

# Active Ageing of Elderly People and Its Determinants: Empirical Evidence from Thailand

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This study aims to assess the active ageing of elderly people aged 60 to 95 years old in Thailand and to investigate its determinants based on the data obtained from the National Statistical Office's elderly survey in 2007. The findings revealed that elderly people in Thailand had moderate active ageing. In terms of each dimension, this found that elderly people had high active ageing under health dimension, moderate active ageing under security dimension, and low active ageing under participation dimension. Additionally, the regression analysis indicated that age and living in urban areas had the negative impacts on the active ageing of elderly people, whereas physical exercise, alcohol consumption, receipt of useful information, awareness of social benefits for elderly people, education, and saving duration had the positive influences on it. The active ageing of elderly people in Thailand was also determined by their most important sources of income. Moreover, the findings revealed that family warmth was positively related to the active ageing of elderly people in Thailand. That is, living with spouse and children under 18 years old and receiving basic needs, visits, and telephone contacts from children helped promote the active ageing of Thai elderly people. However, living with grandchildren and receiving money from children less than 10,000 baht per year were found having the negative relationship with the active ageing of elderly people.

**Keywords:** *Elderly People, Active Ageing, Health, Participation, Security*

In 1970, Thailand announced its first national population policy with the primary objective of lowering its population growth rate, which was roughly three percent per year from 1965 to 1970 (United Nations, 2011). This policy was very successful, leading to a constant decrease in the total fertility rate from 5.99 children per woman during 1965–1970 to 1.53 children per woman from 2005 to 2010 (United Nations,

2011). Such a demographic change caused the working-age population (15 to 19 years old) to grow faster than the young population (0 to 14 years old) who was dependent on it, leading to an increasing proportion of working-age population who served as the producers of the economy from 50.6% of the total population in 1970 to 66.6% in 2010. As a result, Thailand was economically benefited since it had a greater labor force relative

to its dependent population, enabling it to have an impressive average growth rate of GDP per capita from 1970 to 2009, which equaled 4.38 percent per year (World Bank, 2011).

However, such a period of grace for Thailand came to an end when its proportion of working-age population reached its peak in 2010 and was expected to constantly decline after that. On the contrary, Thailand, at this moment, has been experiencing population ageing and the increasing proportion of old-age population (60 years old and over), which is expected to rise from 12.9% of total population in 2010 to 15.3% and 18.3% in 2015 and 2020, respectively (United Nations, 2011). Such a demographic shift may deteriorate the economic growth and the standard of living of people in the nation and cause social instability since elderly people are regarded as a dependent population who usually lack access to public services, do not have enough wealth to finance their consumption after retirement, and are likely to be a burden to family, society, and the nation.

To prevent such a situation, elderly people must be accompanied by the constant opportunities for health, participation, and security so that they can be regarded as the active population rather than the dependent population. The process for achieving this vision is expressed as “active ageing,” which is defined by World Health Organization as the process of optimizing opportunities for health, participation, and security in order to enhance quality of life as people age (World Health Organization [WHO], 2002). Consequently, this study aims to assess the active ageing of elderly people aged 60 to 95 years old in Thailand based on the data obtained from the National Statistical Office’s elderly survey in 2007. Moreover, it also investigates the determinants of active ageing of elderly people to find ways to promote active ageing in Thailand so that elderly people in Thailand become resources for the nation’s economic prosperity in the ageing society.

## ACTIVE AGEING

According to WHO (2002), active ageing is defined as the process of optimizing opportunities for health, participation, and security in order to enhance quality of life as people age. It is also defined as the capacity of people to lead productive lives in society and the economy as they grow older (Organisation for Economic Co-operation and Development [OECD], 2000). The European Union (EU) likewise defines active ageing as a coherent strategy to make ageing well possible in ageing societies. Active ageing is about adjusting life practices to the fact that we live longer and are more resourceful and in better health than ever before and about seizing the opportunities offered by these improvements. In practice, it means adopting healthy lifestyles, working longer, retiring later, and being active after retirement (Christensen, Ervik, & Helgoy, 2003). In Thailand, Soonthornhdada and Khumsuwan (2010) defined active ageing as elderly people who have good physical and mental health, do health promoting activities, are capable of doing daily activities—such as taking a bath, having meals, and getting dressed—have work, family and social participations, and have financial and physical securities. Consequently, active ageing in this study may be simply defined as the circumstance that elderly people have good physical and mental health, have work, family and community participations, and have income and living securities.

Based on WHO (2002), the framework for active ageing is composed of three dimensions, including health, participation, and security. That is, elderly people must remain healthy and be able to maintain their own lives as they grow older. Moreover, elderly people should continue to make a productive contribution to society in both paid and unpaid activities as they age. In term of security, elderly people must be ensured of protection, dignity, and care in the event that they are no longer able to support and take care of themselves. Active ageing is determined by various factors, including health

and social services, behavioral, personal, physical environment, social, and economic factors (WHO, 2002). It will turn elderly people from dependent population into economic active population capable of contributing to economic growth. Therefore, active ageing of elderly people will be a vital tool for Thailand to capitalize the increasing proportion of old-age population to create the sustainable economic and social development in the ageing society.

## LITERATURE REVIEWS

Since active ageing of elderly people is very important in the ageing society with the increasing share of elderly people in the total population, there have been many studies regarding active ageing in many countries and on many issues. For instance, WHO (2008) utilized the case studies of the emergencies caused by natural or conflict-related disasters to show that elderly people had the greater vulnerability to the disasters. The enhancement of active ageing of elderly people would minimize harm and help them maintain the highest possible level of health and functional capacity, turning them into resources for their families and communities. Moreover, the study found that some studies focused on the current situations regarding active ageing in the countries whereas others focused on the ways to promote active ageing.

