

ปัจจัยที่ส่งผลต่อรายได้ผู้สูงอายุในประเทศไทย

Factors Affecting Elderly's Income: Case Study in Thailand

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บทคัดย่อ

จุดมุ่งหมายของการศึกษาเพื่อวิเคราะห์ปัจจัยที่ส่งผลต่อรายได้ผู้สูงอายุในประเทศไทย การศึกษาใช้การสำรวจประชากรผู้สูงอายุในประเทศไทย ปี 2557 ซึ่งเก็บโดยสำนักงานสถิติแห่งชาติ โดยมีกลุ่มตัวอย่างเป็นผู้สูงอายุที่มีอายุ 60 ปีขึ้นไปทั้งสิ้น 38,695 คน เครื่องมือที่ใช้ในการวิจัย คือ สมการถดถอยโลจิสติกส์ สรุปผลการวิจัยได้ว่า ผู้สูงอายุเป็นเพศชาย สมรส มีการศึกษาระดับมัธยมศึกษาขึ้นไปและมีสุขภาพแข็งแรง มีความเป็นไปได้ที่จะมีรายได้สูง กล่าวคือ มีรายได้สูงกว่า 20,000 บาทต่อเดือน เงินออมช่วยเพิ่มความเป็นไปได้ของการที่ผู้สูงอายุจะมีรายได้สูงขึ้น และนโยบายรัฐบาลที่ช่วยเพิ่มความเป็นไปได้ที่ผู้สูงอายุจะมีรายได้สูงขึ้น คือ บำนาญ

คำสำคัญ: ผู้สูงอายุ บำนาญ ประกันสังคม

ABSTRACT

The objective of this study was to determine factors affecting elderly's income In Thailand. This study used data of elderly population in Thailand which was collected by National Statistics Office (NSO) in 2014. The sample group was older than 60 years old, consisted of 38,695 people. The research methodology was logistic regression. The results indicated that male, married, healthy and had higher secondary education had income higher than 20,000 baht per year. Pensions and savings increased incomes in elderly people.

Keywords: elderly people, pension, social security

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Introduction

The number of old population (people aged 60 and over) in Thailand has grown rapidly from 6.8% in 1994 to 14.9% in 2014 (Table 1). Thai society is now approaching aging society. The reasons are low birth rate and mortality rate. Table 2

shows that birth rate, crude (per 1,000 people) was at 12.764 in 2005 and it becomes 10.79 in 2014. Lower mortality rate is reflected in higher life expectancy at birth. Table 3 shows that life expectancy at birth has increased to 71.6 years for men and 78.4 years for women in 2015.

Table 1 Number and percentage of elderly in 1994, 2002, 2007, 2011 and 2014

Year	1994	2002	2007	2011	2014
Number of elderly	4,011,854	5,969,030	7,020,959	8,266,304	10,014,699
Percentage	6.8	9.4	10.7	12.2	14.9

Source: elderly survey report, Thailand (2014), National Statistics Office

Table 2 Birth rate, crude (per 1,000 people) from 2005 to 2014

year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Birth rate (per 1,000)	12.764	12.533	12.323	12.123	11.927	11.725	11.51	11.281	11.041	10.79

Source: World Development Indicators, The World Bank, 2016

Table 3 Life expectancy at birth from 2010 to 2040

Year	2010	2015	2020	2025	2030	2035	2040
Whole female	77.5	78.4	79.3	80.1	80.8	81.3	81.9
Kingdom male	70.4	71.6	72.6	73.4	74.1	74.7	75.3

Source: Population statistics, NSO (2015)

Aging society affects the labor market in terms of labor shortage because the percentage of working age population continues to decline while that of elderly increases continuously (Figure 1). The ratio of older dependents, people older than 64, to the working-age population, people aged between 15 and 64, has increased from 9.45 in 2000 to 14.58 in 2015 (Figure 2). This is consequently

a cause for concern with higher burden on working-age population. The government has to spend higher budgets on pension and health care. Working population may have to pay higher taxes to support elderly. This could create disincentives to work and disincentives for firms to invest; therefore there could be a fall in productivity and growth.

