the elderly working in agricultural production show that receipts of social security benefits might help both males and females to get more stable income, so that they could reduce their work. Lastly, the estimates for household income quintiles show that the elderly living in the households in upper income quintile generally tended to work in salary work and agricultural production less than did the elderly living in the poorest households. Conversely, the elderly living in richer households tended to work in non-agricultural production more than did the elderly living in the poorest households, as all estimated coefficients are positive and statistically significant. One possible explanation is that households with higher income might usually be engaged in trading/business activities, in which the elderly could be laborers.

POLICY DISCUSSION

The challenges posed by an aging population in Vietnam have emerged as an important problem for social policy makers, as both the absolute and relative numbers of the elderly have been increasing over the past decade. The current structure of the elderly population provides an opportunity for Vietnam to design and create a proper welfare system, as the share of the elderly is still less than 10 percent, and a large proportion of the elderly is actively contributing to their households and the country in various ways (NACSA, 2006; Giang and Pfau, 2007a; and Evans *et al.*, 2007). This does not mean, however, that Vietnam can delay social welfare policies toward an expected aging population. In the past decade, the country has experienced substantial changes in social structure, with more elderly living on their own away from their children. Given the current social security system with low coverage rates and urban predominance, such a situation raises numerous policy issues, and requires alternative policy formulations toward elderly people. Among a variety of risk-coping mechanisms for later life, working is usually a good choice for elderly people to maintain their income and health. As shown in this paper, differences between elderly working for salary, agricultural production, and non-agricultural production indicate that there is a great need for policy measures to appropriately respond to different groups of elderly with diverse characteristics. Based on our analysis, we can distill the following directions to formulate policy priorities in light of emerging concerns about the elderly population.

First, the elderly at advanced ages, regardless gender, tended to work less than younger elderly groups. Giang and Pfau (2008a) also show that older elderly are the most vulnerable to poverty. Without stable income sources or support from others, they would be more vulnerable, especially under on-going swift urbanization and urban-rural migration. Therefore, these older elderly people must be a priority for designing any social welfare policy.

Second, regional differences also need to be prioritized in all social and economic agendas. This paper finds that elderly living in the central region, which is poor and substantially engaged in agricultural production, tended to work more than did elderly in the other two regions where industrial bases are more developed. Given other factors, Giang and Pfau (2008a) also point out that these elderly people are more vulnerable to poverty than other elderly groups. As such, without promotion measures for economic growth, many people living in this poor region, including the elderly, will forever experience poverty. Promoting non-farm activities, especially local industrial manufacturing production, will help poor regions to grow. In terms of living arrangements,

such policies might reduce a large flow of migration from poor rural areas to urban areas, so that elderly could receive more support from their children and relatives once living together or nearby. Therefore, further investments in physical, economic, and human resources for the highly disadvantaged regions will benefit millions of people, including the elderly.

Third, in both male and female elderly households working in agriculture, the working-age population plays an important role in economic development and security, as this group of people is a positive factor to help the elderly to reduce their work. Therefore, policies aimed at creating employment for this group are extremely imperative. Vocational training, credit provision, and non-farm production are some possible measures to pursue.

Fourth, under rapid changes stemming from economic transformation and integration, a comprehensive social security system aimed at protecting vulnerable groups, including the elderly, is desirable and unavoidable. It is particularly true for the elderly working in agricultural production, as social security benefits could help them to reduce their agricultural work. In other words, social security benefits could become a stable and alternative source of income, so that the elderly could reduce their work. Given limited financial capacity and weak administration, Giang and Pfau (2008b, c) argue that a universal or rural-oriented non-contributory pension scheme in Vietnam would significantly help the elderly people to improve their living standards via increased expenditure, as well as reduce their poverty incidence.

Fifth, this paper finds that after controlling for other factors, remittances actually did not have any impacts on elderly working decisions, which is a contrast to expectations. Remittances are not crowding out other sources of income, so that the elderly could not rely on only remittances. However, it does not mean that policies toward both internal and international remittances are not important in terms of elderly work, especially agricultural work. Recently, under limited management capacity and resources, a large flow of rural-urban migrants has resulted in numerous social and economic problems, such as low-quality health care, discriminatory education, and unsecured living arrangements, in both the departure and arrival places of the migrants (Pham, 2007). The so-called “skip-generation” households, in which elderly live with only their grandchildren, have become more popular in many rural areas. As such, the elderly are left behind with more responsibilities under limited social and financial sources, which in turn may force them to work in order to earn a living, or make them more vulnerable to destitution. Therefore, regarding this issue, it is necessary that policy makers work on both urban and rural areas.

Some policy directions toward managing migration and promoting remittances can be considered, such as reducing “pull” and “push” factors so as to promote rural development without huge flows of migration, encouraging non-farm activities, especially industrial manufacturing and services, promoting social networks for migrants, and taking various stakeholders into policy making processes.

