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The Impact of Old Age Pension on Subjective Well-being: Evidence from Thailand

Yada Wornyordphan[1,*] and Kannika Damrongplasit[1, 2]

[1]Faculty of Economics, Chulalongkorn University, Bangkok 10330, Thailand
[2]Center of Excellence for Health Economics, Faculty of Economics, Chulalongkorn University, Bangkok 10330, Thailand

*Corresponding author, E-mail: yada.wyp@gmail.com

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Abstract

In this study, an analysis was conducted on the impact of old age pension on subjective well-being in Thailand for those aged 60 and over. Data was obtained from the Health, Aging, and Retirement in Thailand (HART) survey for the 2015 and 2020 waves. A random-effects ordered logit model was employed as the primary method due to the panel structure of the data, while the ordered logit model was used as an alternative methodology. The results indicated that the old age pension has a minimal impact on subjective well-being, relative to other non-financial factors. Other variables such as age, marital status, residential area, region, health status, and income perception tend to have stronger impacts on subjective well-being. Subjective well-being decreases with age. Marriage, living in urban areas, better health status, and higher perception of income are associated with improved subjective well-being. Interestingly, the findings from this study also demonstrate regional differences in subjective well-being.

Keywords: *Subjective Well-Being; Old Age Pension; Ordered Logit Regression Model; Health Economics*

1. Introduction

Population aging is becoming a critical concern among many countries around the world. In particular, Thailand is currently one of the fastest aging countries in ASEAN and worldwide. In light of this demographic shift, Thailand now bears a significant responsibility to ensure the well-being of its elderly. One key policy response is the old age pension program, which reflects recognition of the rising demands for financial support due to a lower capacity to work and the increased health and long-term care needs of elderly people.

The Old Age Allowance (OAA) scheme was first implemented in Thailand in 1993 as a non-universal program for low-income elderly individuals. In 2009 the scheme was extended to include a universal cash transfer payment to every citizen aged at least 60 and not currently in receipt of another government pension. Currently, all eligible individuals receive the old age pension, with the amount varying by their age ranging from 600 to 1,000 Thai baht per month. Individuals aged 60-69 receive 600 baht, those aged 70-79 receive 700 baht, those aged 80-89 receive 800 baht, and those aged 90 and above receive 1,000 baht.

As the aging population grows, the challenges encountered extend beyond economic and healthcare issues. It is essential to examine how old age pension policies affect not only material circumstances but also the subjective well-being of older adults. Subjective well-being is defined as individuals' cognitive and affective assessments of their lives, encompassing both emotional responses to experiences and cognitive assessments of satisfaction and fulfillment. Accordingly, the key components of subjective well-being include high life satisfaction, few unpleasant moods, and the experience of positive emotions (Diener, 1984). Subjective well-being is typically evaluated through self-reported scales designed to measure individuals' cognitive and affective judgments regarding their lives. Among the most commonly used instruments in this field are the Subjective Happiness Scale (SHS) by Lyubomirsky, and Lepper (1999), which gauges overall life satisfaction using five items on a 7-point scale; the Satisfaction with Life Scale (SWLS) by Diener et al., (1985), which gauges overall life satisfaction using five items on a 7-point scale; and the Cantril Self-Anchoring Striving Scale (Cantril, 1965) which prompts respondents to position themselves on a ladder ranging from 0 (the worst possible life) to 10 (the

best possible life). These scales have become integral to research on subjective well-being and are often adapted or modified in large-scale surveys to fit specific national frameworks for well-being (OECD, 2013).

In some econometric studies, linear transformations have been employed to convert subjective well-being measures into ordinal categories to enhance statistical analysis interpretation. For example, Milovanska-Farrington, and Farrington (2022) explored how life satisfaction, personal values, and relative perceptions relate to overall subjective well-being. This was achieved by reclassifying an 11-point life satisfaction scale into three distinct categories, low, medium, and high subjective well-being. Similarly, Gurven et al., (2024) utilized a 5-point Likert scale to assess subjective well-being, categorizing those responses as low, average, and high to facilitate analysis across varied populations in developing countries. These instances demonstrate that transforming scales into broader categories is a prevalent and accepted method in subjective well-being research.

Researchers have increasingly directed their attention towards examining how social policies affect subjective well-being utilizing well-established measures of subjective well-being. In particular, the influence of old age pension schemes has been extensively analyzed in various countries regarding their role to improve the quality of life for older adults. In South Korea, Kim (2018) discovered that pensions could enhance older people's life satisfaction. Similarly, in China, Ding (2017) found that the old age pension program improved the well-being of rural elderly people, while also reducing the importance of sons. Abruquah et al., (2019) found that three different old age pension schemes significantly improved retired elderly life satisfaction, where different amounts of impact indicated the existence of inequality between the Government and Institution Pension scheme, the Enterprise Employee Basic Pension scheme, and the Urban-rural Social Pension scheme. In South Africa, Etinzock (2018) found that the state old age pension significantly increased life satisfaction, while Etinzock, and Kollamparambil (2019) also added evidence that the pension benefits were more significantly observed in female recipients rather than male recipients.