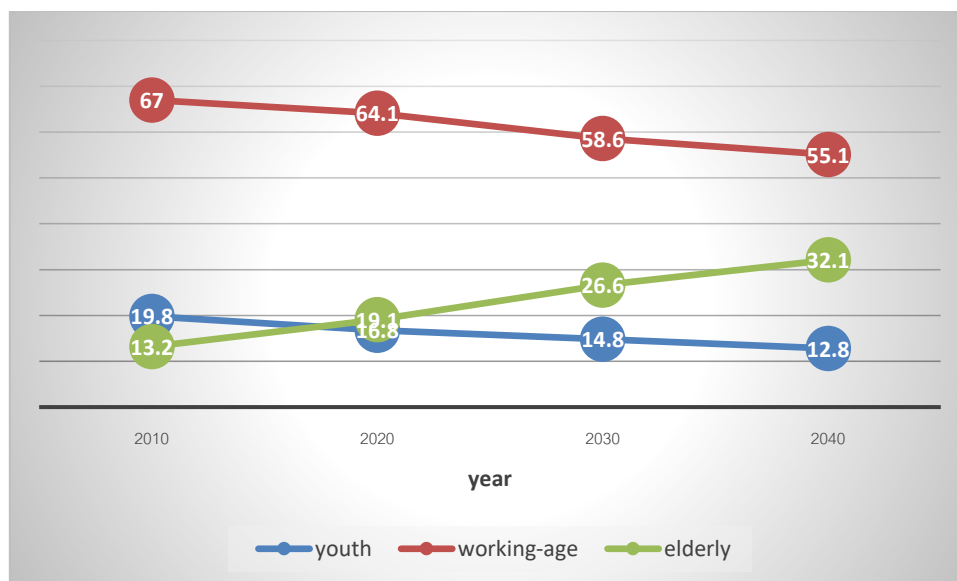


Figure 1 Percentage of Youth, working-age, and elderly population from 2010 to 2040

Note: Youth = people up to 14 years old, working-age = people between 15-59 years old, and elderly = people which are 60 years old and older

Source: Situation of Thai elderly, Foundation for older persons' development (2015)

The main objectives of this work are to determine factors affecting elderly's income. This paper is divided into sections. Section 2 describes the conceptual framework. Section 3 explains the

data sets. In section 4, an econometric framework is presented and is followed by a discussion of the results. Finally, section 5 summarizes and concludes the study.

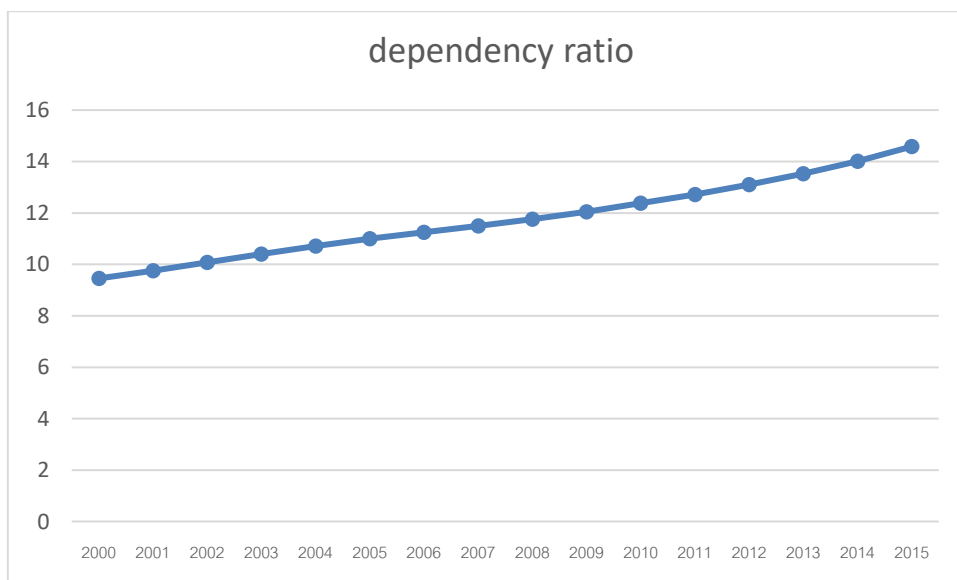


Figure 2 Dependency ratio from the year 2000 to 2015

Note: The data are shown as the proportion of dependents per 100 working-age population. Source: World Bank