CONCLUDING REMARKS

Undergoing rapid social and economic changes, an aging society produces a potential concern for public policy, particularly the welfare policies for protecting the elderly. Under swift socio-economic changes and limited coverage of the social security system, working, among other possibilities, is one of the risk-coping strategies for the elderly. Understanding the elderly’s working types and their determinants is necessary for the government to provide appropriate social security policies to protect the most vulnerable people. This paper pursued these objectives using the VHLSS 2006 with a variety of individual and household characteristics of the elderly. Our results generally show that, for both male and female elderly, older elderly, elderly living in the northern and the southern regions and urban areas, in households with more working-age people, and in households with higher income tended to work less than did other elderly groups. Educational level did not have any significant impact on the elderly work. In addition, the elderly living in households receiving social security benefits tended to work less, while those in households receiving remittances did not show a clear tendency. Our policy implications emphasize the importance of policies to implement a comprehensive social security scheme coping with an expected aging population, as well as to create jobs for working-age people in a still relatively young country.

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TABLES

Table 1: Demographic Characteristics and Elderly Working Status, 2006

Indicators	Percent of Elderly Population	Have you worked? (Percentage of Each Category)		
		Male	Female	All
<i>Elderly People</i>		51.9	38.2	43.9
<i>Age</i>				
60 – 69	49.1	67.5	56.9	61.4
70 – 79	35.6	44.2	28.6	35.3
80 and older	15.3	11.0	5.8	7.6
<i>Marital Status</i>				
Married	60.9	56.9	52.2	54.9
Non-married	39.1	24.5	27.2	26.8
<i>Education</i>				
Not having Diplomas/Qualifications	27.7	53.0	45.3	50.2
Having Diplomas/Qualifications	72.3	50.6	36.4	40.7
<i>Areas</i>				
Urban	27.7	34.7	23.1	28.0
Rural	72.3	58.7	43.9	50.0
<i>Region</i>				
Northern	37.4	48.4	43.1	45.4
Central	26.4	62.0	41.6	50.0
Southern	36.2	48.0	31.0	38.0
<i>Household Living Arrangements</i>				
Only Elderly	22.1	58.3	56.1	57.0
Elderly as Household Heads	54.1	56.9	43.7	49.9
Elderly as Household Dependents	20.3	17.6	13.9	14.8
Other Elderly Groups	3.5	44.9	29.9	36.9
<i>Household Receiving Social Security?</i>				
Yes	59.4	35.7	36.2	36.0
No	40.6	63.9	43.3	55.4
<i>Household Receiving Remittances?</i>				
Yes	96.4	51.3	38.1	43.5
No	3.6	62.3	42.3	54.8

Source: Own calculations using VHLSS 2006.

Table 2: Results of the Logit Model for Elderly Working Status

Variables	Working?		
	Male	Female	All
Individual Characteristics			
<i>Age</i>			
60-69 (ref.)	--	--	--
70-79	-1.174*	-1.211*	-1.164*
80+	-2.861*	-2.884*	-2.818*
<i>Marital Status</i>			
Unmarried (ref.)	--	--	--
Married	0.535*	0.711*	0.621*
<i>Educational Level</i>			
Having Diplomas/Qualifications (ref.)	--	--	--
Not having Diplomas/Qualifications	-0.016	-1.153	-0.051
Household Characteristics			
<i>Residential regions</i>			
Central (ref.)	--	--	--
Northern	-0.535*	-0.158*	-0.124*
Southern	-0.464*	-0.620*	-0.545*
<i>Residential areas</i>			
Rural (ref.)	--	--	--
Urban	-0.763*	-0.955*	-0.861*
<i>Percentage of Working Age</i>	-3.895*	-1.970*	-2.473*
<i>HH headed by a Female?</i>			
No (ref.)	--	--	--
Yes	--	0.125	0.258***
<i>Living Arrangements</i>			
Other arrangements (ref.)	--	--	--
Only elderly	0.851***	0.471	0.523***
Elderly as household heads	1.179**	0.984**	0.952*
Elderly as dependents	-0.341	-0.880*	-0.657*
<i>Receiving Social Security?</i>			
No (ref.)	--	--	--
Yes	-0.750*	-0.585**	-0.827*
<i>Receiving Remittances?</i>			
No (ref.)	--	--	--
Yes	-0.289	0.020	-0.189
<i>Household income quintile</i>			
Quintile 1 (poorest) (ref.)	--	--	--
Quintile 2	-0.128	0.009	-0.038
Quintile 3	0.216	-0.069	0.056
Quintile 4	-0.148	-0.166	-0.147
Quintile 5 (richest)	-0.256	-0.406**	-0.303**
<i>No. of Observations</i>	1601	2264	3865
<i>LR χ^2 (17)</i>	489.52	744.09	1286.54
<i>Prob > χ^2</i>	0.0000	0.0000	0.0000
<i>Pseudo R²</i>	0.2218	0.2458	0.2416

Note: *, **, and *** denote statistically significant coefficient at 1 percent, 5 percent, and 10 percent significance level, respectively; (ref.) denotes the reference group.

