International Journal of Economic Research
Volume 15, Number 1, 2018, ISSN : 0972-9380
available at http: www.serialsjournals.com

DOES ANNUITY LIFE INSURANCE IS THE SAVING OPTION WHEN DEMOGRAPHIC CHANGE? : THE IMPLICATION OF JAPAN AND THAILAND

Sivalap Sukpaiboonwat[1]

[1] *Lecture of Faculty of Economics, Srinakharinwirot University, Bangkok, Thailand, E-mail: sivalap@gmail.com*

Abstract: The research problem is the World's population, Japan's population and Thailand's population have demographic change which the number of child and labor force tends to decline while population aging is increasing steadily. Japan has become aged society already while Thailand will grow into aged society in 2025. It is only 7 years from now. This is an important problem, Thailand should have a clear policy and pragmatic to encourage voluntary saving in working period to prepare money for the time of retirement. Thus, this paper investigates the change in population demographics and the policies to mobilize voluntary savings as annuity life insurance implications of Japan and Thailand.

Research methods include: (a) the scope of the studies in this research is the change in population demographics and the policies to mobilize voluntary savings as annuity life insurance in Japan and Thailand. (b) The comparative study by using secondary data from book, journal, website and related organizations. (c) The method of analysis in this research is qualitative descriptive.

The results of the research find both countries face the same demographic trend in birth rate, death rate, population ages 0-14, population ages 15-64, population ages 65 and above, population growth and total population. However, there are difference demographic trend in populations ages 15-64 (% of total) and age dependency ratio. As the population forecasts, the population aging is increasing steadily. The only saving money from compulsory may not enough. The saving voluntary during the working period is particularly important, it leads to enough income, make a living after working continuously and reduce reliance on social burden. The saving voluntary in the form of life insurance, annuity life insurance is a special savings because give both of protection of life and retirement income to the elderly. Annuity life insurance in Japan is gradually increasing while as rapidly increasing in Thailand. Thai people start to have interests in annuity life insurance since 2011. Nowadays, annuity life insurance is currently popular because of the tax deduction benefit from Thai government supporting.

Keywords: Demographic, Population aging, Voluntary saving, Annuity life insurance, Aging society, Aged society

I. INTRODUCTION

1.1. Background

Aging Society is the situation which population ages 60 and above becomes a proportionally larger share of the total population more than 10 percent, as well as Aged Society, is the situation which population ages 60 and above becomes a proportionally larger share of the total population more than 20 percent. Most countries in the world are facing a fast rate of population aging. Nowadays, Thailand is the aging society as well as Japan is aged society. The data from the Department of Economic and Social Affairs, Population Division, United Nations presents country ranking by percentage of population ages 60 years and above, Thailand has 15.8 percent is 63rd rank while Japan has 33.1 percent is the 1st rank (U.N,2015).

The data in Table 1, the World's population, Japan's population and Thailand's population have the same problems in demographics which number of child and labor force tends to decline while population aging is increasing steadily. Thailand has started to aging society since 2005 which have population ages 60 and above accounted for 10.3 percent. As a result of population policy and family planning, advances in medicine and public health as well as progress in economic and social development. Moreover, Thailand is increasing the knowledge of health care which leads to people have longevity. Considering the numbers of population projections, Thailand's population ages 60 and above accounted for 20.0 percent in 2025. This means that Thailand will become "Aged society" within a 10 years from now. The situation changed quickly so may disrupt the economy and quality of life of the population aging in the future.

As while Thailand grew into an aging society in 2005, Japan has become aged society already which population ages 60 and above accounted for 26.8 percent. So when talking about "Population Aging", the first country to think is Japan because Japan has grown into the aging society since 1970, aged society since 1994 and the highest proportion of elderly in the world now. So, it's interesting however Japan managed the population aging, especially the voluntary saving for the retirement time.

Table 1
Population aged Group: World, Japan and Thai in 2000-2100

	The World's population[1]				*Japan's population*[2]				*Thailand's population*[3]			
Year	*Total (Thousand Person)*	*0-14 (%)*	*15-59 (%)*	*60 and above (%)*	*Total (Thousand Person)*	*0-14 (%)*	*15-59 (%)*	*60 and above (%)*	*Total (Thousand Person)*	*0-14 (%)*	*15-59 (%)*	*60 and above (%)*
2000	6,070,578	30.1	59.9	10.0	126,926	14.6	62.0	23.4	62,237	24.7	65.9	9.4
2005	6,453,627	28.3	61.3	10.4	127,768	13.7	59.5	26.8	64,765	23	66.7	10.3
2010	6,830,282	27.0	61.9	11.1	128,057	13.1	62.5	24.4	67,042	21.2	67.1	11.7
2015	7,349,472	26.1	61.6	12.3	126,573	12.9	54.0	33.1	67,959	19.7	64.5	15.8
2020	7,540,238	25.2	61.2	13.6	124,100	11.7	59.2	29.1	70,821	19.0	64.2	16.8
2025	7,581,455	24.2	60.8	15.0	123,798	12.1	52.8	35.1	72,288	18.0	62.0	20.0
2050	9,725,148	21.3	57.2	21.5	107,411	12.4	45.1	42.5	62,452	12.7	50.2	37.1
2100	11,213,317	17.7	54.0	28.3	83,175	13.4	45.7	40.9	41,604	13.3	46.3	40.4

Source: [1] Department of Economic and Social Affairs, Population Division, United Nations
[2] National Institute of Population and Social Security Research, Japan
[3] Office of the Nation Economic and Social Development Board, Thailand

As the world's population forecasts, the elderly population is increasing steadily. World Bank has set a pattern of saving both compulsory and voluntary as well as the welfare system to reserve for retirement. Under the theoretical savings system; Multi Pillars, which each country can apply an appropriate method (Robert Holzmann, Richard Paul Hinz and Mark Dorfman, 2008).

(a) Pillar 0: A non-contributory "zero pillar" of the social security system. This fund does not pay, non-contributory. It provides grant money to the elderly for living a basic minimum. It may cover all seniors (universal) or only for the poor such as old-age income security in Thailand.

(b) Pillar 1: A mandatory "first pillar" is compulsory. This fund paid by the individual and the government will pay the subsidy part. Managed by government agencies, a minimum set of benefits that members receive such as social security system, including pension funds in Thailand.

(c) Pillar 2: A mandatory defined-contribution "second pillar" is compulsory. The government forced an individual to increase savings during the working period to have money guarantee in retirement period. This fund provides privately-managed individual savings accounts such as the Government Pension Fund in Thailand.

(d) Pillar 3: A funded voluntary "third pillar" of the voluntary sector. The amount accumulated for retirement (defined contribution system) is formed by individual savings accounts. This fund provides privately-managed individual savings accounts. The government provides support by providing tax incentives including provident funds, mutual funds, RMF, life insurance, and annuity life insurance in Thailand.

(e) Pillar 4: A non-financial "fourth pillar" of the system to maintain adequacy, affordability, sustainability, equity, predictability, and robustness. This includes access to support such an informal family support. Other social programs such as healthcare, housing and other personal property such as a home loan may be used for the elderly. Also known as a reverse mortgage.