Conceptual framework

There are two main factors affecting elderly's income including individual and social and economic characteristics. Human Capital theory by Becker (1964) gives an emphasis on individual characteristics to identify earnings. Investment in human capital is probably the major explanation for the difference in earnings. The main activities which can improve human capital are formal education, on-the-job training, emotional or physical health, migration, etc. Human capital theory is based

on the assumption that productivity is an increasing function of the individual human capital level. Education raises an individual's productivity in the workplace and higher productivity leads to higher earnings. On-the-job training is a process that raises future productivity and differs from school training in that an investment is made on the job rather than in an institution that specializes in teaching. Better health leads to higher labor productivity and higher earnings.

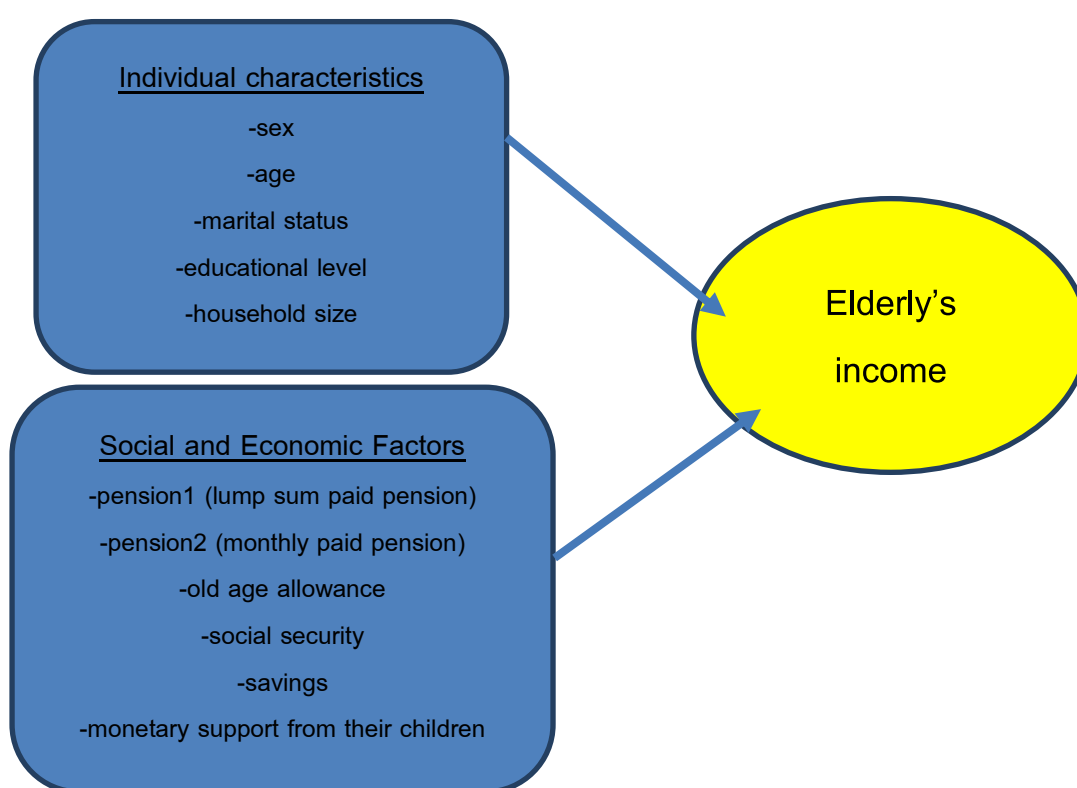


Figure 3 Conceptual framework

Mincer earning function (1958) determines the wage level as a dependent variable and the number of years of education and work experience with its square term as an explanatory variable. There is a positive relationship between the logarithm of wage and the number of years of education. Wages have increased at decreasing rate as the work experience increases. This implies that individual characteristics, or the supply side,

determine earnings. Individual characteristics used in this paper are gender, age, educational level, marital status, household size, and health status.

