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Productive activities of the older people in Vietnam

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ABSTRACT

Productive activities are crucial factors leading to an "active aging" population. With the case of Vietnam, this paper aimed to explore the productive activities among Vietnamese older people by using data from the Vietnam Aging Survey (VNAS), which was conducted in 2011 as the first-ever nationally representative survey on persons aged 50 and over in Vietnam and contained 2789 older people (those aged 60 and over) representing all older people living in 6 ecological regions and urban and rural areas in Vietnam. Productive activities included working and/or taking care of any (great)grandchild(ren) in the past 12 months prior to the survey. Using paired t-tests and probit models, we compared the differences in these productive activities among older people in terms of sex and living area. The results from various t-tests showed that educational attainment, health status and poverty status were key factors differentiating older men and women and rural and urban older people in these productive activities. For the probit estimations in terms of both gender and living location, the results indicated that age, education, health status and supportive children were determinants of working decision, while age, marital status and size of household were consistently important factors of taking care of (great) grandchildren. The paper also discussed policy implications for socio-economic and health protection in promoting older people's productive activities as well as protecting them from a variety of risks and vulnerabilities.

1. Introduction

With improvements in nutrition, sanitation, health care, education, and economic growth, the world's population is aging due to two main factors, i.e., lower fertility rates and increasing life expectancies. The older population (defined as those aged 60 and over) reached about 900 million people in 2017, accounting for 12% of the global population. According to the United Nations (2017), the older population is projected to reach 1.4 billion by 2030, and 2.2 billion in 2050. Aging is taking place at a much faster rate in developing countries today than in developed countries since the 1960s.

As one of the fastest aging countries in the region, Vietnam has witnessed a decline in total fertility along with higher life expectancies for both men and women, which has resulted in a declining number of children and a growing portion of older people in the total population. The older population is projected to increase substantially in the coming decades, from about 12% in 2017 to about 35% in 2050 (United Nations, 2017). Existing studies about the impact of the aging population on economic growth and social security financing in Vietnam show that the aging population would have negative impacts on economic growth and pension fund balance, ceteris paribus (UNFPA and MPI, 2015; MPI & World Bank, 2016). Such negative impacts, however, would be mitigated if labor productivity of current workers—who will be older people in the future— is improved (MPI & World Bank, 2016). Another important aspect of remaining productive and increasing productive activities for older people lies in enabling them to reach so-called "active aging" with income security, health protection, and social participation as equally important objectives (UNFPA, 2011).

As such, to understand the productive activities of older people in Vietnam, this paper will explore how they are involved in these activities and what the determinants of these activities are. The paper is composed of four sections. In Section 2, we will provide our definition of productive activities, along with a literature review focusing on differences in Vietnamese older people's productive activities in terms of sex and the rural-urban divide. Then, Section 3 will describe data and methods to analyze productive activities and their determinants for older people in Vietnam. We will provide findings and their policy implications in Section 4, while we conclude the paper in the last Section.

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2. Productive activities

2.1. Definition of productive activities

There has been a variety of studies defining and measuring productive activities of older people. Productive behaviors could include paid work, unpaid work at home, and helping others (Herzog and Morgan, 1992); paid work, care-giving, informal help, formal volunteering, and home maintenance and housework (Burr et al., 2007); market activities, non-market activities with economic value, formal social and civic activities, and informal social assistance (Morrow-Howell and Wang, 2013). In this paper, however, productive activities cover the following domains:

(1) Working: Represented by any work in both the regular and irregular economy. A person is considered a working person if in the past 7 days he/she had done any (legal) job for at least one hour to earn income for self and family;
(2) Taking care of any (great)grandchild under 10 years old.

2.2. Literature review

To date, there have been few studies about productive activities of older people in Vietnam, and they mostly focus on work and employment of older people. For example, Knodel and Truong (2002), using data from the Population and Housing Census 1999, found that the percentage who remained active in the workforce was much higher for rural elderly than for urban elderly, and that older women were less likely to be economically active than men. Bui et al. (1999) analyzed the datasets from the 1996 Survey of Elderly in the Red River Delta and the 1997 Survey of Elderly in Ho Chi Minh City and its environs and found that many older people kept working into their 60s and 70s, and their adult children, both co-residing and non-residing ones, were crucial sources of financial and material support. With the same datasets used in Bui et al. (1999), Friedman et al. (2002) investigated patterns of working and withdrawing from the workforce of Vietnamese older people and found that age and health status were important factors determining older people' decision to continue working. Also, living area (i.e., urban or rural) and employment sectors were significant, and older people living in rural areas were significantly more likely to work than their urban counterparts.