For example, Walker (2001) raised the importance of the active ageing and proposed public policies for promoting it for European countries. He also proposed the comprehensive strategy on active ageing of elderly people for industrialized countries in responding the challenges presented by population ageing (Walker, 2002). Moreover, he outlined the basic principles on which the public policies on active ageing should be implemented on the organizational level (Walker, 2006). In addition, Christensen (2003) studied the situation regarding active ageing and assessed the related public policy for promoting active ageing in

Norway while Tahvanainen (2006) studied the situation regarding active ageing and analyzed the good practice for promoting active ageing in Finland.

Christensen et al. (2003) compared the institutional roles on the policies to promote active ageing in Finland and the United Kingdom. Furthermore, Mayhew (2005) suggested the policy frameworks to enhance active ageing for European countries, as well as the opportunities and barriers that affect active ageing. He also compared the United Kingdom with other European countries in terms of the advancement in defining those policy frameworks. Abdul Rashid and Hamid (2007) examined the status of active ageing in Malaysia and sought ways to promote it. Bowling (2009) identified perceptions of and associations with active ageing among ethnically diverse and homogeneous samples of elderly people in Britain. In addition, Cloos et al. (2010) assessed the opportunities and threats to improve active ageing in six Caribbean countries, including Bahamas, Barbados, Guyana, Jamaica, Suriname and Trinidad, and Tobago.

The author also found several studies that focused on the specific ways to promote active ageing. For instance, Wilcock (2007) addressed the importance of the occupational therapist in promoting the active ageing in New Zealand. Helgoy (2005) proposed the appropriate health care policy to promote the active ageing in Norway. Ala-Mutka, Malanowski, Punie, & Cabrera (2008) and Malanowski, Özcivelek, & Cabrera (2008) proposed the ways to utilize information and technology for learning and communication to enhance the active ageing. Finally, Phillipson and Ogg (2010) addressed the importance of higher education in enhancing the active ageing in the United Kingdom. According to the literature reviews as discussed above, it seems that most of the previous studies focused on the assessment of active ageing of elderly people and the comprehensive strategy and policy framework on active ageing. However, there appears to be a lack of previous study on the determinants of active ageing.

In the case of Thailand, Yatniyom (2004) studied the attributes of active ageing of Thai elite elderly people by employing interviews and content analysis. Thanakwang and Soonthorndhada (2006) assessed the active ageing attributes of Thai elderly people aged 50 years old and over in relation to socio-demographic characteristics and active ageing-related factors using the WHO framework, which consists of health, community participation, and security based on the data obtained from the National Statistical Office's (NSO) elderly survey of 2002. Rattanamongkolgul, Sritanyarat, & Nuntaboot (2009; 2010) utilized the interviews to explore active ageing from elderly people's and children's perspectives in the northeastern of Thailand. Finally, Soonthorndhada and Khumsuwan (2010) studied levels and trend of the active ageing of Thai elderly people aged 60 years old and over between 2002 and 2007 using the WHO active aging framework which consisted of health, participation, and security based on NSO's elderly survey 2002 and 2007 and examined the determinants of active ageing of Thai elderly people attributes in the year 2007.

According to the literature reviews, this study found many limitations on the previous studies regarding active ageing in Thailand. That is, most of them focused on the active ageing of small groups of elderly people in some specific areas, causing the statistical reliability problem and the limitations to the utilization nationwide and the public policy formulation. Thanakwang and Soonthorndhada (2006) assessed the active ageing of Thai elderly people in the national level, nevertheless, they did not investigate the determinants of active ageing. Even though Soonthorndhada and Khumsuwan (2010) already examined the determinants of active ageing, they excluded several determinants of active ageing in accordance with the WHO's framework.

Additionally, this study did not find any study that examined the influence of family, which is the important and fundamental social institution, on the active ageing of elderly people. Even

though family factors are not mentioned in the WHO's framework for active ageing, they are nonetheless regarded as ones of the most important determinants of active ageing in Thailand where elderly people heavily rely on family. As a result, this study assesses the active ageing and investigates the determinants of active ageing of elderly people in Thailand in accordance with the WHO's framework. Furthermore, family factors are also added as one of the determinants of active ageing of elderly people in this study. Consequently, this study will shed more lights on the situation regarding the active ageing and the determinants of active ageing of elderly people in Thailand, which will be useful for the public policy formulation and implementation to promote the active ageing of elderly people in Thailand both in short and long runs.

## RESEARCH METHODOLOGY

The research methodology for this study is divided into three sections. The first section explains the composition of active ageing of elderly people and its components. Thereafter, the determinants of active ageing of elderly people would be explained. Finally, the last sector deals with the analytical method.

### *Composition of Active Ageing*

According to WHO (2002), the framework for active ageing is composed of three dimensions, including health, participation, and security. However, WHO never clearly identified the components of each dimension. Therefore, the components of active ageing in each dimension in this study are modified from Soonthorndhada and Khumsuwan (2010). The components and indicators of active ageing under health, participation, and security dimensions are illustrated in Table 1.