The level of education is of critical concern to earnings. Some literatures (Hamdani, 1977; Guisinger et al., 1984) find positive relationship between educational level and earnings. Higher level of education leads to higher earnings.

Other individual characteristics, like gender, age, marital status, household size, and health status are expected to play important roles in earnings. Some literatures (Vincent, 2013) find that women are paid less than men. Moreover, older ages lead to more earnings because of work experience.

Marital status has a different effect on earnings. Marriage has been found to have positive effects on earnings (Bardasi and Taylor, 2005; Korenman and Neumark, 1991; Schoeni, 1995). Some literatures (Kantarevic and Mechoulam, 2006; Björklund et al., 2004) find that family size is inversely proportional to the income. The difference among papers is the proxy for family size. The number of siblings is one proxy used in the analysis. The difference in definition of siblings as all siblings or siblings one grew up with may affect earnings. Adversely, Kessler (1991) finds no effect at all.

Self-reported health status helps assessing the health difference between groups of people. Health factors have significant and positive impacts on wage. Besides, healthier workers contribute more to earning wage (Hsieh et al., 2012; Cai, 2007; Brazenor, 2002).

The ageing of the population is a critical situation in Thailand because old people are excluded from the labor force. Thus, one way for them to get some income is work. Some old people receive monetary support from their children. These two are the main income sources for elderly. Thai government gives attention to old population, therefore programs related to population ageing and older persons are pension (Lump sum or monthly payment), old age allowance, and social security.

The World Bank has divided savings for retirement and pension schemes into categories

collectively known as “The Multi-Pillar System” which is the old-age benefits under the social security fund in Thailand. The 1st pillar is composed of publicly mandated, publicly managed and defined benefit. The 2nd pillar is composed of publicly mandated, privately managed and defined contribution which is the government pension fund. This fund is an exclusive privilege for government officials. In the meantime, the ministry of finance is proposing the national pension fund scheme for the private sector. The 3rd pillar includes privately mandated funds, voluntary savings, defined contribution, provident funds and retirement mutual funds.

The old-age allowance system in Thailand is a non-contributory social protection scheme which aims to guarantee basic income for the Thai population at the age of 60 or above. The ‘500 Baht Universal Pension Scheme’ officially started in April 2009, applies to all elderly (60 years of age and older) who are not in elderly public facilities or do not receive permanent income (i.e., recipients of government pension, government-employed persons). Furthermore, in 2012 the system was changed from a uniform pension rate - THB 500 (less than USD16) 1 for all recipients - to a multiple-rate system. Currently, the monthly pension amount varies by age of recipient: THB 600 per month for those aged 60 - 69 years, THB 700 per month for 70 - 79 years, THB 800 per month for 80 - 89 years and THB 1,000 per month for those 90 years of age and older. In 2017, Thai government plans to increase old age allowance from 600 to 1,200 - 1,500 baht per month.

The social security system is a mandatory and contributory social insurance system which requires participation by all employees in businesses with more than one employee. It insures against contingencies such as illness, childbirth, disability,

old-age, assistance for the family, death and unemployment. Employees must contribute 5% of their wages to the fund. This contribution will be compounded at the monthly rate of 1.5% for benefits related to illness, death, disability and childbirth; 3% for old-age benefits and childbirth and 1% for unemployment compensation. Members are eligible for old-age benefits if they have contributed to the fund for a total of 180 months (15 years) and are 55 years of age. The monthly

pension levels calculated as 20% of the average monthly income for the last 60 months before retirement. Moreover, if the insured member has contributed for more than 180 months, an additional rate of 1.5% will be applied on top of the 20% for every 12 months contribution. Thus, social and economic factors include hours worked, pension, old age allowance program, social security benefits, savings, and monetary support from their children.