Using data from the Vietnam Household Living Standard Survey 2006 (namely, VHLSS, 2006) which included 3865 older people living in 2838 households, Giang and Pfau (2009) described the working status and determinants of employment of Vietnamese older men and women. They showed that, regardless of gender, older people at more advanced ages, living in urban areas, living in households with more working-age people, living in households receiving social security benefits, and living in households with higher income tended to work less than their counterparts did. They also found that educational level did not affect older people's decision to work. Surprisingly, they found that older people receiving social security benefits were less likely to work, while receiving remittances had no impacts on their employment decision.

Giang and Le (2015), using the first-ever nationally representative data for older people, namely the Vietnam Aging Survey (VNAS) in 2011, discussed labor force participation of older people in Vietnam. They found significant differences in the working decisions of older people in terms of gender: older men had a significantly higher rate of participation in the labor force than older women did, and married men, men with ailments or women living in non-poor families or bigger size households had higher probability of working than their counterparts. Even Giang and Nguyen (2016), focusing only on rural older people, found similar results.

In regard to taking care of (great)grandchildren, all the existing studies about Vietnamese older people only provided statistical descriptions. For example, Giang and Pfau (2007) provide an overview of older people's living and working conditions, using data from VHLSS between 1993 and 2006. The Vietnam Women's Union (VWU, 2010) analyzed living situations and daily housework of rural female older persons, using surveys from some provinces across Vietnam. Using the data from VNAS 2011, VWU (2012) provided percentages of older men and women doing housework, house maintenance, and taking care of their (great)grandchildren. These studies, however, did not explore the possible determinants of older people's decisions to provide such non-paid work.

3. Data and analytical methods

3.1. Data

To provide analyses on productive activities of older people in Vietnam, this paper will utilize the data from the Vietnam Aging Survey (VNAS). The VNAS, conducted in late 2011, was the first-ever nationally representative survey on persons aged 50 and over in Vietnam. This survey was designed and sampled with data from the 2009 Population and Housing Census. Eligible interviewees were chosen using a multi-stage sampling method. Using the probability proportional to size (PPS) method, more than 4000 people aged 50 and over from 200 communes in 12 provinces representing 6 ecological regions in Vietnam were defined and surveyed. In this paper, the sample size comprised 2789 older people (those aged 60 and over), of which 1683 were females and 1106 were males; 2050 lived in rural areas, while 739 lived in urban areas.

The VNAS provided individual and household information of older people such as education, marital status, work status, living conditions, health conditions, and roles and contributions of older persons to their families (VWU, 2012). As such, we are able to analyze the situation of working and taking care of (great)grandchildren by older people.

3.2. Research methods

In this paper, we will apply the following methods.

3.2.1. Tabulations and t-tests

This paper will provide various frequency tables of working and taking care of (great)grandchildren based on several demographic and socio-economic characteristics of older people. In order to test the statistical significance of the differences by sex (i.e., men vs. women) and by living area (i.e., those living in urban area vs. those living in rural area), we will employ paired t-tests comparing two groups along with different individual and household characteristics. The statistical significance levels include 1%, 5%, and 10%.

3.2.2. Probit model to identify determinants of productive activities of older people

3.2.2.1. Models. In order to identify the determinants of both types of productive activities by older people, we will use a probit model. Variables representing individual and household characteristics of older people will be considered for each sex (i.e., male vs. female) and residential location (i.e., urban vs. rural). An older person I ($i = 1, 2, \ldots, N$, where N is the total number of elderly people) is considered to be working or taking care of (great)grandchildren ($p_i = 1$) if he/she answers "Yes" to the question "Are you currently working?" for the case of working, and to "Did you take care of any (great)grandchild under 10 years old in the past 12 months?". The probability of "working" or the probability of "taking care of any (great)grandchild under 10 years old in the past 12 months" can be estimated with a probit model as follows:

$$P\ (p_i = 1) = \beta_i X_i + \varepsilon_i,$$

where:

Table 1
Models and respective variables.

Probit model for 'Working"		Probit model for "Taking care of (great)grandchildren"	
Dependent variable	Working	Dependent variable	Taking care of any (great)grandchildren in the past 12 months
Independent variables	• Age • Marital status • Education • Self-assessed health status • Household poverty status • Receiving support from any child • Giving support to any child • Size of household	Independent variables	• Age • Marital status • Education • Self-assessed health status • Household poverty status • Receiving support from any child • Giving support to any child • Proximity between older people and their children • Size of household

- X_i represents a range of relevant characteristics of older people and their households;
- β_i are the respective coefficients;
- e_i is the error term and assumed to follow normal distribution.