Thailand's population structure changes; the number of children and working-age decreased. The medicine development increasing leads to the elderly live longer. The trend of living together as one big family is slow down. Moreover, the elderly are more likely to live alone with their spouses so the elderly must to use income savings to spend in retirement. If the savings are not enough, it may

Table 2
Domestic savings, Household Savings, Life Insurance premiums, Annuity life Insurance premiums, Annuity income in 2008-2013

Unit : Million Bath

Transactions	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*
Domestic savings [1]	2,902,576	2,801,554	3,227,126	3,382,080	3,422,084	3,234,897
Household savings [1]	490,091	536,367	575,781	601,443	611,933	646,979
Life Insurance premium [2]	223,354	258,545	296,106	329,112	390,998	443,233
Annuity life insurance premiums [2]	153	180	210	854	1,322	3,163
Annuity income [2]	89	18	34	49	68	259
Gross Domestic Product (GDP) [3]	4,364,833	4,263,139	4,596,112	4,599,655	4,898,189	5,039,794
% Household savings						
Life Insurance premium [2]	45.57	48.20	51.43	54.72	63.90	68.51
Annuity life insurance premiums [2]	0.03	0.03	0.04	0.14	0.22	0.49
Annuity income [2]	0.02	0.00	0.01	0.01	0.01	0.04
% GDP						
Domestic savings [1]	66.50	65.72	70.21	73.53	69.86	64.19
Household savings [1]	11.23	12.58	12.53	13.08	12.49	12.84
Life Insurance premium [2]	5.12	6.06	6.44	7.16	7.98	8.79
Annuity life insurance premiums [2]	0.00	0.00	0.00	0.02	0.03	0.06
Annuity income [2]	0.00	0.00	0.00	0.00	0.00	0.01
Growth rate (%)						
Domestic savings [1]		-3.5	15.2	4.8	1.2	-5.5
Household savings [1]		9.4	7.3	4.5	1.7	5.7
Life Insurance premium [2]		15.8	14.5	11.1	18.8	13.4
Annuity life insurance premiums [2]		17.9	16.6	306.5	54.8	139.3
Annuity income [2]		-79.3	83.1	45.9	37.5	282.1
Gross Domestic Product (GDP) [3]		-2.3	7.8	0.1	6.5	2.9

Source: [1] Fiscal Policy Office Bureau of savings and saving policy, Thailand
[2] Office of Insurance Commission, Thailand
[3] Office of the Nation Economic and Social Development Board, Thailand

affect their livelihood. This situation becomes a burden to society. It reflects the need to prepare the financial arrangements early to help appropriate and adequate support various welfare to elderly. The only saving money from compulsory, retirement savings may not enough to count the cost of living is rising steadily. The savings voluntary in the working period is particularly important to have enough income to make a living after working continuously and reduce reliance on the social burden. The saving voluntary takes many forms, such as provident fund, mutual fund, retirement fund (RMF), life insurance, pensions, etc. The savings in the form of life insurance, annuity life insurance is a special saving because give both of protection of life and retirement income to the elderly. It is not a burden on society and families.

The proportion of life insurance premium and annuity life insurance premium to household savings in Table 2 are increasing. The proportion of life insurance premium to household savings in 2008-2013 was 45.57%, 48.20%, 51.43%, 54.72%, 63.90% and 68.51%, respectively. In Thailand, annuity life insurance is another form of life insurance and retirement savings, only the insured pays a premium to the life insurance company for a specified period. When the insured person 55 or 60 years old, the life insurance company will pay the regular amount of money, annuity income, to the insured on a regular basis every month or every year until the age with the conditions set out in the insurance policy. The proportion of annuity life insurance premium to household savings in 2008-2013 was 0.03%, 0.03%, 0.04%, 0.14%, 0.22% and 0.49%, respectively. It means that Thai people interests in the savings voluntary especially annuity life insurance more than the past.

1.2. Problems and Objectives

According to the data in Table 2 shows the proportion of life insurance premiums to GDP in 2008-2013 was 5.12%, 6.06%, 6.44%, 7.16%, 7.98% and 8.79%, respectively. It means that the growth rate of life insurance premiums is increasing when relative to GDP. The main reason of household sector is more likely to focus on the long-term saving for quality of retirement life. However, when considering in terms of the proportion of annuity income to gross domestic product, this proportion is still very small. It is only 0.01% in 2013, or only 259 million baht for retirement payments to the insured. Thus, it is urgent matter that Thailand should have a clear supportive policy to encourage people to save while they stay in the working period in order to prepare themselves for entering the aged society in 2025.

It is therefore imperative that Thailand urgently needs to explore the policy with countries that already entered the aged society is already like Japan. Especially the policy of mobilizing voluntary savings within the country, in order to provide Thailand with timely and appropriate information on the preparation process.

This paper investigates the demographic transition, the policies to mobilize domestic savings, the voluntary sector such as annuity life insurance implications of population aging between Japan and Thailand.

1.3. Outcomes & Contributions

The results find the 4 important parts comparative between Japan and Thailand.

(a) The first, the key indicator in population, GDP, and Insurance premium.

(b) The second, the change in demographics: population indicators.

(c) The third, the insurance saving: annuity life insurance.

(d) The fourth, the regulatory supporting policy: tax deduction scheme.

It is helpful to understanding the current situation and applying Japan's experience to Thailand. This experience sharing will develop the long-term savings for Thailand's population aging in the future.

II. STUDY REFERENCES

2.1. Theory and Literature Review

The life-cycle hypothesis provides a direct theoretical relationship between aging, income, consumption and household savings in the economy. Consumption is not based on revenue at the current time but based on estimates of income throughout of lifespan to get maximize utility and smooth consumption over time. The life-cycle hypothesis represents savings is positive for young households and negative for the retired. Regarding, People will save more when they younger, they will have money to spend when they are older and either cannot or do not wish to work (Tullio Jappelli and Franco Modigliani, 1998) in Figure 1. Mankiw (2013) said if the consumer smooth consumption over their life as indicated by the horizontal consumption line, they will save and accumulate wealth during their working years and then dissave and run down their wealth during retirement.

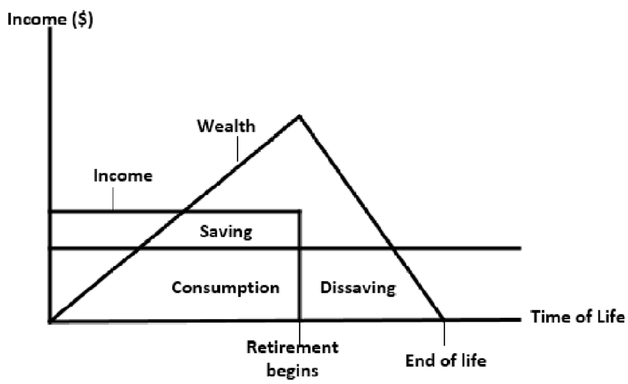


Figure 1: Franco Modigliani and Life cycle hypothesis

Source: Mankiw, 2013

The savings plan in the life-cycle model decides on the basis of self-interest, trying to take advantage of the wealth and not save for anyone. This view is contrary to the fact for Thailand and several countries in Asia. Schunk (2007) has expanded analytical framework savings, self-interest, but that does not mean that. "Do not care for people". For a typical household, many considerations influence saving decision over the life-cycle. For example, households save to finance consumption after retirement. They save for supporting their children or grandchildren, e.g. during their education, or for leaving a bequest to them. These considerations and circumstances imply explicit saving targets which reflected in the behavior of giving behavior and bequest transfer.