Table 4 Definitions of variables

Variables	Definitions
Elderly's income	(Dummy variable). Income = 1 if elderly's income is greater than 20,000 baht per year, and =0 if not
Gender	(Dummy variable). Gender =1 if male and gender = 0 if female
Age	Years of age
Marital Status	(Dummy variable). Marital status = 1 if married and = 0 if single, divorced, or widowed
Household size	The number of household members
Hours worked	The number of hours worked per day
Pension1	Pension1 = 1 if elderly receive lump sum payment from the government and = 0 if otherwise
Pension2	Pension2 = 1 if elderly receive monthly payment from the government and = 0 if otherwise
Old age allowance	Allowance = 1 if elderly receive old age allowance and =0 if otherwise.
Savings	Savings = 1 if elderly have savings and = 0 if not
Financial support from children	Financial support = 1 if elderly receive financial support from their children and 0 if not
Social security	Social security = 1 if elderly receive some support from the social security office and =0 if not
Health status	(Dummy variable) Health = 1 if healthy and =0 if unhealthy
Education	3 categories including primary and lower, lower and upper secondary, and greater than post-secondary.

Methods

This study uses data from old population survey in 2014 which is the latest survey from the National Statistical Office (NSO). After focusing on individuals whose age is greater than 60 years, the sample size is 38,695 individuals. Table 4 lists and defines variables of interest, including elderly's income, gender, age, marital status, household size, pension 1, pension 2, old age allowance, social security, savings, and monetary support from their children.

Logistic regression is used to determine factors affecting elderly's income. The dependent variable, elderly's income, is a dummy variable and its valued equals to 1 if elderly's income is greater than 20,000 baht per year and 0 if elderly's income is lower than 20,000 baht per year. The explanatory variables are gender, age, marital status, household size, pension, old age allowance, social security, savings and monetary support from their children.

$$y_i = \begin{cases} 1 & \text{if elderly's income is equal to or} \\ & \text{greater than 20,000 baht per year} \\ 0 & \text{if elderly's income is lower than} \\ & \text{20,000 baht per year} \end{cases}$$

y_i is a realization of a random variable Y_i that can take the values one and zero with probabilities π_i and $1-\pi_i$, respectively. The distribution of Y_i is called a Bernoulli distribution with parameter π_i and can be written as

$$Pr(Y = Y_i) = \pi^y(1 - \pi)^{1-y} ; y_i = 0, 1$$

The probability π_i depends on a vector of observed covariates X_i so π_i is a linear function of the covariates as can be expressed as the following:

$$\pi_i = X_i'\beta$$

where β is a vector of regression coefficients.

X_i are independent variables:

gender, age, marital status, household size, pension, old age allowance, social security, savings and monetary support from their children.

One problem with the above model is that the probability π_i on the left hand side has to be between zero and one, but the linear predictor $X_i'\beta$ on the right hand side can take any real value. The transformation of the probability is the solution. The probability π_i is changed to the odds which is defined as the ratio of favorable to unfavorable cases as

$$\text{Odds}_i = \frac{\pi_i}{1-\pi_i},$$

it can also be written as the so-called log-odds

$$\eta_i = \log\left[\frac{\pi_i}{1-\pi_i}\right]$$

The model is as follows:

$$\begin{aligned} \eta_i = & \beta_0 + \beta_1 \text{gender}_i + \beta_2 \text{hh_mem}_i + \beta_3 \text{age}_i + \\ & \beta_4 \text{married}_i + \beta_5 \text{hr_worked}_i + \\ & \beta_6 \text{pension1}_i + \beta_7 \text{pension2}_i + \beta_8 \text{savings}_i + \\ & \beta_9 \text{allow}_i + \beta_{10} \text{SS}_i + \beta_{11} \text{child_support}_i + \\ & \beta_{12} \text{health}_i + \beta_{13} \text{educ}_i + \varepsilon \end{aligned}$$