For each dummy variable subgroup, one member will be chosen as the reference group. For example, the variable "respondents' self-assessed health status" covers two sub-groups: poor health and good health, and one group would be the reference group, while the other will be the comparative group. A negative and statistically significant coefficient shows that the comparative group is less likely to work or take care of any (great)grandchildren than the reference group, and vice versa.

To see how older people are different from each other in working or in taking care of (great)grandchildren in terms of sex and living area, we will run separate models for male vs. female older people, and urban vs. rural older people.

In all calculations, sampling weights will be used so that the results will be representative of the whole as well as sub-groups of the older population in consideration.

3.2.3. Variables

3.2.3.1. Dependent variables.

- Working: The variable representing "working" will take the value 0 if an older person was not working, and 1 if he/she was working.
- Taking care of (great)grandchildren: The variable representing this will take the value 0 if an older person was not taking care of any (great)grandchild in the past 12 months, regardless of whether their parents were living in the same household or elsewhere.

3.2.3.2. Independent variables. The determinants include both demographic and socio-economic factors. Variables representing individual characteristics include:

- Age: In the probit models, there are three age groups, including 60–69 (young old), 70–79 (middle old), and 80 and over (oldest old). The first is the reference group.
- Marital status: This is another demographic variable likely to affect the labor force participation or doing housework of older people. There will be three groups: married, widowed, and others (including never married, divorced, and separated). The last group will be the reference group.
- Education: Education levels are divided into two sub-groups: (i) those who did not go to school and who only completed lower secondary, and (ii) those who had completed upper secondary and above. The former will be the reference group.
- Self-assessed health status: Older people are classified into two groups: (i) those who self-assessed their health as normal, good or very good will receive value 1, and (ii) those who self-assessed their health as poor or very poor will receive value 0. The latter will be the reference group.

Variables representing household characteristics include:

- Household poverty status: An older person is considered poor if he/she was living in a poor household. In this paper, poor older people will be the reference group.
- Receiving support from any child: It is defined as the situation where an older person received support (either in-cash or in-kind) from any child regardless of whether this child was co-residing with the older person. The group of older people who did not receive any support will be the reference group.
- Giving support to any child: It is defined as the situation where an older person provided support (either in-cash or in-kind) to any child regardless of whether this child was co-residing with the older person. The group of older people who did not give any support will be the reference group.
- Proximity between older people and their children: It is classified by 5 types where children were: (i) living together or nearby (including living in the same household/next door/the same village or resident unit/the same commune); (ii) living in the same district; (iii) living in the same province; (iv) living in another province; and (v) living in another country. The first type will be the reference group.
- Size of household: This shows the number of household members. In the probit model, this is measured by logarithm of household size.

Table 1 summarizes variables for defining determinants of working or taking care of (great)grandchildren among older people.

4. Findings and analyses

4.1. Working and taking care of (great)grandchildren under 10 years of age

Table 2 presents percentages of older men and women and urban and rural older persons who were working in 2011.

In general, by sex and living area, the percentage of older people working decreased as they advanced in age. By sex and age, males aged 60–69 had significantly higher rates of working than their female counterparts, but the opposite was observed for those aged 80 and over. There was no significant difference in terms of sex for the age 70–79 group. By living area and sex, no statistical differences were observed.

The differences in the percentage of working older people by their marital status and sex are all significant at a 1-percent level. Married men participating in the labor force accounted for a large component of their group (47.84%) and the component of female older people was also quite large (40.88%), but still lower than their male counterparts. Unlike the married group, females who were widowed and in other marital statuses (divorced, separated or never-married) had higher working rates than did older males. As for living area, the highest participation rates were for the separated, divorced or never-married older people in both areas, and a relatively big significant difference

Table 2
Percentage of older people working.
Source: Own calculations, using VNAS 2011

Characteristics	Male	Female	M-F Difference	Urban	Rural	U-R Difference
Age						
60-69	65.97	54.27	11.7***	38.42	69.44	−31.02
70-79	35.06	28.15	6.91	21.79	35.04	−13.25
80 and over	9.48	11.2	−1.72***	7.9	11.66	−3.76
Sex						
Male	n.a	n.a	n.a	30.95	50.41	−19.46
Female	n.a	n.a	n.a	24.16	42.29	−18.13
Marital status						
Married	47.84	40.88	6.96*	28.21	52.22	−24.01
Widowed	14.7	26.02	11.32*	19.14	26.18	−7.04
Others	12.07	58.74	46.67*	40.76	61.66	−20.9**
Education attainment						
Lower secondary and less	45.93	38.04	7.89*	27.65	45.75	−18.1*
Above lower secondary	39.83	21.86	17.97*	25.67	45.85	−20.18*
Self-rated health status						
Poor	39.28	31.81	7.47*	21.16	39.75	−18.59*
Good	51.97	46.99	4.98*	34.48	59.01	−24.53*
Living area						
Urban	30.95	24.16	6.79	n.a	n.a	n.a
Rural	50.41	42.29	8.12	n.a	n.a	n.a
Household poverty status						
Poor	34.58	47.60	13.02*	41.64	43.10	−1.46*
Non-poor	45.89	34.21	11.68*	26.06	46.46	−20.4*