The Extended Life Cycle Model is a new alternative theory. The definition includes the transfer of money or property, as well as non-monetary while still alive or after death into the model. Life insurance is the framework of the extended life cycle model because the main of life insurance reason is prevent financial risks as their own lives. At the same time, it shows the intention to grant compensation to the children or the beneficiary when they died. Addition, savings with life insurance allows the saving is time-consistency because the insured will pay a regular amount every year or every period as defined in the policy to have enough savings for retirement.

Another theory developed the theory of life cycle model is Overlapping Generations Model, OLG. The one originally proposed by Diamond (1965) building on Samuelson (1958). The model emphasis on the relationship of people across overlap generations. Everyone goes through three generation of life; childhood, adult and elderly. By modeling this relationship across the generations which means a transfer of income and help each other, the childhood relies on parents to raise tuition and alimony, as well as elder, rely on his child. Regarding, the second generation is a very high social and economic role because they are working age who support both of child and their parents. In fact, several the elderly have self-reliant, they have accumulated enough wealth. Some people receive annuity earning from life insurance and pension as national pension, employee pension, and etc. However, a dependence that may not mean just only money but rely on the non-monetary support such as health care in daily life, getting out of the house, etc.

The savings in the form of life insurance, annuity life insurance is a voluntary savings to protect life and retirement income. This saving helps the elderly is not a burden on society and families. There is academic research which relates to annuity life insurance as Katharine G. Abraham and Benjamin H. Harris (2014) find the United States is alert and prepare retiree with annuity life insurance because of populations live longer. The annuity life insurance is a financial instrument as a way to make enough income during retirement. The largest population in the world, savings in the form of annuity life insurance is popular increasingly because the policy guaranteed the income of elderly people in China. When seniors have enough income from pensions, it will increase in spending behavior which leads investors to produce more goods and services (Katharine G. Abraham and Benjamin H. Harris, 2014; Zhenhui, 2014). Increasing consumption and investment will lead to economic growth finally.

2.2. Conceptual Framework Research

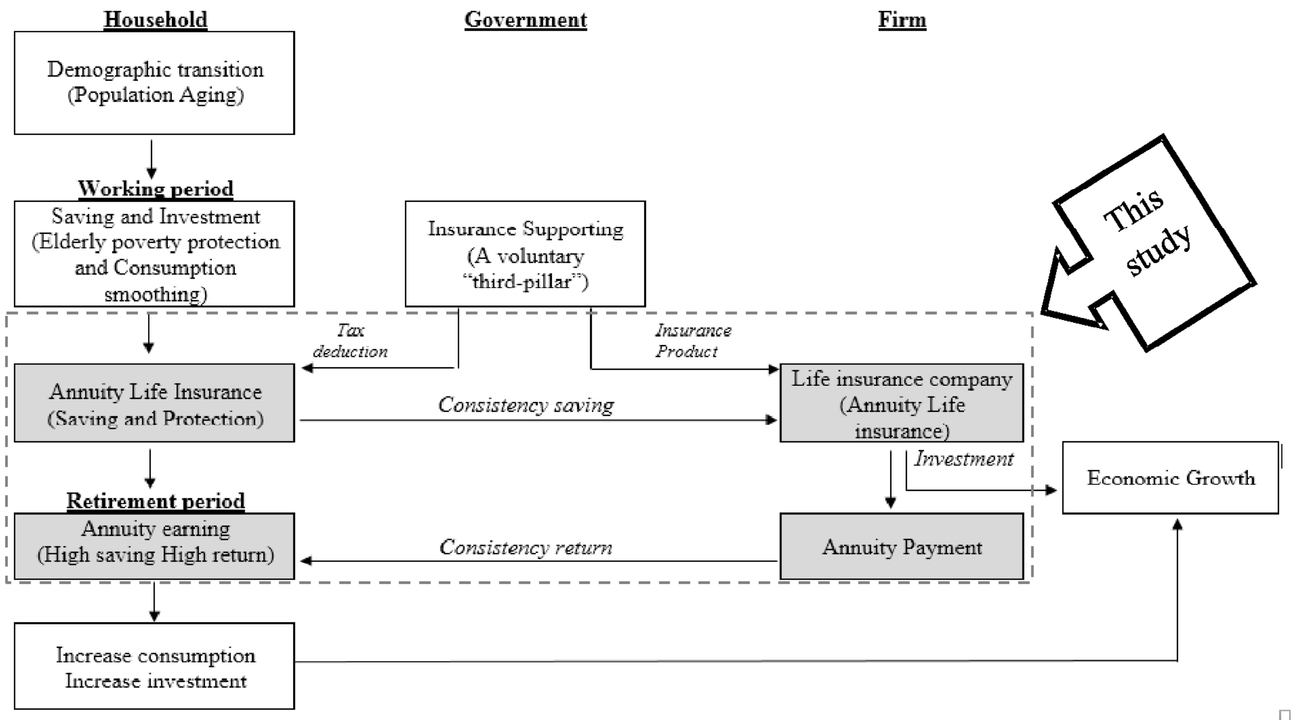


Figure 2: Conceptual Framework Research

Source: Prepared by author

III. RESEARCH METHODS

3.1. Scope

The scope of the studies in this research is the change in population demographics and the policies to mobilize voluntary savings as annuity life insurance in Japan and Thailand. The observation period is about 2012-2014.

3.2. Type and sources of data

This study by using secondary data from book, journal, website and related organizations. The related organization separates three data sources for this study.

(a) The first, the international organizations are from United Nations, World Bank, and Swiss Re.

(b) The second, the Japan organization are from National Institute of Population and Social Security Research, and The Life Insurance Association of japan.

(c) The Thai organizations are from Office of the nation economic and Social Development Board, Bureau of savings and saving policy, Office of Insurance Commission, and Revenue Department of Thailand.

3.3. Methods of analysis

The method of analysis in this research is qualitative descriptive. The comparative analysis is both of the change in population demographics and the policies to mobilize voluntary savings as annuity life insurance implications of population aging of Japan and Thailand.