**Table 1**  
*Dimensions, Components and Indicators of Active Ageing*

<b>Dimension</b>	<b>Component</b>	<b>Indicator</b>
<b>1. Health</b>	1. Physical Health	
	- Physical Health Condition	Self-Assessed Health Condition [Very good (5)/ Good (4)/ Moderate (3)/ Bad (2)/ Very Bad (1)]
	- Physical Disability	State of Blindness and Deafness [Neither Blind nor Deaf (1)/ Blind and/or Deaf (0)]
	- Physical Function	Ability to Eat, Get Dress, Take a Bath, Walk and Go Upstairs [Yes (2)/ Yes with Assist (1)/ No (0)]
	2. Mental Health	Feeling of Anxiety, Frustration, Despair, Sadness and Pessimism [Never (2)/ Sometimes (1)/ Frequently (0)]
<b>2. Participation</b>	1. Community Participation	Participation in Social Activity [Yes (1)/ No (0)]
	2. Family Participation	Provision of Support (Care or Money) to Family Member [Yes (1)/ No(0)]
	3. Work Participation	Working Status [Working (1)/ Not Working (0)]
<b>3. Security</b>	1. Income Security	
	- Income	Average Annual Income (100,000 and Over (2)/ 20,000-99,999 (1)/ Less Than 20,000 (0)]
	- Sufficiency of Income	Sufficiency of Income (Yes (2)/ Yes, Sometimes (1)/ No (0))
	- Saving	Amount of Saving [1,000,000 and Over (8)/ 700,000-999,999 (7)/ 400,000-699,999 (6)/ 200,000-399,999 (5)/ 100,000-199,999 (4)/ 50,000-99,999 (3)/ 25,000-49,999 (2)/ Less Than 25,000 (1)/ No Saving (0)]
	- Indebtedness	State of Being Indebted [No (1)/ Yes (0)]
	1. Living Security	
	- Living Status	Living Status in Household (Head or Spouse of Head (2)/ Parent of Head (1)/ Resident (0))
	- Living Safety	Availability of Non-Slippery Ground Floor, Stair Handrail, Handrail in Bathroom, Handrail in Bedroom and Non-Slippery Toilet [Yes (1)/ No (0)]
	- Accommodation Ownership	Owner of Accommodation [Elderly People or Spouse (2)/ Children or Grandchildren (1)/ Others (0)]

*Source:* Modified from Soonthornhada and Khumsuwan (2010)

- Remark:*
1. Number in the parentheses is the score given to each value in each indicator.
  2. Physical function has five indicators: the abilities to eat, get dressed, take a bath, walk, and go upstairs.
  3. Mental health has five indicators: the feelings of anxiety, frustration, despair, sadness, and pessimism.
  4. Living safety has five indicators: the availabilities of non-slippery ground floor, stair handrail, handrail in bathroom, handrail in bedroom, and non-slippery toilet.

### *Determinants of Active Ageing*

According to WHO (2002), the determinants of active ageing can be categorized into six groups. They include (1) determinants related to health and social services, (2) behavioral determinants, (3) personal determinants, (4) determinants related to physical environment, (5) social determinants, and (6) economic determinants. However, due to the limitation of data, the determinants of active ageing in this study are modified so that they are appropriate to the availability of the data and the objectives of the study as the following:

1. Demographic factors include gender, age and marital status.
2. Health and behavioral factors include physical exercise behavior, smoking and alcohol consumption.
3. Physical environmental factor includes living area.
4. Social factors include receipt of useful information, awareness of social benefits for elderly people and education.
5. Economic factors include the most important source of income and saving duration.
6. Family factors<sup>1</sup> include percentage of children living with family, percentage of children under 18 years old living with family, living with spouse, living with grandchildren, receipt of money from children, receipt of basic needs from children, receiving visits from children and receiving telephone contacts from children.

### *Analytical Method*

This study covers elderly people aged 60 to 95 years old in Thailand based on the National Statistical Office's elderly survey of 2007. The analytical method is divided into two sections. The first section starts with the assessment of active ageing of elderly people in Thailand. To do so, the active ageing index is calculated in the following manner:

**Step 1:** The score for each component of active ageing as mentioned in Table 1 is calculated by using this formula:

$$\text{Component Score} = \frac{\text{Actual Score of the Indicator}}{\text{Maximum Score of the Indicator}}$$

The calculated component score ranges from 0 to 1. For the component measured by more than one indicator, the scores of all indicators would be summed up before the calculation of the component score. For example, physical function has five indicators (the abilities to eat, get dress, take a bath, walk, and go upstairs). Each indicator has three values which are "Yes, Yes with Assist, and No," given the scores of 2, 1 and 0, respectively. To calculate the component of physical function, the scores of the abilities to eat, get dressed, take a bath, walk, and go upstairs would be summed up, resulting in the maximum score of 10 and the minimum score of 0. Thereafter, the component score of physical function is calculated based on the summed score of these five indicators. For instance, a particular old person has the scores of the abilities to eat, get dress, take a bath, walk, and go upstairs of 2, 2, 1, 2, and 1 (summed score equals 8), as a result he has the component score of physical function of 0.8 (that is, 8/10).

**Step 2:** The Scores of the three dimensions of active ageing, which are health, participation, and security, are calculated as the simple average of the component scores of each dimension.

**Step 3:** Health, participation, and security indices are calculated by the same manner as the UN's Human Development Index (HDI). The formula is (United Nations Development Programme [UNDP], 2010):

$$\text{Dimension Index} = \frac{\text{Actual Dimension Score} - \text{Minimum Dimension Score}}{\text{Maximum Dimension Score} - \text{Minimum Dimension Score}}$$

Dimension index as calculated above ranges from 0 to 1. If the index of a particular dimension is lower than 0.5, an old person is said to have low active ageing under that dimension. If the index is not lower than 0.5 but lower than 0.8, he or she is said to have moderate active ageing. Finally, if the index is 0.8 and over, he or she is said to have high active ageing (UNDP, 2010).

**Step 4:** Active ageing index is calculated as the arithmetic mean of health, participation, and security indices by employing this formula:

$$\text{Active Ageing Index} = (\text{Health Index} + \text{Participation Index} + \text{Security Index})/3$$

Additionally, the interpretation of active ageing index is the same as the three dimension indices explained above. That is, the index which is lower than 0.5 implies low active ageing, the index which is not lower than 0.5 but lower than 0.8 implies moderate active ageing, and the index which is 0.8 and over implies high active ageing.