Note: *, **, *** denote statistically significant difference at the 1, 5 and 10-percent significance level, respectively.

(20.9 percentage points) between urban and rural areas also existed in this group. For the married and widowed groups, the rates of economically active older people varied between locations, but these variations were not statistically significant.

The tabulation results for older people categorized by their education levels and sex are statistically significant at 1%. For both men and women, the rates of working people whose formal education stopped at lower secondary school or even lower, accounted for approximately one half of their population (45.93% and 38.04%, respectively). The rates of workforce participation by older men and women with higher levels of education were much lower, only 39.83% for men and 21.86% for women. The difference between men and women of the second group with higher education (17.97 percentage points) was larger than the first one with lower levels of education. Normally, older people with higher formal education receive their retirement pension which is relatively helpful in their life after their working age, so they tend to work less for their living. By living area, the estimated differences for labor force participation rates in rural and urban areas by education levels were significant at a 1-percent level. The highest percentages for those with lower secondary and lower levels of education in the workforce were in urban (27.65%) and rural areas (45.75%). For those with above lower secondary education level, the difference in participation rates between urban and rural areas was even greater, at 20.18 percentage points.

With regard to self-rated health status, working men and women who reported to be in good health made up relatively large proportions (51.97% and 46.99%, respectively) of their groups, while 39.28% and 31.81% of those who assessed themselves to be in poor health were still participating in the labor force. The differences between men and women are at a 1-percent statistical significance. In terms of area of living, the rate of working by older people with good health status in the urban area was relatively higher than that of those with poor health assessments. Similarly, in rural areas, the rate of people who reported to be in good health participating in the workforce was high compared to those in poor health. The differences for urban and rural older people with poor and good health were 18.59 percentage points and 24.53 percentage points, respectively, and both were significant at a 1-percent significance level.

In terms of household living area, the difference between the proportion of older male workforce participants among male respondents and that for females was 6.79 percentage points in urban areas and 8.12 percentage points in rural areas. Regardless of rural or urban location, the rates of working for males were higher than those for their female counterparts. However, these figures are not statistically significant.

By sex, living in poor households shows different trends of working among and between males and females. For males, working rate for the non-poor was 45.89% which was higher than that for their poor counterparts (34.58%). For females, working rate for the non-poor (34.21%) was much lower than that of the poor (47.60%). By poverty status, differences in working rates among both males and females were statistically significant: males living in poor households tended to work less than did their female counterparts, while – in a reverse way – males living in non-poor households tended to work more than did their female counterparts. Such figures could be elucidated by the fact that poor households were usually in rural areas where the majority of work and income sources were from agricultural activities where women account for the major part of the labor force.

In contrast, in the rural area, a higher rate for working females living in poor families was found, which might be caused by low-income jobs that poor workers normally engaged in. The relatively big distinctions between males and females are statistically significant at 1-percent significance level. For living area, working older people accounted for a really significant portion of the poor older population in urban and rural areas (41.64% and 43.1%, respectively). The portion of the non-poor participants in urban areas was quite small compared with that of rural areas (26.06% vs. 46.46%), and the difference is statistically significant at the 1-percent significance level.

Fig. 1 presents types of job for older people. Among the working older people, about 5% worked as salary/wage workers, and the rest were self-employed or unpaid family workers. By age, the proportion of those less than 80 years old working in the agricultural sector was much higher than those 80 years old and older. However, the proportion of people age 80 years old and older who are self-employed or an unpaid family worker was higher than those who are under 80 years old. In terms of living area, the proportion of self-employed older people in urban areas was much higher than that of those living in rural areas. A contrast observation can be seen with agriculture jobs.