Source: Own calculations using VHLSS 2006.

Table 3. Determinants of Elderly Work, by Category

Variables	Salary Work			Agricultural Work			Non-agricultural Work		
	Male	Female	All	Male	Female	All	Male	Female	All
Individual Characteristics									
<i>Age</i>									
60-69 (ref.)	--	--	--	--	--	--	--	--	--
70-79	-1.057*	-0.952*	-0.945*	-0.875*	-1.132*	-0.982*	-0.750*	-0.686*	-0.723*
80+	-3.044*	-2.758*	-2.758*	-2.625*	-2.780*	-2.670*	-1.480*	-1.895*	-1.760*
<i>Marital Status</i>									
Unmarried (ref.)	--	--	--	--	--	--	--	--	--
Married	-0.119	-0.578	-0.124	0.583*	0.731*	0.640*	0.423*	0.665	0.406**
<i>Educational Level</i>									
Having Diplomas/Qualifications (ref.)	--	--	--	--	--	--	--	--	--
Not having Diplomas/Qualifications	0.129	-0.650***	0.080	-0.107	-0.048	-0.077	-0.099	0.010	-0.092
Household Characteristics									
<i>Residential regions</i>									
Central (ref.)	--	--	--	--	--	--	--	--	--
Northern	0.025	-0.101	0.041	-0.659*	0.114	-0.218**	-0.152	-0.341***	-0.264***
Southern	0.286	0.424	0.293	-0.674*	-1.196*	-0.921*	-0.341	0.132	-0.029
<i>Residential areas</i>									
Rural (ref.)	--	--	--	--	--	--	--	--	--
Urban	0.355	0.093	0.342***	-1.561*	-1.661*	-1.595*	0.763*	0.151	0.398*
<i>Percentage of Working Age</i>									
	-0.988	-5.605	-2.760	-4.113*	-1.744**	-2.285*	-3.127	-1.972	-2.244**
<i>HH headed by a Female?</i>									
No (ref.)	--	--	--	--	--	--	--	--	--
Yes	--	0.767	-0.216	--	-0.264	0.484*	--	0.330	-0.485**
<i>Living Arrangements</i>									
Other arrangements (ref.)	--	--	--	--	--	--	--	--	--
Only elderly	-0.375	-1.120	-1.08***	0.766***	0.295***	0.297***	-0.716	-1.171	-0.768
Elderly as household heads	-0.557	-1.724	-1.432**	1.017***	0.658**	0.618***	-0.842	-1.208**	-0.854**
Elderly as dependents	-0.391	-1.444	-1.156**	-0.064*	-0.729***	-0.427**	-0.320	-0.557	-0.351
<i>Receiving Social Security?</i>									
No (ref.)	--	--	--	--	--	--	--	--	--
Yes	0.262	0.621	-0.310	-0.814*	-0.737**	-0.840*	-0.370*	-0.521	-0.166
<i>Receiving Remittances?</i>									
No (ref.)	--	--	--	--	--	--	--	--	--
Yes	-0.492	-0.323	-0.619**	-0.369	0.183	-0.148	0.523	0.098	0.385

Household Income quintile									
Quintile 1 (poorest) (ref.)	--	--	--	--	--	--	--	--	--
Quintile 2	-0.151	-0.416	-0.257	-0.151	0.039	-0.033	0.271	-0.054	0.042
Quintile 3	-0.105	-0.794**	-0.368	0.186	-0.062	0.048	0.606***	0.212	0.328***
Quintile 4	-0.402	-0.828**	-0.544**	-0.135	-0.223	0.171	0.624***	0.220	0.343***
Quintile 5 (richest)	-0.239	-1.697*	-0.505*	-0.428**	-0.504**	-0.454*	0.657***	0.380	0.423**
No. of Observations	1601	2264	3865	1601	2264	3865	1601	2264	3865
LR $\chi^2(17)$	53.60	82.25	112.36	529.78	751.20	1300.35	80.54	134.03	195.68
Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R²	0.0687	0.1378	0.0799	0.2409	0.2698	0.2569	0.0781	0.0912	0.0782

Note: *, **, and *** denote statistically significant coefficient at 1 percent, 5 percent, and 10 percent significance level, respectively; (ref.) denotes the reference group.

Source: Own calculations using VHLSS 2006.