The second section of the analytical method is to examine the influences of demographic, health and behavioral, physical environmental, social, economic, and family factors on the active ageing. The forward stepwise regression analysis is employed in this section in order to extract the statistically significant factors, which determined the active ageing of elderly people. The estimated equation is as the following.

$$y = \alpha_0 + \sum_{i=1}^4 \beta_i d_i + \sum_{j=1}^3 \gamma_j h_j + \vartheta_1 p_1 + \sum_{k=1}^3 \delta_k s_k + \sum_{m=1}^5 \theta_m e_m + \sum_{n=1}^9 \varphi_n f_n + \mu$$

Where

- y = active ageing index in natural logarithm form,
- d<sub>1</sub> = 1 if male, 0 if female,
- d<sub>2</sub> = age (years),
- d<sub>3</sub> = 1 if married, 0 otherwise,
- d<sub>4</sub> = 1 if divorce/widow/separate, 0 otherwise<sup>2</sup>,
- h<sub>1</sub> = 1 if having physical exercise regularly, 0 if not,
- h<sub>2</sub> = 1 if no smoking, 0 if smoking,
- h<sub>3</sub> = 1 if no alcohol consumption, 0 if having alcohol consumption,
- p<sub>1</sub> = 1 if living in urban area, 0 if living in rural area,
- s<sub>1</sub> = 1 if receiving useful information, 0 if not,
- s<sub>2</sub> = 1 if aware of social benefits for elderly people, 0 if not,
- s<sub>3</sub> = education as measured by years of schooling,

- $e_1$  = 1 if labor income is the most important source of income, 0 otherwise,  
 $e_2$  = 1 if pension is the most important source of income, 0 otherwise,  
 $e_3$  = 1 if saving and investment is the most important source of income, 0 otherwise,  
 $e_4$  = 1 if financial support from family is the most important source of income, 0 otherwise<sup>3</sup>,  
 $e_5$  = saving duration as measured by years of saving,  
 $f_1$  = percentage of children living with family,  
 $f_2$  = percentage of children under 18 years old living with family,  
 $f_3$  = 1 if living with spouse, 0 if not,  
 $f_4$  = 1 if living with grandchildren, 0 if not,  
 $f_5$  = 1 if receiving money from children less than 10,000 baht per year, 0 otherwise,  
 $f_6$  = 1 if receiving money from children 10,000 baht and over per year, 0 otherwise<sup>4</sup>,  
 $f_7$  = number of times receiving basic needs from children in a year,  
 $f_8$  = number of times receiving visits from children in a year, and  
 $f_9$  = number of times receiving telephone contacts from children in a year.

## EMPIRICAL RESULTS

The results of this study are presented in three sections. The first section reports the descriptive statistics regarding elderly people in this study. The second section summarizes the assessment of active ageing of elderly people in Thailand, whereas the last section presents the results of the analysis of the determinant of active ageing in Thailand.

### *Descriptive Statistics Regarding Elderly People in Thailand*

According to Table 1, there were 20,997 elderly people aged 60–95 years old in this study. The male composed 44.96% of them while 55.04% were female. Moreover, the findings revealed that almost 67% of these elderly people were married and about 33% had the marital status as divorced, widow, or separate whereas only five elderly people, accounting for 0.03%, were still single. The findings also revealed that the mean age of these elderly people equaled 69.92 years old. In addition, they had the mean years of schooling of 5.66 years, implying that, in average, elderly people in Thailand completed only primary school.

**Table 2**  
*Descriptive Statistics of Sample*

Variable	Category		Frequency	Percentage
<b>Gender</b>	Male		9,441	44.96
	Female		11,556	55.04
<b>Marital Status</b>	Single		5	0.03
	Married		14,048	66.90
	Divorce/Widow/Separate		6,944	33.07
Variable	Mean	Minimum	Maximum	Std. Deviation
Age (Years)	69.92	60.00	95.00	7.57
Years of Schooling	5.66	0.00	16.00	3.28

*Source:* Author's calculation based on the National Statistical Office's elderly survey 2007.

*Remark:* Sample size equals 20,997 elderly people. They are categorized into two groups, including elderly people aged 60–74 years old (15,442 people) and elderly people aged 75–95 years old (5,555 people).



### *Active Ageing of Elderly People in Thailand*

After the calculations, health, participation, security, and active ageing indices are presented in Table 3. The findings revealed that the average health index equaled 0.8482, indicating that elderly people in Thailand, on average, had high active ageing under health dimension. This is because of the improvement of public health services, which leads to the constant decrease in mortality and morbidity and the higher life expectancy at birth. However, this study found that elderly people in Thailand, on average, had low active ageing under participation dimension since the average participation index was only 0.3792. Additionally, the average security index equaled 0.6214, implying that elderly people in Thailand, on average, had moderate active ageing under security dimension. Finally, the average active ageing index equaled 0.6162; therefore, elderly people in Thailand, on average, had moderate active ageing.

As elderly people in this study were divided into two groups, including those who are 60–74 and 75–95 years old, there appeared to be several differences in active ageing. First, elderly people aged 60–74 years old in Thailand had nearly 15% higher active ageing than those aged 75–95 years old since their average active ageing index equaled 0.6376 compared to that of elderly people aged 75–95 years old, which equaled 0.5570. This gap was mainly influenced by the vast difference in active ageing under participation dimension. That is, the average participation indices of elderly people aged 60 to 74 and 75 to 95 years old equaled 0.4180 and 0.2713, respectively. This implies that elderly people age 60 to 74 years old in Thailand had 54% higher active ageing under participation than those aged 75 to 95 years old. Nevertheless, elderly people aged 60 to 74 years old had only a bit higher active ageing under health and security dimensions than those aged 75 to 95 years old (less than seven percent).