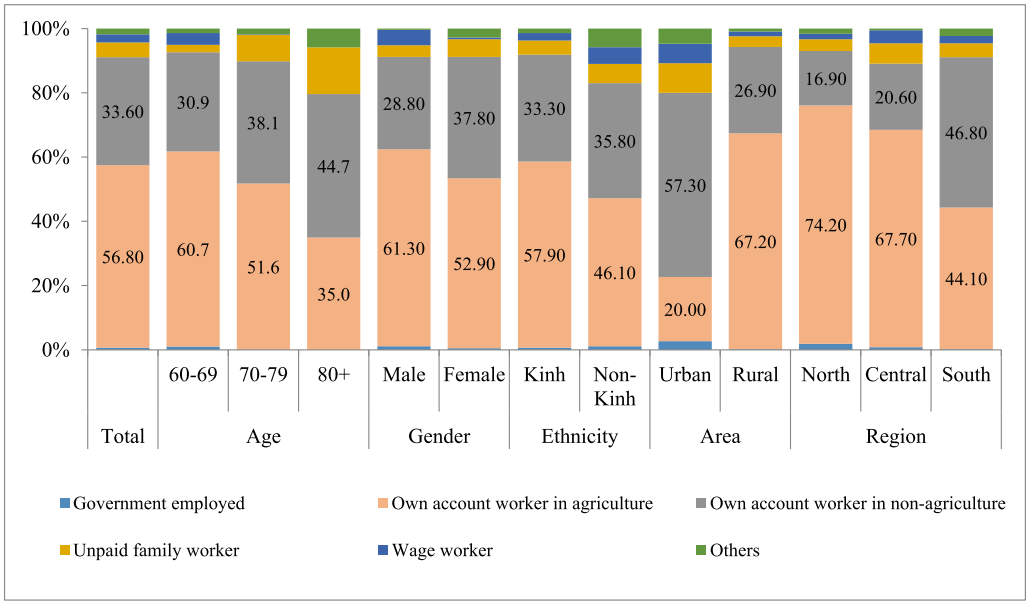

Fig. 1. Types of jobs for working older people (% by population).
Source: Own calculations, using VNAS 2011

Table 3
Percentage of older people who took care of great (grand) children under 10 years old.
Source: Own calculations, using VNAS 2011

	Total (N = 2653)	Male (N = 1069)	Female (N = 1584)	M-F Difference
Total	36.11	38.43	34.29	4.14
Age group				
60-64	53.91	51.44	55.87	−4.43
65-69	43.17	37.78	50.88	−13.1*
70-79	34.64	41.30	29.65	11.65
> =80	12.96	16.16	11.16	5.00
Area				
Rural	37.90	43.73	33.56	10.17
Urban	35.28	36.08	34.64	1.44

Note: *, **, *** denote statistically significant difference at the 1, 5 and 10 percent significance level, respectively.

Table 4
Average number of months spent taking care of (great)grandchild(ren) under 10 years old in the past 12 months (among those who provided care).
Source: Own calculations, using VNAS 2011

	Total (N = 995)	Male (N = 413)	Female (N = 582)	M-F Difference
Total		9.68	10.03	−0.35*
Age group				
60-64	9.43	9.07	9.69	−0.62
65-69	9.89	10.21	9.55	0.66*
70-79	10.22	9.89	10.55	−0.66
> =80	10.64	10.15	11.04	−0.89
Area				
Rural	9.76	9.69	9.82	−0.13
Urban	10.08	9.65	10.49	−0.84*

Note: *, **, *** denote statistically significant difference at the 1, 5 and 10 percent significance level, respectively.

Table 5
Percentage of older people who took care of (great)grandchild(ren) under 10 years old when their parents were living away.
Source: Own calculations, using VNAS 2011

	Total (N = 2649)	Male (N = 1068)	Female (N = 1581)	M-F Difference
Total	7.50	8.18	6.96	1.22*
Age group				
60-64	11.35	12.06	10.79	1.27
65-69	10.48	9.56	11.79	−2.23
70-79	4.36	6.82	2.50	4.32**
> =80	5.29	3.39	6.36	−2.97
Area				
Rural	8.49	9.50	7.67	1.83**
Urban	5.38	5.22	5.49	−0.27

Note: *, **, *** denote statistically significant difference at the 1, 5 and 10 percent significance level, respectively.

In regard to taking care of their (great)grandchild(ren), Table 3 presents the percentage of older people taking care of their (great) grandchild(ren) under 10 years old in the past 12 months prior to the survey. In general, the proportion of older people taking care of their (great)grandchild(ren) decreased in the higher age groups. Between older men and women, only those aged 65–69 showed a significant difference in terms of sex. In regard to living area, males and females had different rates of taking care of their (great)grandchild(ren), but these differences were not statistically significant.

Table 4 presents in further detail the average number of months that an older person had taken care of his/her (great)grandchild(ren) in the past 12 months.