IV. RESEARCH RESULTS

This paper investigates the change in population demographics and the policies to mobilize voluntary savings as annuity life insurance. The results separate into four parts comparative analysis;

(a) The key indicator in population, GDP and Insurance premium

(b) The change in demographics: population indicators

(c) The insurance saving: annuity life insurance

(d) The regulatory supporting policy: tax deduction scheme

4.1. Analysis of the key indicator in population, GDP and Insurance premium

The demographic has transforming in Japan and Thailand. Life expectancy at birth is increasing both of Japan and Thailand. People are raising life expectancy because of better nutrition, sanitation, health care, education and economic well-being. Population aging presents a number of challenges to families, communities, societies and economic issues such as economic growth, economic security in old age, health care systems and the strength of familial support systems. Due to the low fertility rate and increasing life expectancy, Japan and Thailand are raising population aging. If population ages 65 and above are continuous increasing, it will be increase the fiscal burden of future generations. Within limitation fiscal budget, older people are greater risk for poverty in the future. Many seniors will be in poverty today if Socio-economic Security did not exist. Thus, people might change their behavior such as they might work longer, and/or they might save more particular voluntary saving. Nowadays, Japan leads the world with one of the most rapid population aging. This change is sparking a reevaluation of the social security system, including annuities and public nursing care, to increase its sustainability. Going forward, the role that life insurance companies play more significant. The country ranking by Life insurance premium volume in USD in 2014, present United States is the 1st rank while Japan is the 2nd rank and Thailand is the 31st rank in the World (Swiss Re, 2015). Annuity life insurance is one popular life insurance premium, the households both of Japan and Thailand tend to focus on annuity life insurance increased. This saving represents the long-term quality of life in retirement.

Table 3
Key indicators for Japan and Thailand in 2012-2014

Key indicators	*Japan*			*Thailand*		
Year	*2012*	*2013*	*2014*	*2012*	*2013*	*2014*
Life expectancy at birth, (year) [1]	83.00	83.33	83.58	74.07	74.2	74.8
Fertility rate (birth per woman) [1]	1.41	1.43	1.42	1.53	1.52	1.51
Population ages 65 and above (% of total)[1]	24	25	26	9	10	10
GDP at market prices (current million US$)	5,954,476	4,919,563	4,601,461	397,471	420,166	404,823
Gross Domestic Saving						
(millions of US$)[1]	1,125,069	1,076,000	1,038,000	114,828	126,279	124,356
(% of GDP)[1]	18.89	18.29	21.41	28.89	30.05	30.72
Life premium volume						
(millions of US$)[2]	499,046	498,003	479,762	12,657	12,360	13,297
(% of GDP)	8.38	10.12	10.43	3.18	2.94	3.28
Annuity Life Insurance Premium						
(millions of US$)3*	70,471	71,399	80,460	37	89	201
(% of GDP)	1.18	1.45	1.75	0.01	0.02	0.05

Source: Compared by author using data from

[1] World Bank indicators, trading economics

[2] Swiss Re, Zurich

[3] The Life Insurance Association of Japan

[3] Office of Insurance Commission, Thailand

Remark: *1 dollar = 114.33 yen and 1 dollar = 35.56 bath (as of March 3, 2016)

4.2. Analysis of the change in demographic: population indicators

Changes in age structure and other important demographic data reported in Table 4 and Figure 3. Japan's Population ages 65 and above increase from 12 percent in 1990 to 25.7 percent in 2014 as well as Thailand's Population ages 65 and above increase from 4.6 percent in 1990 to 10.0 percent in 2014. It is the same trend both of Japan and Thailand, It confirms that the number of elderly in Japan and Thailand are increasing rapidly while the number of children those under age fifteen has been declining. Detail of population indicators by following;

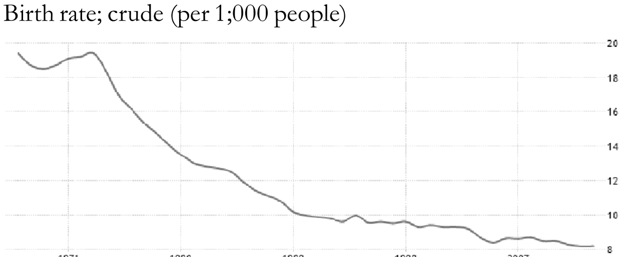
Table 4
Population indicators – Japan and Thailand in 1990-2014

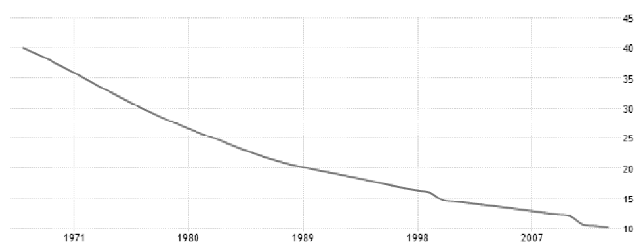
Population Indicators	*Japan 1990*	*2000*	*2010*	*2014*	*Thailand 1990*	*2000*	*2010*	*2014*
Birth rate; (per 1,000 people)	10	9.4	8.5	8.2	19.7	14.7	12.1	10.2
Death rate; (per 1,000 people)	6.7	7.7	9.5	10.1	6.3	6.3	7.4	7.7
Population ages 0-14 (% of total)	18.3	14.6	13.4	12.9	30	24	20.5	17.9
Population ages 15-64 (% of total)	69.7	68.2	64.0	61.3	65.4	69.1	70.6	71.9
Population ages 65 and above (% of total)	12	17.2	22.7	25.7	4.6	6.9	8.9	10.0
Age dependency ratio (% of working-age population)	43.5	46.6	56.4	62.9	53	44.7	41.7	38.9
Age dependency ratio; old (% of working-age population)	17.2	25.2	35.5	41.9	7.1	10	12.6	14.0
Age dependency ratio; young (% of working-age population)	26.3	21.5	20.9	21.0	45.9	34.7	29.1	24.9
Population growth (annual %)	0.3	0.2	-0.1	-0.1	1.4	1.2	0.6	0.4
Population; total (million persons)	123.5	126.9	128.0	127.1	56.7	62.2	67.0	67.7

Source: Compared by author using data from World Bank indicators, trading economics

Japan	*Thailand*

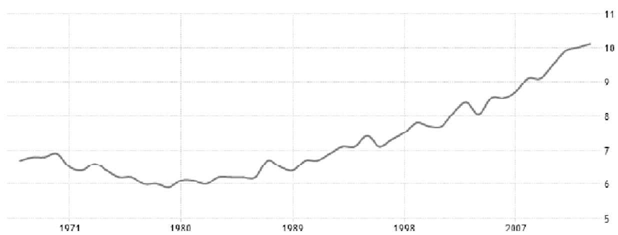
Birth rate; crude (per 1;000 people)

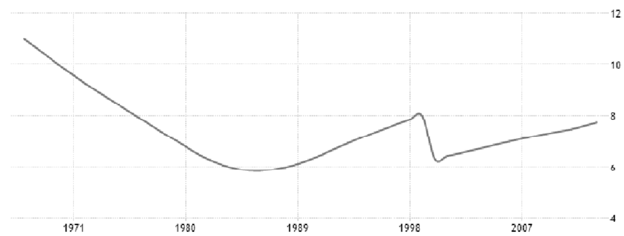




Crude birth rate indicates the number of live births occurring during the year, per 1,000 population estimated at midyear. In 2014, Thailand has crude birth rate more than Japan; 10.2 in Thailand and 8.2 in Japan. However, the trend of Birth rate - crude (per 1;000 people) in Japan and Thailand are decreasing.