**Table 3**  
*Health, Participation, Security and Active Ageing Indices*

Dimension	Mean	Minimum	Maximum	Std. Deviation
<b>Elderly People Aged 60 – 95 Years Old</b>				
Health Index	0.8482	0.0000	1.0000	0.1055
Participation Index	0.3792	0.0000	1.0000	0.2649
Security Index	0.6214	0.0000	1.0000	0.1643
<b>Active Ageing Index</b>	<b>0.6162</b>	<b>0.1284</b>	<b>0.9912</b>	<b>0.1232</b>
<b>Elderly People Aged 60 – 74 Years Old</b>				
Health Index	0.8630	0.0526	1.0000	0.0935
Participation Index	0.4180	0.0000	1.0000	0.2690
Security Index	0.6316	0.0244	1.0000	0.1597
<b>Active Ageing Index</b>	<b>0.6376</b>	<b>0.1772</b>	<b>0.9912</b>	<b>0.1195</b>
<b>Elderly People Aged 75 – 95 Years Old</b>				
Health Index	0.8069	0.0000	1.0000	0.1241
Participation Index	0.2713	0.0000	1.0000	0.2196
Security Index	0.5928	0.0000	1.0000	0.1732
<b>Active Ageing Index</b>	<b>0.5570</b>	<b>0.1284</b>	<b>0.9662</b>	<b>0.1135</b>

Source: Author's calculation

Let us look at elderly people categorized by level of active ageing as presented in Table 4. The findings revealed that 74.38% of the total elderly people in this study had high active ageing under health dimension, whereas 24.52% of them had moderate active ageing and only 1.10% had low active ageing under this dimension. In contrast, almost 70% of the total elderly people had low active ageing under participation dimension while 25.80% of them had moderate active ageing and only 4.53% had high active ageing under participation dimension. Under the security dimension, the findings revealed that 62.18% of the total elderly people had moderate active ageing under this dimension, whereas 22.85% of them had low active ageing and about 15% had high active ageing. In summary, this study found that 75.85% of the total elderly people in this study had moderate active ageing. This figure was complied with the average active ageing index shown in Table 3 above. Additionally, 17.29%

of them had low active ageing while 6.86% had high active ageing.

After separately considering elderly people in each age group, the findings revealed that nearly 79% of elderly people aged 60 to 74 years old had moderate active ageing while 67.69% of elderly people aged 75 to 95 years old had moderate active ageing. In addition, almost 80% of elderly people aged 60 to 74 years old had high active ageing under health dimension, whereas only 60% of elderly people aged 75 to 95 years old had high active ageing under this dimension. Under participation dimension, this study found that more than 88% of elderly people aged 75 to 95 years old had only low active ageing while the proportion of elderly people aged 60 to 74 years old who had low active ageing under this dimension was 62.96%. The proportion of elderly people aged 60 to 74 years old who had moderate active ageing under security dimension was 63.55% in comparison to 58.36% in case of elderly people aged 75 to 95 years old.

**Table 4**  
*Elderly People Categorized by Level of Active Ageing*

Dimension	Low		Moderate		High	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
<b>Elderly People Aged 60 – 95 Years Old</b>						
Health	231	1.10	5,149	24.52	15,617	74.38
Participation	14,628	69.67	5,417	25.80	952	4.53
Security	4,798	22.85	13,055	62.18	3,144	14.97
Active Ageing	3,630	17.29	15,926	75.85	1,441	6.86
<b>Elderly People Aged 60 – 74 Years Old</b>						
Health	98	0.63	3,063	19.84	12,281	79.53
Participation	9,722	62.96	4,836	31.32	884	5.72
Security	3,183	20.61	9,813	63.55	2,446	15.84
Active Ageing	1,948	12.61	12,166	78.79	1,328	8.60
<b>Elderly People Aged 75 – 95 Years Old</b>						
Health	133	2.39	2,086	37.55	3,336	60.05
Participation	4,906	88.32	581	10.46	68	1.22
Security	1,615	29.07	3,242	58.36	698	12.57
Active Ageing	1,682	30.28	3,760	67.69	113	2.03

Source: Author's calculation

### ***Determinants of Active Ageing of Elderly People in Thailand***

The results of the forward stepwise regression analysis are presented in Table 5. As shown in Table 5, the estimated regression equation was statistically significant at five percent level with the F-statistic of 830.02, and it could explain the total variation in active ageing index in natural logarithm form by 42.9%, thanks to the adjusted R-squared of 0.429. In addition, the findings revealed that demographic, health and behavioral, physical environmental, social, economic, and family factors had the statistically significant influences on the active ageing of elderly people in Thailand.

First of all, this study found the negative impact of age on active ageing of elderly people since the regression coefficient of age was -0.0045, meaning that the active ageing of elderly people tend to decrease by 0.45% when they got one year older. This figure conformed with the finding that elderly people aged 60 to 74 years old had the higher active ageing than those aged 75 to 95 years old. In terms of health and behavioral factors, the coefficients of having physical exercise regularly and no alcohol consumption equaled 0.0701 and -0.0190, respectively, implying that elderly people who had physical exercise regularly had 7.01% higher active ageing than those who did not, whereas those who did not have alcohol consumption had 1.90 lower active ageing than those who did.

However, this study found that elderly people who lived in urban areas had 1.58% lower active ageing than those who lived in rural areas since the coefficient of living in urban areas was -0.0158. The findings also revealed that all three social factors were positively related to the active ageing of elderly people. Receipt of useful information and awareness of social benefits for elderly people had the regression coefficients of 0.0313 and 0.0420, respectively, implying that elderly people who received useful information had 3.13% higher active ageing than those who did not, while those who were aware of social benefit for elderly

people had 4.20% higher active ageing than those who were not. In addition, active ageing of elderly people was expected to increase by 0.52% as they had one more year of schooling thank to the regression coefficient of 0.0052.

Additionally, all five economic factors were also positively related to active ageing of elderly people in Thailand. That is, this study found the significant influence of the most important source of income on the active ageing of elderly people. Based on Table 5, the coefficients of labor income, pension, saving, investment, and financial support from family as the most important source of income of elderly people equaled 0.2000, 0.1011, 0.0419 and 0.0218, respectively. Thus, elderly people who relied on labor income as the most important source had the highest active ageing, having 20% higher active ageing than those in base group, which covered those who relied on financial aids for elderly people as the most important source of income. Elderly people who relied on pension as the most important source of income had the second highest active ageing (10.11% higher than base group), followed by those who relied on saving and investment and financial support from family, having 4.19% and 2.18% higher active ageing than those in base group, respectively. Years of saving had the regression coefficient of 0.0030, indicating that active ageing of elderly people was expected to increase by 0.30% as they had one more year of saving.