In general, there was a significant difference between older women (10.5 months in rural areas vs. 9.8 months in urban areas). The number of months was higher for those at more advanced ages. This could be explained by the fact that older people at more advanced ages usually co-reside with their children and (great)grandchild(ren). By area of living, older people living in rural areas had higher average months to take care of their (great)grandchild(ren) than did those living in urban areas. Only older people in the 65–69 age group and living in urban areas showed statistical differences in terms of sex.

Migration of children meant that older people had to play a vital role as the main care-takers of their (great)grandchild(ren). Table 5 presents the percentage of older people who had taken care of their (great)grandchild(ren) under 10 years old in the past 12 months when their parents were living away from home. In general, a higher rate of older men did so than older women (8.18% vs. 6.96%), and the difference was statistically significant at a 10-percent level. Except for

Table 6
Average number of (great)grand children to be taken care of in the past 12 months when their parents were living away.
Source: Own calculations, using VNAS 2011

	Total (N = 189)	Male (N = 88)	Female (N = 101)	M-F Difference
Total	1.65	1.78	1.52	0.26
Age group				
60-64	1.93	2.38	1.53	0.85
65-69	1.46	1.26	1.69	−0.43*
70-79	1.47	1.48	1.44	0.04
> =80	1.32	1.34	1.31	0.03
Area				
Rural	1.72	1.96	1.48	0.48
Urban	1.35	1.06	1.69	−0.63

Note: *, **, *** denote statistically significant difference at the 1, 5 and 10 percent significance level, respectively.

people in the 70–79 age group, there were no statistical differences between older men and women who were taking care of their (great) grandchild(ren) under 10 years old when their parents were living away. No statistical difference for men and women in urban areas was found, but there was a statistically significant lower rate for rural men and rural women. This reflects the fact that in any outmigration, older women were more likely to be left behind than older men, so they had to take care of their families, including their (great)grandchild(ren) under 10 years old.

Table 6 shows the average number of (great)grandchild(ren) which an older person took care of in the past 12 months when their parents were living away from home. It indicates that younger older people and those living in rural areas had higher number of (great)grandchild(ren) to take care of compared to those at more advanced ages and those living in urban areas, respectively. This reflects the fact that younger older people, who may be still healthy, and that rural older people, who face the situation of outmigration of their children, usually take care of their (great)grandchildren more frequently than do their counterparts at more advanced ages and in urban areas.

4.2. Determinants of working and taking care of grandchildren under 10 years of age

To understand how individual and familial factors influence the probability of working for the older population, Table 7 presents the results from probit regressions by sex and area of living for older people.

By both sex and area of living, the results show that the more advanced their ages, the less likely they were to participate in the workforce. Older women living in urban areas were less likely to work than their rural counterparts.

Marital status was a significant factor influencing probability of working for older men, while it was not for older women. This was quite consistent with those found in Table 2. By area of living, the results show that in both urban and rural areas, there were no differences in probability of working between those were married, were widowed or a member of other marital statuses.

Educational levels showed clear differences in both sex and living area since those having higher educational levels had lower probabilities of working than did those having lower educational levels. This could be explained by the fact that older people with higher educational level usually worked in the formal sector with social protection benefits (such as retirements and other social welfare benefits), so that they might not need to work in order to earn a living at older ages.

The findings from comparing older people with good and bad health statuses were the same in regard to both sex and living area. Those with bad health had lower probabilities of working than did those with good health. This was also confirmed in a recent study by Giang and Le (2017), which showed that health was key to determine whether older people could work or not.

Table 7
Probit regressions for older people's probability to work, by sex and location.
Source: Own calculations, using VNAS 2011

Dependent variables	By sex		By area of living	
	Male	Female	Urban	Rural
Age				
60–69 (ref.)	–	–	–	–
70-79	−0.781***	−0.785***	−0.582***	−0.868*
80 and over	−1.695***	−1.463***	−1.384***	−1.631*
Sex				
Male (ref.)	n.a	n.a	–	–
Female	n.a	n.a	0.464***	0.132
Marital Status				
Others (ref.)	–	-	–	–
Married	1.864***	−0.001	−0.031	0.277
Widowed	1.284*	−0.240	0.125	−0.151
Educational Status				
Lower secondary and less (ref.)	–	–	–	–
Above lower secondary	−0.318**	−0.657***	−0.376*	−0.420*
Health status				
Good (ref.)	–	–	–	–
Poor	−0.389**	−0.442***	−0.333*	−0.371*
Location				
Rural (ref.)	–	–	n.a	n.a
Urban	−0.507*	−0.469**	n.a	n.a
Poverty status				
Poor (ref.)	-	-	-	-
Non-poor	0.155	−0.374**	−0.495	−0.194
Receiving support from any child?				
No (ref.)	-	-	-	-
Yes	−0.266*	−0.431***	−0.390**	−0.349***
Giving support to any child?				
No (ref.)	-	-	-	-
Yes	0.229	0.365***	0.351**	0.285*
Size of household	0.685	−0.428***	−0.197	−0.335***
N (unweighted)	1106	1683	669	2120

Note: *, **, *** denote statistically significant difference at the 1, 5 and 10 percent significance level, respectively.