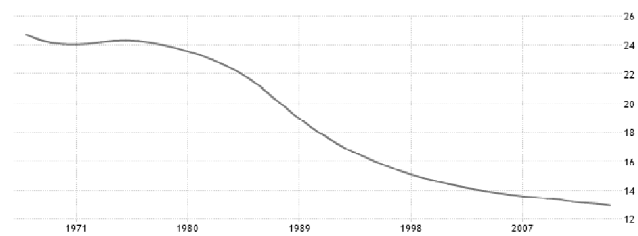
Death rate; crude (per 1;000 people)

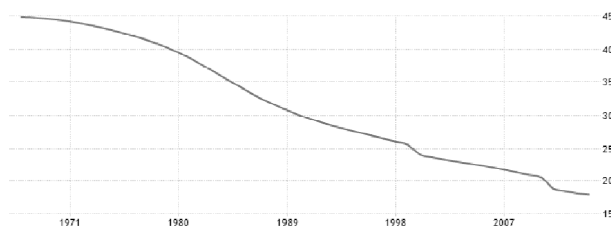




Crude death rate indicates the number of deaths occurring during the year, per 1,000 population estimated at midyear. In 2014, Thailand has crude death rate less than Japan; 7.7 in Thailand and 10.1 in Japan. The trend of death rate in Japan is increasing. The trend of death rate in Thailand is fluctuated, decreasing and increasing between 1970-1999 and after then increasing between 2000-2014 which a result from population policy, family planning, advances in medicine and public health in Thailand.

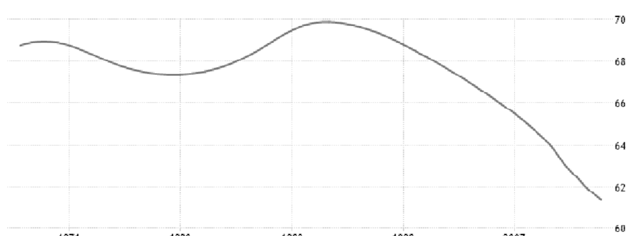
Population ages 0-14 (% of total)

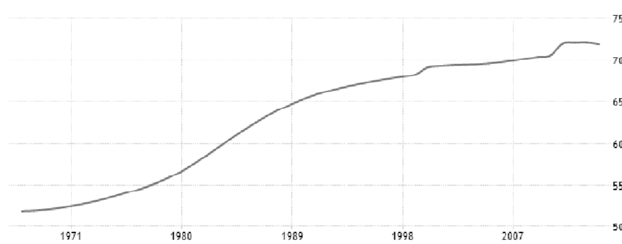




Population between the ages 0 to 14 as a percentage of the total population. In 2014, Thailand has population ages 0-14 more than Japan; 17.9 in Thailand and 12.9 in Japan. However, the trend of Population ages 0-14 (% of total) in Japan and Thailand are decreasing.

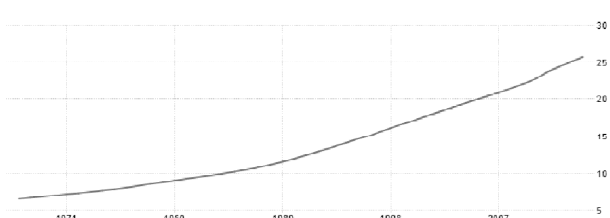
Population ages 15-64 (% of total)

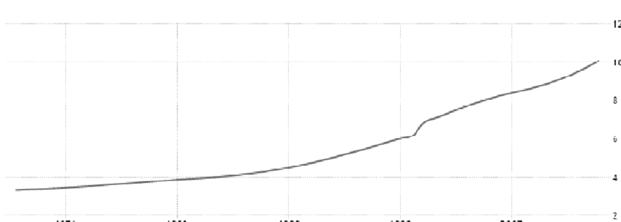




Population ages 15 to 64 is the percentage of the total population. Thailand has population ages 15-64 more than Japan since 2000. In 2014, Thailand has population ages 15-64 more than Japan; 71.95 in Thailand and 61.36 in Japan. The trend of population ages 15-64 (% of total) in Japan is decreasing while Thailand is still increasing because Thailand has a birth rate more than Japan in the past.

Population ages 65 and above (% of total)

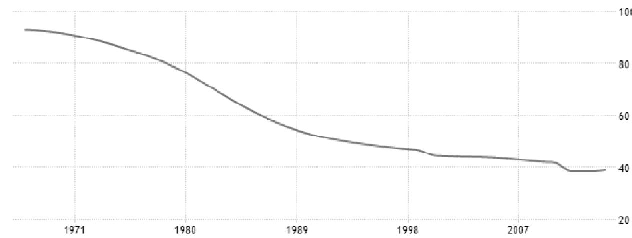




Population ages 65 and above as a percentage of the total population. In 2014, Thailand has population ages 65 and above less than Japan about 2 times; 10.0 in Thailand and 25.7 in Japan. However, the trend of Population ages 65 and above (% of total) in Japan and Thailand are increasing.

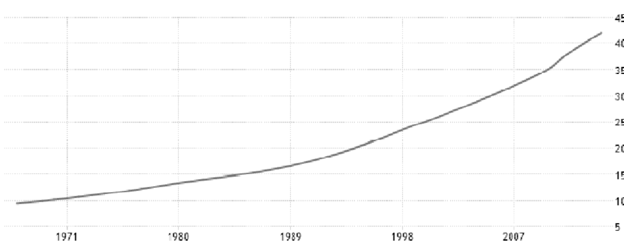
Japan	*Thailand*

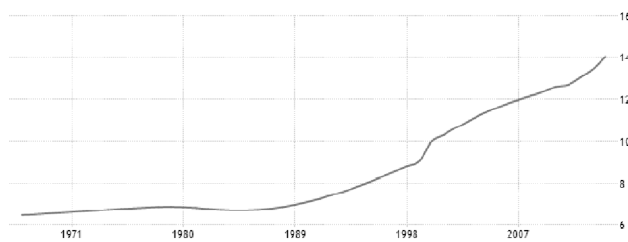
Age dependency ratio (% of working-age population)



Age dependency ratio is the ratio of dependents—people younger than 15 or older than 64—to the working-age population—those ages 15-64. In 2014, Thailand has age dependency ratio less than Japan about 1.6 times; 38.99 in Thailand and 62.98 in Japan. The trend of age dependency ratio (% of working-age population) in Japan is increasing while Thailand is decreasing. The trends are difference because population ages 15-64 is decreasing in Japan whereas population ages 15-64 is increasing in Thailand.

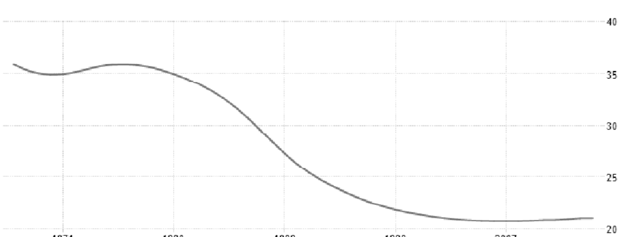
Age dependency ratio; old (% of working-age population)

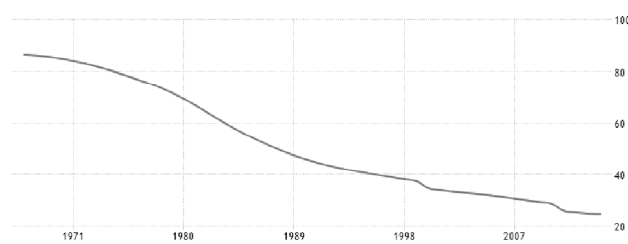




Age dependency ratio, old, is the ratio of older dependents—people older than 64—to the working-age population—those ages 15-64. In 2014, Thailand has age dependency ratio; old less than Japan about 2.98 times; 14.0 in Thailand and 41.9 in Japan. However, the trend of Age dependency ratio - old (% of working-age population) in Japan and Thailand are increasing.