Let us look at the influences of family factors on the active ageing of elderly people. This study found that the percentage of children under 18 years old living with family, living with spouse, the number of times receiving basic needs from children in a year, the number of times receiving visits from children in a year, and the number of times receiving telephone contacts from children in a year had the positive influences on the active ageing of elderly people. That is, the regression coefficients of the % age of children under 18 years old living with family, the number of times receiving basic needs from children in a year, the number of times receiving visits from children

**Table 5**  
*Results of the Forward Stepwise Regression Analysis*

Variable	60 – 95 Years Old		60 – 74 Years Old		75 – 95 Years Old	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
constant	-0.4655	0.0160	-0.5326	0.0222	-0.3323	0.0468
d <sub>2</sub>	-0.0045	0.0002	-0.0029	0.0003	-0.0062	0.0005
h <sub>1</sub>	0.0701	0.0028	0.0628	0.0033	0.0803	0.0051
h <sub>2</sub>	-	-	-	-	-0.0240	0.0075
h <sub>3</sub>	-0.0190	0.0030	-0.0187	0.0032	-	-
p <sub>1</sub>	-0.0158	0.0023	-0.0167	0.0026	-0.0123	0.0048
s <sub>1</sub>	0.0313	0.0024	0.0295	0.0028	0.0339	0.0048
s <sub>2</sub>	0.0420	0.0030	0.0379	0.0035	0.0478	0.0058
s <sub>3</sub>	0.0052	0.0004	0.0056	0.0005	0.0042	0.0008
e <sub>1</sub>	0.2000	0.0074	0.1761	0.0029	0.2361	0.0129
e <sub>2</sub>	0.1011	0.0091	0.0791	0.0066	0.1072	0.0160
e <sub>3</sub>	0.0419	0.0102	-	-	0.0724	0.0174
e <sub>4</sub>	0.0218	0.0071	-	-	0.0259	0.0102
e <sub>5</sub>	0.0030	0.0001	0.0030	0.0001	0.0028	0.0001
f <sub>1</sub>	-	-	-	-	-0.0003	0.0001
f <sub>2</sub>	0.0008	0.0003	0.0009	0.0003	-	-
f <sub>3</sub>	0.0430	0.0026	0.0428	0.0030	0.0369	0.0051
f <sub>4</sub>	-0.0117	0.0023	-0.0117	0.0026	-0.0121	0.0047
f <sub>5</sub>	-0.0192	0.0031	-0.0176	0.0037	-0.0212	0.0061
f <sub>7</sub>	0.00002097	0.0000	-	-	0.00003722	0.0000
f <sub>8</sub>	0.00005165	0.0000	0.00004861	0.0000	0.00006219	0.0000
f <sub>9</sub>	0.00006412	0.0000	0.00006496	0.0000	0.00007181	0.0000
F-Statistic	830.02		593.87		178.09	
P-Value	0.0000		0.0000		0.0000	
Std. Error	0.1604		0.1561		0.1705	
Adjusted R-Square	0.4286		0.3805		0.3773	

*Source:* Author's calculation

*Remarks:* 1. Dependent variable is the active ageing index in natural logarithm form.  
 2. All regression coefficients are statistically significant at 5 percent level.  
 3. d<sub>2</sub> = age, h<sub>1</sub> = 1 if having physical exercise regularly, h<sub>2</sub> = 1 if no smoking, h<sub>3</sub> = 1 if no alcohol consumption, p<sub>1</sub> = 1 if living in urban area, s<sub>1</sub> = 1 if receiving useful information, s<sub>2</sub> = 1 if aware of social benefits for elderly people, s<sub>3</sub> = years of schooling, e<sub>1</sub> = 1 if labor income is the most important source of income, e<sub>2</sub> = 1 if pension is the most important source of income, e<sub>3</sub> = 1 if saving and investment is the most important source of income, e<sub>4</sub> = 1 if financial support from family is the most important source of income, e<sub>5</sub> = years of saving, f<sub>1</sub> = percentage of children living with family, f<sub>2</sub> = percentage of children under 18 years old living with family, f<sub>3</sub> = 1 if living with spouse, f<sub>4</sub> = 1 if living with grandchildren, f<sub>5</sub> = 1 if receiving money from children less than 10,000 baht per year, f<sub>7</sub> = number of times receiving basic needs from children in a year, f<sub>8</sub> = number of times receiving visits from children in a year and f<sub>9</sub> = number of times receiving telephone contacts from children in a year.

in a year, and the number of times receiving telephone contacts from children in a year equaled 0.0008, 0.00002097, 0.00005165 and 0.00006412, respectively, implying that one percent increase in the number of their children under 18 years old living with family would lead to 0.08% increase in the active ageing of elderly people while one more time elderly people receive basic needs, visit and telephone contact from their children in a year would lead to 0.002097%, 0.005165%, and 0.006412% increase in the active ageing of elderly people in Thailand.

In addition, the regression coefficient of living with spouse equaled 0.0430, meaning that elderly people who lived with spouse had 4.3% higher active ageing than those who lived without spouse. However, I found that living with grandchildren and receiving money from children less than 10,000 baht per year had the negative influences on the active ageing of elderly people. That is, the coefficient of living with grandchildren was -0.0117, indicating that elderly people who lived with grandchildren had 1.17% lower active ageing than those who lived without. Additionally, the coefficient of receiving money from children less than 10,000 baht per year was -0.0192, implying that elderly people who received money from their children less than 10,000 baht per year had 1.92% lower active ageing than those who did not receive any money and those who received money from their children 10,000 baht and over per year.