Both older men and women living in urban areas had lower probabilities of working than their rural counterparts. Except for older men, all other results show that non-poor older people had lower probabilities of working than their poor counterparts.

Notably, the working situation between older people receiving support from any child and those providing support to any child was different. For both sex and living area, older people receiving support from any child had lower probabilities of working than those who did not receive support. Availability of income security with support from child(ren) might be an important factor helping older people decide not to work. In contrast, except for males, older people providing support to any child had higher probabilities of working than those who did not. More financial responsibilities to support child(ren) might force older people to work.

Tables A1 and A2 in the Appendix show the results from the probit models for farming work and non-farming work among older people in terms of sex and living area. As categorized in VNAS 2011 (Question 3a), working types include “Employer”, “Own account in farming”, “Own account in non-farming”, “Unpaid family workers”, “Wage/Salary workers”, and “Other”. However, distribution was mainly for “Own account in farming” (about 58%) and “Own account in non-farming” (about 33%), so we are interested in exploring determinants of these two major categories. The findings are quite similar to those in Table 7. In particular, age, educational attainment, health status, support to child(ren) and household size are statistically significant for older people in both farming and non-farming work.

Table 8 provides the results of the probit regressions for the

Table 8
Probit regressions for taking care of (great)grandchildren of older people, by sex and location.
Source: Own calculations, using VNAS 2011

Dependent variables	By sex		By area of living	
	Male	Female	Urban	Rural
Age				
60–69 (ref.)	–	–	–	–
70-79	−0.055	−0.553***	−0.287***	−0.360***
80 and over	−0.888***	−1.289***	−1.286***	−1.053***
Sex				
Male (ref.)	n.a	n.a	–	–
Female	n.a	n.a	0.334*	−0.093
Marital Status				
Others (ref.)	–	-	–	–
Married	1.752***	1.345***	0.866**	1.489***
Widowed	1.471***	1.406***	0.649	1.523
Educational Status				
Lower secondary and less (ref.)	–	–	–	–
Above lower secondary	−0.219	0.138	−0.454**	0.107
Health status				
Good (ref.)	–	–	–	–
Poor	0.014	−0.220	−0.343*	−0.011
Location				
Rural (ref.)	–	–	n.a	n.a
Urban	0.109	−0.253*	n.a	n.a
Poverty status				
Poor (ref.)	–	–	–	–
Non-poor	0.077	−0.189	0.294	−0.194*
Receiving support from any child?				
No (ref.)	–	–	–	–
Yes	0.424***	0.121	0.774***	0.125
Giving support to any child?				
No (ref.)	–	–	–	–
Yes	0.095	0.133	−0.101	0.223*
Size of household	0.706***	0.451***	0.369***	0.590***
Proximity between children and older people				
Living together or nearby (ref.)	–	–	–	–
In the same district	0.004	−0.144	−0.269	−0.096
In the same province	−0.152	−0.063	0.048	−0.306
In other provinces	0.106	0.049	−0.022	0.057
In other countries	−0.392	−0.240	−0.724*	−0.183
N (unweighted)	1105	1681	668	2118

Note: *, **, *** denote statistically significant difference at the 1, 5 and 10 percent significance level respectively.

probability of taking care of any (great)grandchild. By both sex and area of living, the results generally show that the more advanced their ages, the less likely were older people to take care of their (great) grandchildren. This could be explained by the fact that health got poorer in more advanced ages and it prevented older people from doing care works.

Marital status generally did not show any significant differences between older men and women as well as rural and urban older people in taking care of their (great)grandchildren. Only for the case of the widowed older people, older women had higher probability to take care of their (great)grandchildren than did older men, but this was not the case between rural and urban older people.

Regarding health status, the results show a statistically significant difference among urban older people, meaning that those with bad health had lower probability of taking care of (great)grandchildren than did those with good health.

Household poverty status did not have a significant impact on probability of taking care of (great)grandchildren for both older men and women, as well as rural and urban older people. This seems that taking care is the familial duty among older people, regardless of their economic status.