Age dependency ratio; young (% of working-age population)

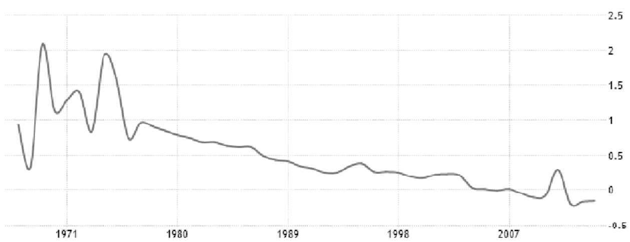


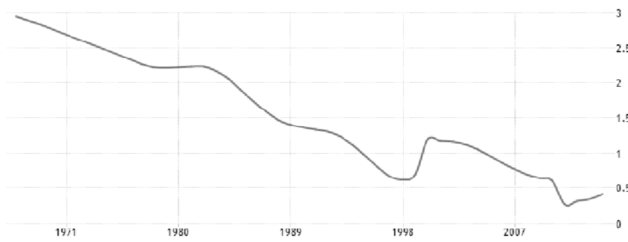


Age dependency ratio, young, is the ratio of younger dependents—people younger than 15—to the working-age population—those ages 15-64. In 2014, Thailand has age dependency ratio; young more than Japan; 24.9 in Thailand and 21.0 in Japan. However, the trend of Age dependency ratio - young (% of working-age population) in Japan and Thailand are decreasing.

Japan	*Thailand*

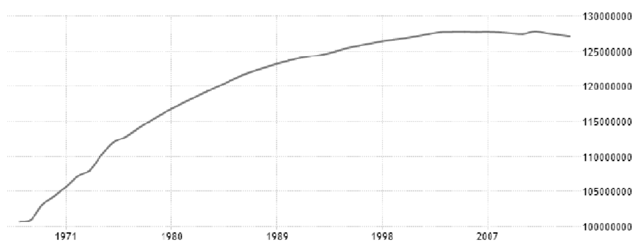
Population growth (annual %)





Annual population growth rate for year t is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage. In 2014, Thailand has population growth more than Japan; 0.4 in Thailand and -0.1 in Japan. However, the trend population growth (annual %) in Japan and Thailand are decreasing. Especially, Japan has negative annual population growth rate since 2010.

Population; total



In 2014, Thailand has total population less than Japan about 1.88 times; 67.7 million persons in Thailand and 127.1 million persons in Japan. The number of elderly in Japan has been increasing rapidly as well as the number of children those under age 15 and adults those ages 15-64 have been declining. This reason leads to the overall size of Japan's population is declining by the end of 2005. Whereas the number of adults in Thailand, those ages 15-64 has been increasing, the overall size of Thailand's population still increase.

Figure 3 Trend of population indicators – Japan and Thailand in 1971-2014

Source: Compared by author using data from World Bank indicators, trading economics

Table 4 and Figure 3 show demographic transition, there are the same trend in birth rate, death rate, population ages 0-14, population ages 15-64, population ages 65 and above, population growth and total population but difference trend in populations ages 15-64(% of total) and age dependency ratio. The main reason leads to difference trend as a result of population ages 15-64 or working-age population. Thailand has population ages 15-64 more than Japan since 2000. Moreover, the trend of population ages 15-64 (% of total) in Japan is decreasing while Thailand is still increasing because Thailand has a birth rate more than Japan in the past.

4.3. Analysis of the insurance saving: Annuity life insurance

Life insurance companies are institutions that engage in financial intermediation through managing funds received from the policyholder and invest the fund they receive. Life insurance is one type of individual voluntary saving, Third Pillar in World Bank's Conceptual Framework. In terms of life insurance premium in Table 5, the country ranking by Life insurance premium volume in USD in 2014, present the United States is the 1st rank while Japan is the 2nd rank and Thailand is the 31st rank in the World. The share of the world market was 26.80%, 10.04%, and 0.45%, respectively. According to the world market share, Japan is the first largest market in Asia.

Table 5
Country ranking by life insurance premium volume of USD in 2014

Rank	*Country*	*Life insurance premium volume in millions of USD*		*Change (%)*	*Share of world market 2014 (%)*
		2013	*2014*		
1	United States	1,254,776	1,280,443	2.05	26.80
2	Japan	498,003	479,762	-3.66	10.04
3	United Kingdom	325,675	351,266	7.86	7.35
4	PR China	280,119	328,439	17.25	6.87
5	France	257,444	270,520	5.08	5.66
6	Germany	247,725	254,644	2.79	5.33
7	Italy	168,852	194,735	15.33	4.08
8	South Korea	145,867	159,515	9.36	3.34
9	Canada	127,973	125,373	–2.03	2.62
10	Netherlands	99,437	95,956	–3.50	2.01
31	Thailand	20,975	21,696	3.44	0.45

Source: Computed by author using data from Swiss Re, (No.4/2515)

Life insurance product has many types such as annuity, ordinary, group and other. Annuity life insurance is an appropriate financial product for individuals seeking stable, life protection and guaranteed retirement. Policyholders pay an annual premium to the insurance company who will pay out a steady cash flow for an individual during their retirement years and to alleviate fears of longevity risk, or a lump sum upon their death.

Table 6
Life insurance premium - Japan and Thailand in 2011-2014

Unit: Million Dollar*

Year	*Life insurance product in Japan*[1]					*Life insurance product in Thailand*[2]				
	Annuity	*Ordinary*	*Group*	*Other*	*Total Premium*	*Annuity*	*Ordinary*	*Group*	*Other*	*Total Premium*
2011	75,256	198,845	9,744	33,543	317,388	24	7,788	916	528	9,255
2012	70,471	210,785	9,700	33,884	324,840	37	9,191	1,192	576	10,995
2013	71,399	198,732	9,726	23,957	303,814	89	10,270	1,584	522	12,464
2014	81,597	214,694	9,787	19,470	325,566	201	11,672	1,485	593	13,951

Source: Compared by author using data from:
[1] The Life Insurance Association of Japan and
[2] Office of Insurance Commission, Thailand
Remark: * 1 dollar = 114.33 yen and 1 dollar = 35.56 bath (as of March 3, 2016)

Table 7
Ratio of life insurance premium - Japan and Thailand in 2011-2014

Unit: Percentage (%)

Year	*Life insurance product in Japan*					*Life insurance product in Thailand*				
	Annuity	*Ordinary*	*Group*	*Other*	*Total Premium*	*Annuity*	*Ordinary*	*Group*	*Other*	*Total Premium*
2011	23.7	62.6	3.1	10.6	100	0.3	84.1	9.9	5.7	100
2012	21.7	64.9	3.0	10.4	100	0.3	83.6	10.8	5.2	100
2013	23.5	65.4	3.2	7.9	100	0.7	82.4	12.7	4.2	100
2014	25.1	65.9	3.0	6.0	100	1.4	83.7	10.6	4.2	100

Source: Author's calculator

According to the data in Table 6 and Table 7, the most popular insurance product is ordinary life insurance both of Thailand and Thailand. Ordinary life insurance is regular insurance which insurance company will pay a lump sum on the maturity date or upon insured death only, not pay out a steady cash flow for an individual during their retirement years. Regarding, insurance company creates annuity life insurance to response the need of population aging who has a longevity and want money during retirement time. Annuity life insurance is well-known in Japan, it is more than 20% of total premium while annuity life insurance is a new product in Thailand. Thai people start to have interests in annuity life insurance since 2011, it is 0.3% in 2011 and 1.4% in 2014. However, the trend of annuity life insurance in Thailand is increasing.