As elderly people in this study were divided into two groups according to their age groups, 60 to 74 and 75 to 95 years old, there were several differences regarding the determinants of active ageing. According to the regression analysis of active ageing of elderly people aged 60 to 74 years old, this study found that elderly people who relied on labor income as the most important source of income had the highest active ageing, followed by those who relied on pension. However, those who relied on saving and investment, financial support from family, and financial aids for elderly people as the most important sources of income had no significant difference in active ageing. These findings were different from those of overall

elderly people that those who relied on labor income as the most important source of income had the highest active ageing, followed by those who relied on pension, saving and investment, financial support from family, and financial aids for elderly people, respectively. Finally, this study found that receiving basic needs from children did not matter for the active ageing of elderly people aged 60 to 74 years old since the regression coefficient of the number of times receiving basic needs from children in a year was not significant at any level.

In case of elderly people aged 75 to 95 years old, the different determinants of active ageing were also found in comparison to those of overall elderly people and elderly people aged 60 to 74 years old. First, the findings revealed that elderly people aged 75 to 95 years old who did not smoke had 2.4% lower active ageing than those who did since the regression coefficient of no smoking was -0.0240. However, there was no difference in active ageing between elderly people aged 75 to 95 years old who had alcohol consumption and those who had not. Unlike overall elderly people and those aged 60 to 74 years old, elderly people aged 75–95 years old tended to have the lower active ageing if the number of their children living with family increased. More clearly, the regression coefficient of the percentage of children living with family was -0.0003, implying that one percent increase in the percentage of their children living with family caused the active ageing of elderly people aged 75 to 95 years old to decrease by 0.03%. Nevertheless, the percentage of children under 18 years old living with family was found having no influence on active ageing of elderly people aged 75 to 95 years old.

## DISCUSSION

According to the findings, elderly people in Thailand, on average, had moderate active ageing. However, such active ageing is not likely to turn elderly people from dependent population into economic active population in the short run since

the average active ageing index is only 0.6162, which is still far lower than the criteria for high active ageing (0.8). Nevertheless, the situation appears better if we look at active ageing under health dimension. That is, elderly people in Thailand, both 60 to 74 and 75 to 95 years old, had high active ageing under health dimension. These findings noticeably reflect the achievement in public health development in Thailand that leads to the declining mortality and morbidity and the better physical and mental health of elderly people.

However, this study found that elderly people in Thailand had moderate active ageing under the security dimension. These findings imply that elderly people in Thailand did not have good economic preparation for their retirement. This statement can be supported by Chansarn (2011a) who found that working-age people aged 50 to 59 years old in Thailand had moderate economic preparation for their retirement, as measured by amount of saving and ownership of accommodation. Moreover, Chansarn (2011b) also found that most of working-age people aged 50 to 59 years old in Thailand were still indebted. Undoubtedly, these working-age people are unlikely to have high economic well-being as they retire and become elderly people, causing them not to have high active ageing under security dimension.

The most serious problem with active ageing in Thailand is that elderly people had very low active ageing under participation dimension, implying that they barely had work, family, and community participations. This situation caused the overall active ageing of elderly people in Thailand to be lower than it was supposed to be, given the fact that they had high active ageing under health dimension and moderate active ageing under security dimension. Therefore, encouraging elderly people to have more work, family and community participations should help improve the overall active ageing of elderly people in Thailand in the short run.

According to the analysis of the determinants of active ageing, elderly people will have the

lower active ageing as they become older. This is not surprising since ageing is naturally an obstacle to good health, participation, and income security. Having physical exercise regularly helps promote active ageing as it leads to better health condition and more community participation. However, elderly people who smoke and have alcohol consumption have the higher active ageing than those who did not. The explanation for this probably is that elderly people who smoke and have alcohol consumption have the better health and the higher economic well-being, implying the higher active ageing under health and security dimensions, than those who do not, whereas smoking and alcohol consumption generally do not deteriorate health very fast. That is why they still smoke and have alcohol consumption but have high active ageing.

Elderly people who live in urban areas have the lower active ageing than those who live in rural areas since those who live in rural areas tend to have better health and more work, family, and community participations. In terms of social factors, the receipt of useful information from various channels, such as newspapers, televisions, radios, leaflets, and internets, and the awareness of social benefits for elderly people, such as financial aids, special services in hospital, special clinics, bus and train fare discounts, and day cares for elderly people help enhance the active ageing of elderly people since they benefit elderly people's access to public services, health promotion, work and community participations, and economic well-being. Moreover, elderly people will have the higher active ageing as they have the higher education. Undoubtedly, the higher education generally leads to more decent works, more wealth, more family and community participation, better knowledge regarding health promotion, and better access to health services. That is why highly educated elderly people have high active ageing.

The most important source of income also plays the vital role in promoting active ageing of elderly people. That is, elderly people who rely on labor income as the most important source of income are found having the highest active ageing since

such elderly people tend to have good health and high work, family, and community participations. Those who rely on pension as the most important source of income also have high active ageing since such elderly people tend to have the higher and more sustainable income than those who primarily rely on saving and investment, which is normally insufficient. According to Chansarn (2011a), nearly 75% of people aged 50 to 59 years old in Thailand had saving less than 400,000 baht, equivalent roughly to USD12,900. This amount of saving is considered very little given the fact that life expectancy at birth of Thai people equals 74.1 years (UNDP, 2012). Given this life expectancy at birth, Thai people are supposed to live 14 more years after their retirement at 60 years of age, meaning that they need to live on USD921 a year or USD77 a month if they have saving of USD12,900.

Elderly people who primarily rely on financial support from their family have the lower active ageing than those who primarily rely on labor income, pension and saving, and investment since financial support from the family is not only insufficient but also not sustainable in the ageing society where the old-age population, who tends to live longer, grows faster than working-age population, who provides financial support to them. Elderly people who rely on financial aids of 500 baht per month, equivalent to USD16, provided by the government as the most important source of income have the lowest active ageing since this is very small amount of money, which is not likely to be sufficient for them to live happily. In terms of saving duration, the longer elderly people save, the higher economic well-being they will have after retirement, leading to the higher active ageing.