For males and urban older people, receiving support from any child was positively associated with taking care of (great)grandchildren, while providing support to any child did not show impact only on rural older people.

Household size did matter taking care of (great)grandchildren for older people. In all estimates, those living in bigger-size households tended to have higher probability of taking care of (great)grandchildren. This really shows generational support between older people and their child(ren) and (great)grandchildren when living under the same roof.

In regard to proximity between older people and their children, the results show that this did not matter, except for urban older people who had children living in other countries.

5. Concluding remarks

The analyses of this paper indicated that older people were still involved in various productive activities, including working and taking care of their (great)grandchild(ren). The paper, at the same time, also implied that there were significant differences between older men and women, and urban and rural older people in productive activities. In particular, age, health status, and household size were key factors influencing older people's probability of working and taking care of their (great)grandchildren. As such, social and health protection policies and programs should support vulnerable and poor older people in order to avoid such possible risks as illnesses and income insecurity and to move toward as an “active aging” population.

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Appendix

Table A1
Probit regressions for farming work of older people, by sex and location

Dependent variables	By sex		By area of living	
	Male	Female	Urban	Rural
Age				
60–69 (ref.)	–	–	–	–
70-79	−0.575***	−0.878***	–	−0.766***
80 and over	−1.418***	−1.638***	–	−1.541***

(*continued on next page*)

Table A1 (*continued*)

Dependent variables	By sex		By area of living	
	Male	Female	Urban	Rural
Sex				
Male (ref.)	n.a	n.a	–	–
Female	n.a	n.a	–	0.161
Marital Status				
Others (ref.)	–	-	–	–
Married	1.122	1.059***	–	0.965***
Widowed	0.333	0.629*	–	0.466
Educational Status				
Lower secondary and less (ref.)	–	–	–	–
Above lower secondary	−0.796***	−1.419***	–	−0.758***
Health status				
Good (ref.)	–	–	–	–
Poor	−0.061	−0.506***	–	−0.319**
Location				
Rural (ref.)	–	–	–	n.a
Urban	−0.985*	−1.695**	–	n.a
Poverty status				
Poor (ref.)	–	–	–	–
Non-poor	0.022	−0.266	–	−0.195
Receiving support from any child?				
No (ref.)	–	–	–	–
Yes	−0.098	−0.478***	–	−0.426***
Giving support to any child?				
No (ref.)	–	–	–	–
Yes	0.442**	0.132	–	0.308**
Size of household	−0.018	−0.411***	–	−0.193***
N (unweighted)	1105	1681	–	2118

Notes: *, **, *** denote statistically significant difference at the 1, 5 and 10 percent significance level, respectively.
Due to the number of older people had farming work in urban areas was too small, we skipped this model.
Source: Own calculations, using VNAS 2011.

Table A2
Probit regressions for non-farming work of older people, by sex and location

Dependent variables	By sex		By area of living	
	Male	Female	Urban	Rural
Age				
60–69 (ref.)	–	–	–	–
70-79	–	−0.374**	−0.617***	−0.227*
80 and over	–	−0.721***	−1.422***	−0.616***
Sex				
Male (ref.)	–	n.a	–	–
Female	–	n.a	0.720	0.014
Marital Status				
Others (ref.)	–	-	–	–
Married	–	−0.739*	−0.140	−0.782
Widowed	–	0.696**	0.078	−0.890
Educational Status				
Lower secondary and less (ref.)	–	–	–	–
Above lower secondary	–	−0.266	0.010	0.360**
Health status				
Good (ref.)	–	–	–	–
Poor	–	−0.109	−0.222	−0.269*
Location				
Rural (ref.)	–	–	n.a	n.a
Urban	–	0.354	n.a	n.a

(*continued on next page*)

Table A2 (*continued*)

Dependent variables	By sex		By area of living	
	Male	Female	Urban	Rural
Poverty status				
Poor (ref.)	–	–	–	–
Non-poor	–	−0.248	−0.108	−0.106
Receiving support from any child?				
No (ref.)	–	–	–	–
Yes	–	−0.170	−0.317	0.084
Giving support to any child?				
No (ref.)	–	–	–	–
Yes	–	0.446***	0.154	−0.122
Size of household	–	−0.363***	−0.083	−0.390***
N (unweighted)	–	1681	668	2118

Notes: *, **, *** denote statistically significant difference at the 1, 5 and 10 percent significance level, respectively.
Due to the number of male older people had non-farming work was too small, we skipped this model.
Source: Own calculations, using VNAS 2011.

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