Results

Women population constitutes 55.8% of persons of 60 years old or older. Education is an important factor to help old population to improve their welfare. More than 80% of elderly, both men and women, have primary education or lower. Old population with post-secondary education and higher constitute less than 10% of the total old population. There are 10 sources of elderly's income including working, pension, social security, old age allowance, savings, monetary support from spouse, their children, parents, relatives and others. Main income sources of old population are work and monetary support from their children. These two sources constitute about 35% of all

elderly's income. Old population's occupations are their own businesses without employee (household business).

Discussion

Gender has a significant impact on the probability of having higher income (Income is greater than 20,000 baht per year). Males have 40% higher probability to have higher income than females. The reasons are that male elderly have higher probability to continue working and physical appearance is stronger in male population as well as males are heads of families. This study uses the number of household members as a proxy for household size. The result shows that the number of household members has no significant impact on elderly's income.

The study shows that the older the age, the lower the elderly's income. The reason is lower productivity due to weaker physical strength and poor health. Similarly, married elderly have 20% higher probability to have higher income because most of married elderly decide to work because of high dependence from their wife and children.

The level of education is also an important factor to create more income. The elderly with secondary education, both lower and upper level, have higher probability to get higher income compared to primary education. In terms of health status, healthier elderly have 55% higher probability to have higher income. In sum, individual characteristics which improve elderly's probability for getting higher income are male, younger ages (60-69), married, healthy, and have secondary education.

Table 5 The coefficient and odd ratio of logistic regression

Variable	Coefficient(β)	Standard error	Significance	Exp(β) ³
Constant	3.520	0.436	.000*	33.778
Gender	0.336	0.069	.000*	1.399
Age	-0.050	0.006	.000*	0.951
Marital status	0.188	0.077	0.015*	1.206
Household size	-0.027	0.018	0.138	0.974
Secondary	0.718	0.185	.000*	2.050
Post-secondary	0.608	0.298	0.042*	1.837
Health	0.441	0.104	.000*	1.554
Savings	0.924	0.073	.000*	2.520
Hours worked	0.115	0.017	.000*	1.122
Pension1	0.553	0.730	0.449	1.739
Pension2	1.043	0.528	0.048*	2.839
Social security	0.096	0.371	0.795	1.101
Old age allowance	0.174	0.097	0.074**	1.190
Children support	0.181	0.070	0.010*	1.198

Note Pension1 is Lump sum payment and pension 2 is monthly payment.

* denotes 5% level of significance

** denotes 10% level of significance

Work is one of a number of possible sources of income for older-age. Hours worked has positive relationship with elderly's income. The elderly would have 12% higher probability in having higher income when they work longer. Elderly savings can increase the probability of having higher income for elderly. Monetary support from their children increases the probability of having higher income for elderly by 20% (this support from children does not include material support).

For other sources of elderly's income, pension in the form of lump sum payment has no significant impact on the probability to have higher income while pension in the form of monthly

payment has great impact on probability to have higher income. The reason is that pension in lump sum payment can be depleted before proper time. Old age allowance has 10% level of significance to have impact on the probability to have higher income. Old age allowance has an impact on the probability to have higher income, that is, the elderly who receive old age allowance have about 20% higher probability to have income greater than 20,000 baht per year.

This study indicates the importance of income sources for the elderly: Old age allowance, savings, pension, or children support. The income patterns uncovered reaffirm the need to consider policies for the aged in light of income adequacy

for the elderly and other income source such as working. The further research may study on the elderly's work and suitable occupation for the elderly.

Summary and Conclusion

Old population having higher probability to receive higher income (Income greater than 20,000 baht per year) should be male, early old age and married. Moreover, they should have higher level of education and good health. Savings and monetary support from their children also increase the likelihood of having higher income. Work is another source that affects elderly's income even if most of them work in their household businesses. Government programs that help increase elderly's income are pension (monthly payment, not lump sum payment) and old age allowance.

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