Furthermore, the findings revealed that family warmth is positively related to the active ageing of elderly people in Thailand. First, elderly people who live with spouses have the higher active ageing than those who did not because they tend to have the better mental health, they can help and take care of each other, and they are more likely to have community participation. Moreover, elderly

people will have the higher active ageing if they receive more basic needs, visits, and telephone contacts from their children. The explanation is simply that receiving visits and telephone contacts from their children certainly benefit elderly people's mental health while receiving basic needs benefits both their mental health and economic well-being.

Living with their children under 18 years old is positively related to the active ageing of elderly people in Thailand. The explanation for this is that, in Thai society, children under 18 years old are normally in school and regarded as dependent population. Therefore, elderly people living with many children under 18 years old tend to have more work, family, and community participations, better health, and higher economic well-being than those living with few children under 18 years old, leading to the higher active ageing. However, elderly people who live with more children, especially those aged 75 to 95 years old, are more likely to have the lower active ageing. This is because such elderly people are more likely to have poor health and low economic well-being, causing them to live with their children and depend on them.

Additionally, living with grandchildren lowers the active ageing of elderly people in Thailand, perhaps because elderly people living with grandchildren mostly play a vital role in taking care of them, causing the problem on health and less participation in community and work. Such a situation leads to the lower active ageing of elderly people who live with grandchildren. The situation will get worse for elderly people who have to take care of their grandchildren alone without the support from the children's parents, leading to lower active ageing under security and the overall active aging. Moreover, it is surprising that elderly people who receive from their children less than 10,000 baht per year, roughly equivalent to USD323, have the lower active ageing than those who do not receive any money. This is probably because elderly people who do not receive any money from their children have sufficient wealth to finance their consumption

in the first place, leading to no need of financial support from their children, whereas those who receive from their children less than 10,000 baht per year (833.33 baht or USD26.88 per month) may rely on the financial support from their children as the most important source of income. This amount of money is not likely to be sufficient for living, leading to the lower active ageing for such elderly people.

## CONCLUSION AND RECOMMENDATION

Active ageing of elderly people is very important to Thailand's future in an ageing society with the diminishing proportion of working-age population and the increasing proportion of the old-age population who are dependent on it. Active ageing under health, participation, and security dimensions will be the vital tool to turn elderly people from dependent population into economic active population who will be resources for their families, communities and the nations, leading to the sustainable economic growth and social stability in the ageing society. Unfortunately, it seems that the active ageing of elderly people in Thailand is not high enough to make a great fortune for Thailand at this moment. To promote the active ageing of elderly people in Thailand, appropriate public policies to promote work, family, and community participations of elderly people urgently need to be carried out to enhance the active ageing under participation dimension. Such policies include decent work promotion and cooperative activities promotion policies.

Public policies to enhance the active ageing under security dimension are also needed. This study recommends the national compulsory fully-funded pension system to encourage saving of working-age population. With this policy, working-age people are expected to have more saving and the social safety net, leading to the higher wealth accumulation during their working age and increasing their opportunity to become economic active population as they

retire and become elderly people. In addition, it is necessary for the government to carry out the effective campaign for promoting the realization of the necessity of the economic preparation for retirement to encourage working-age people to save for their retirement in advance. By doing so, elderly people in Thailand who have an advantage in good health in the first place will certainly have the higher active ageing since they will have sufficient wealth to finance their consumption and public health services. As a result, Thailand will be able to enjoy the economic benefits from the increasing proportion of old-age population who have high active ageing and become the source of sustainable economic and social development of the nation in the ageing society.

In addition, the public policies to provide more useful information for elderly people, to offer social benefits for elderly people, and to encourage physical exercise of elderly people will also help promote the active ageing of elderly people in the short run. Even though this study found that elderly people who smoke and have alcohol consumption have the higher active ageing than those who do not, public policies to encourage elderly people to quit smoking and drinking alcohol are also necessary. As mentioned, such elderly people still smoke and drink alcohol because they still have good health and high wealth accumulation, whereas the others neither smoke nor drink alcohol because they have poor health and low wealth accumulation. Thus, quitting smoking and drinking alcohol certainly help enhance the active ageing of elderly people given the fact that smoking and drinking alcohol are harmful to health and waste of money.

Family warmth is also one of the key factors for promoting the active ageing of elderly people. There should be public campaigns to decrease divorce rate in the nations and to encourage working-age people to constantly keep in touch with their old parents and public policies to encourage working-age population to provide more financial supports to the their parents. Besides, the public policies to promote the education of young people are also necessary



since highly educated people tend to have high income, high work, family, and community participations, good access to public health, and good health. As a result, they are likely to have high active ageing as they retire. Finally, the priority for the improvement in active ageing is given to elderly people living in urban areas since they have the lower active ageing than those living in rural areas. The mentioned policies are vital to enhance the active ageing of elderly people in Thailand and for the prosperity of Thailand under an ageing population.

There are several recommendations for further study on the active ageing of elderly people. First of all, qualitative study on the active ageing which is linked with the survey data is recommended since it will help confirm the results of the quantitative study and provide the useful insight regarding the active ageing of elderly people. Additionally, caregiver for elderly people should be considered since it is one of the major factors that affect the active ageing under health dimension. However, the caregiver for elderly people is not included in this study due to the limitation of data available. Eventually, the comparative study on the active ageing across countries is also suggested since it will provide the useful insight regarding the active ageing of elderly people in different countries that will benefit the policy formulations and implementations in the nations.

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## ENDNOTES

<sup>1</sup> Note that family factors are not the determinants of active ageing mentioned by World Health Organization in its policy framework for active ageing (WHO, 2002).

However, they are included in this study thank to Thailand's distinct culture that elderly people heavily rely on family.

<sup>2</sup> The base group covers elderly people who are single.

<sup>3</sup> The base group covers elderly people who rely on financial aids for elderly people as the most important source of income.

<sup>4</sup> The base group covers elderly people who do not receive any money from own children in a year.

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