Table 8
Growth rate of life insurance premium - Japan and Thailand in 2012-2014

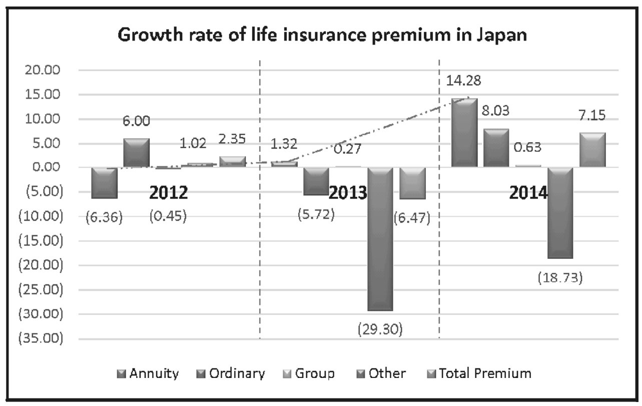
Unit: Percentage (%)

Year	*Japan*					*Thailand*				
	Annuity	*Ordinary*	*Group*	*Other*	*Total Premium*	*Annuity*	*Ordinary*	*Group*	*Other*	*Total Premium*
2012	(6.36)	6.00	(0.45)	1.02	2.35	54.80	18.01	30.17	9.09	18.80
2013	1.32	(5.72)	0.27	(29.30)	(6.47)	139.31	11.74	32.91	(9.34)	13.36
2014	14.28	8.03	0.63	(18.73)	7.15	125.79	13.65	(6.22)	13.60	11.93

Source: Author's calculator

Because of the number of older persons is growing very fast, annuity life insurance is one type of insurance product provide a long-term saving and financial support when policyholder go to retirement period so annuity life insurance is one popular of life insurance product. Annuity life insurance will pay a stream of payments for as long as the retiree lives. This saving represents the long-term quality of life in retirement lead to the households both of Japan and Thailand tend to focus on annuity life insurance increased. The growth rate of annuity life insurance premium in Japan is 1.32% in 2013 and 14.28% in 2014 as well as annuity life insurance premium in Thailand is 54.80% in 2012 and 125.79 in 2014.

The number of older persons is growing very fast in Thailand, Thai people start to have interests in annuities life insurance since 2011. Annuity life insurance is currently popular, the growth rate of annuity life insurance premium is very jumping from 54.80 percent to 139.31 percent, and to 125.79 percent during 2012-2014 in Figure 4. Whereas many people in Japan are fortunate enough to receive generous occupational pensions from their former employers and some people rely on government social security benefits in old age (Sakamoto, 2010) so the growth rate of annuity life insurance is not jumping



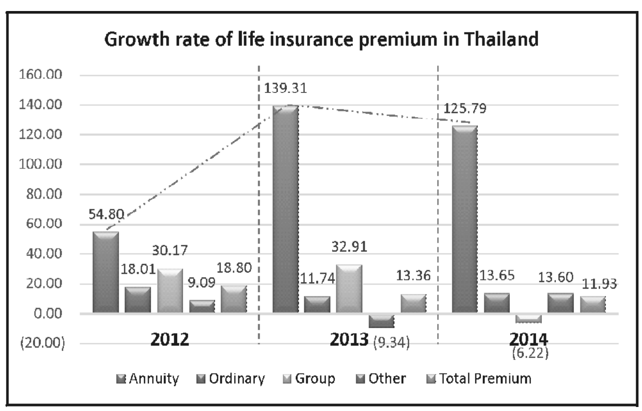


Figure 4: Growth rate of life insurance premium - Japan and Thailand in 2012-2014

Source: Prepared by author

but increasing gradually. However, Japan has a higher annuity life premium than Thailand for 400 times in 2014.

In the part of the government, the main policy to mobilize voluntary savings especially in life insurance is a tax deduction. Tax deduction scheme for life insurance premiums is a preferential tax treatment which deducts a certain amount of premium paid from the policyholder's income.

4.4. Analysis of the regulatory supporting policy: tax deduction scheme

At the present, both of the government Japan and Thailand allows individual income earners to exercise tax benefit from life insurance purchase. In Japan, all type of insurance such as regular life insurance, long-term/medical insurance, and individual annuity are qualified by tax deduction. In Thailand, only two types of life insurance premium are qualified by tax deduction as followings:

1. Regular life insurance is permitted for annual tax deduction benefit of the actual amount paid up to THB 100,000 maximum, and the premium must hold the three characteristics:
   (a) Life insurance premium, excluding rider premiums such as health, accident, and dread diseases
   (b) Coverage period of 10 years and above
   (c) In case of survival benefit available, the benefit returns not over 20% of annual life premium per year
2. Individual annuity is additionally permitted for annual tax deduction benefit of 15% of total taxable income but not over THB 200,000 maximum.

At the present, tax benefit doesn't provide for long-term/medical insurance in Thailand because this type of policy is the health protection. It isn't a saving option. The Thai government allows the tax benefit for the long-term saving such as regular life insurance and individual annuity only.

There are different type of insurance policy and deductible limits between Japan and Thailand. Japan's life insurance premium deduction which leads to the reduction of income tax and resident tax. The scheme was established in 1924 and was reestablished in 1954 as

Table 9
Tax deduction scheme for life insurance premiums in Japan and Thailand

	Deductible limits in Japan[1]		*Deductible limits in Thailand*[2]
Regular life insurance:			
	Income tax:	JPY 40,000 / USD 350	Income tax: THB 100,000 / USD 2,812
	Resident tax:	JPY 28,000 / USD 245	
Long-term/medical insurance:			**n.a**
	Income tax:	JPY 40,000 / USD 350	
	Resident tax:	JPY 28,000 / USD 245	
Individual annuity:			
	Income tax:	JPY 40,000 / USD 350	Income tax: THB 200,000 / USD 5,624
	Resident tax:	JPY 28,000 / USD 245	
Total deductible limits			
	Income tax: JPY 120,000 / USD 1,050		Income tax: THB 300,000 / USD 8,436
	Resident tax: JPY 70,000 / USD 612		

Source: Compared by author using data from:
[1] The Life Insurance Association of Japan
[2] Revenue Department of Thailand
Remark: * 1 dollar = 114.33 yen and 1 dollar = 35.56 bath (as of March 3, 2016)

a part of promotion measures for capital accumulation, once abolished in 1947 from the perspective of simplification of the procedures. In 1984, the tax deduction scheme for individual annuity was newly established with the aim of "promotion of self-help efforts for stability of post-retirement life" and "promotion of mutual assistance for post-retirement life" (The Life of Insurance Association of Japan, 2014). Japan insurance companies provide three types of life insurance policy are regular life insurance policy, long-term or medical insurance and individual annuity premium. Tax deduction scheme for insurance premiums is permitted for income tax deduction benefit of the actual amount paid up to JPY 120,000 or USD 1,050 maximum and resident tax deduction benefit of the actual amount paid up to JPY 70,000 or USD 612 maximum. Regular life insurance premiums and individual annuity are permitted for income tax deduction benefit of the actual amount paid up to JPY 80,000 or USD 700.

Thailand's life insurance premium deduction which leads to the reduction of income tax. Thai insurance companies provide two types of life insurance are regular life insurance policy and pension or annuity life insurance policy. The Revenue Department of Thailand allows individual income earners to exercise tax benefit from life insurance purchase up to THB 300,000 or USD 8,436 maximum. Regular life insurance premiums is permitted for income tax deduction benefit of the actual amount paid up to THB 100,000 or USD 2,812 and annuity life insurance premiums is permitted for income tax deduction benefit of the actual amount paid up to THB 200,000 of USD 5,624. The tax benefit from life insurance purchase in Thailand is more than Japan, USD 8,436 in Thailand and USD 1,050 in Japan. This government supporting lead to increasing annuity life insurance in Thailand.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

This paper presents the change in demographic and the policies to mobilize voluntary savings as annuity life insurance implications of population aging of Japan and Thailand. Japan and Thailand have the same demographic transition. There is the same trend in birth rate, death rate, population ages 0-14, population ages 15-64, population ages 65 and above, population growth and total population but difference trend in populations ages 15-64 (% of total) and age dependency ratio. The main reason leads to difference trend as a result of population ages 15-64 or working-age population. Thailand has population ages 15-64 more than Japan since 2000. Moreover, the trend of population ages 15-64 (% of total) in Japan is decreasing while Thailand is still increasing because Thailand has a birth rate more than Japan in the past.

The number of older persons is growing very fast. Independent living among older people is becoming more common. The savings voluntary in the working period is particularly important to have enough income to make a living after working continuously and reduce reliance on the social burden. The saving in the form of life insurance, annuity life insurance is a special savings because give both of protection of life and retirement income to the elderly. It is not a burden on society and families.

Annuity life insurance rapidly growing in Thailand while gradually increasing in Japan because many people in Japan are fortunate enough to receive generous occupational pensions from their former employers and some people rely on government social security benefits in old age. Moreover, the awareness of population aging between Japan and Thailand are different because the retirement age of both countries is different. Thailand has 60-year retirement while Japan has 65-year retirement, it leads the saving time different. Japanese get a longer time to work and has many pensions from their employers and government social security support. This reason why annuity life insurance in Japan is gradually increasing, not jumping growth. In Thailand, annuity life insurance is currently popular since 2011 as a means to finance retirement increasing. The growth rate of annuity life insurance premium is very jumping from 54.80 percent to 139.31 percent, and to 125.79 percent during 2012-2014. The tax benefit from life insurance purchase in Thailand is more than Japan, USD 8,436 in Thailand and USD 1,050 in Japan. This government supporting lead to increasing annuity life insurance in Thailand.

5.2. Suggestion

The annuity life insurance is a financial instrument as a way to make enough income during retirement. According to the results, this paper find Thai people are alert and prepare retiree with annuity life insurance because of populations live longer. Additional, annuity life insurance will reduce the burden of the government spending in the future so Thai government should continuously support the tax incentives and expand tax deduction scheme for long-term/medical insurance as Japan. Future more, extend the retirement age up to 65 or above to have more time for working and saving, and reform government regulation which related the retirement schemes to more flexible and universal coverage.

At the present, the voluntary savings in the form of annuity life insurance is popular increasingly because the policy guaranteed the income of elderly people in Thailand. When population aging has enough income from pensions, it will increase in spending behavior which leads investors to produce more goods and services. The hypothesis provides if population aging has enough income, it will increase in spending behavior which leads investors to produce more goods and services for elderly. The increasing consumption and investment will lead to economic growth finally. This paper leads to continuing of the impact of annuity life insurance on economic growth for the future research direction.

REFERENCES

Bureau of savings and saving policy. (2016). Retrieved from *http://www.fpo.go.th/S-I/*

Department of Economic and Social Affairs. (2013). *Population Division, World Population Ageing 2000-2025*. Retrieved from *http://www.un.org/en/development/desa/population/*

Diamond, P. A. (1965). National Debt in a Neoclassical Growth Model. *The American Economic Review, 55*(5), 1126-1125.

Katharine G. Abraham and Benjamin H. Harris. (2014). Better Financial Security in Retirement? Realizing the Promise of Longevity Annuities. *Economics Studies at Brookings.*

Mankiw, N. G. (2013). MACROECONOMICS. New York: Worth Publishers.

National Institute of Population and Social Security Research. (2013). Retrieved from *http://www.ipss.go.jp/index-e.asp*

Office of Insurance Commission. (2016). Retrieved from *http://www.oic.or.th/th*

Office of the Nation Economic and Social Development Board. (2013). Retrieved from *http://www.nesdb.go.th*

Revenue Department of Thailand. (2016). Retrieved from *http://www.rd.go.th/publish/*

Robert Holzmann, Richard Paul Hinz and Mark Dorfman. (2008). Pension Systems and Reform Conceptual Framework. *Social Protection and Labor, The World Bank*.

Sakamoto, J. (2010). Annuity Markets in Japan. *Pension Research Council Working Paper*.

Samuelson, P. A. (1958). An Exact Consumption-Loan Model of Interest with or without the Social Contrivance of Money. *The Journal of Political Economy, 66*(6), 467-482.

Schunk, D. (2007). What determines household saving behavior? An examination of saving motives and saving decisions. *Munich Center for the Economics of Aging*.

Swiss Re. (2015). World insurance in 2014. *Sigma*, 34-43. Retrieved from *http://www.swissre.com*

The Life Insurance Association of Japan. (2016). Retrieved from *http://www.seiho.or.jp/english/*

The Life Insurance Association of Japan. (2014). Overview of Life Insurance Industry in Japan. *Product Development Strategy Course, FALIA Seminar*.

Tullio Jappelli and Franco Modigliani. (1998). The Age-Saving Profile and the Life-Cycle Hypothesis. *Centre for Studies in Economics and Finance*.

U.N. (2015). World Population Ageing (2015). *United Nations,Department of Economic and Social Affairs, Population Division*, 138-139.

U.N. (2015). World Population Prospects. *United Nations,Department of Economic and Social Affairs, Population Division*, 18-22, 27-30.

World Bank. (2016). Retrieved from *http://www.tradingeconomics.com/country-list/index-wb-data.html*

World Bank. (2016). Retrieved from *http://data.worldbank.org/indicator*

Zhenhui, W. (2014). An Analysis of Impact of Pension Insurance on Saving and Consumption. *International Business and Management, 9*(2), 154-162.