There are several channels through which old age pensions could affect subjective well-being, including financial stability, health and well-being, social participation, and psychological impacts. Among these, financial stability appears to be the most important channel, since old age pensions can provide economic security to the elderly. Chen, and Tan (2018) showed that being in receipt of a pension led the beneficiaries to have better life satisfaction, with social ties, household income, and economic satisfaction appearing to be the primary drivers of this effect. Similarly, Pak (2020) showed that the expansion of the old age pension scheme significantly improved the subjective well-being of the beneficiaries by them reporting higher levels of financial satisfaction. Ko, and Möhring (2021) also found a positive relationship between pension benefit receipt and older individuals' subjective well-being in rural China, and further claimed that the pension could provide elderly people a feeling of financial stability and allow them to devote a portion of their income to medical expenses.

In Thailand, existing research on the old age pension has addressed economic or structural aspects. For example, Teerawichitchainan, and Pothisiri (2021), discussing how the expansion of the old age pension scheme had implications on intergenerational support and the well-being of senior citizens in Thailand, found that the reliance on the old age allowance reduced elderly people's financial dependence on their children but was linked to lower income adequacy and well-being, indicating a limited impact on reducing inequality among Thai elderly. Similarly, Rose (2016) highlighted how old age allowance had an influence on well-being of the elderly by conducting interviews with elderly pensioners living in northern Thailand, finding that old age allowance positively influences various aspects of well-being, including peace of mind, resource access, social ties, agency, health, and self-worth. More recently, Thaithatkul et al., (2022) also found that income is a major factor in determining subjective well-being, and financial assistance (such as an old age pension or fund) can both guarantee that seniors can afford the discounted public transportation fares as well as raise their overall satisfaction levels.

Although the existing literature extensively examines the relationship between old age pensions and subjective well-being internationally, there is a lack of research studies in Thailand examining the impact of old age pension and other determinants on subjective well-being, especially when using the ordered logit model to explore these effects. This study examines the impact of old age pension on subjective well-being while also considering other influencing factors in the model. Hence, this study utilizes a linear transformation to convert a self-rated life satisfaction scale from an 11-point Likert scale into a 3-point Likert scale, consisting of low, medium, and high categories of subjective well-being. This adjustment aims to facilitate its use in an ordered logit model, thereby yielding more useful results and policy recommendations which have been performed in fewer studies in the literature.

2. Objectives

1) To explore the impact of old age pension on the subjective well-being of the Thai elderly.
2) To investigate the impact of other socioeconomic- demographic factors on subjective well- being, providing a better understanding of the context of Thailand.
3) To provide a better understanding of evidence- based insights for Thailand' s old age pension system, leading to increased subjective well-being and life satisfaction among the Thai elderly.

3. Materials and Methods

3.1 Data

Data was obtained from a biannual panel survey from the Health, Aging, and Retirement in Thailand (HART) for the 2015 and 2020 waves, conducted by the Center for Aging Society Research (CASR) at the National Institute of Development Administration (NIDA). The purpose of this questionnaire is to encourage multidisciplinary study on the aging of the Thai elderly, as well as to advance public policies targeted at improving the health and standard of living of older individuals in Thailand.

Those aged 60 and older were included in this study since such individuals are eligible for Thailand's pension scheme. This study considered both respondents who received the old age pension for the entire year and those who did not receive it at all. Furthermore, this study does not consider those who did not fully complete the subjective well-being questionnaire, as well as other sections of questions regarding self-rated health status and income perception. After the data cleaning process, the net full sample consisted of 5,159 observations. Table 1 presents all variables utilized in the regression analysis.

Table 1 Variables used in the regression model

Variable name	Variable	Definition of variable	Measurement
SWB	Subjective well-being =1 if Low SWB =2 if Medium SWB =3 if High SWB	The self-rated scale range with 3 major categories: Low SWB: Scale range 0-3 Medium SWB: Scale range 4-7 High SWB: Scale range 8-10	Number
Pension	Old age pension receipt	Continuous pension receipt	Number
Age7079 Age80over	Age	3 age categories: Age6069 is omitted (1= Age6069, 0= otherwise) Age7079 (1= Age7079, 0= otherwise) Age80over (1= Age80over, 0= otherwise)	Dummy
Female	Gender	Gender: Male and Female (1=Female, 0= otherwise)	Dummy
Married	Marital status	Marriage status (1=Married, 0= otherwise)	Dummy
Bachelorab	Education level	Attained at least a Bachelor's degree (1= Bachelorab, 0= otherwise)	Dummy
Urban	Residential area	Resides in a municipal area (1=Urban, 0= otherwise)	Dummy
Central East North Northeast South	Region	Regions with 6 dummies: BKK and nearby areas are omitted (1= BKK, 0= otherwise) Central (1= Central, 0= otherwise) North (1= North, 0= otherwise) Northeast (1= Northeast, 0= otherwise) South (1= South, 0= otherwise)	Dummy
Excellenth	Health status	Self-rated physical health evaluated as 'excellent' (1= Excellenth, 0= otherwise)	Dummy
Income	Income perception =1 if Lowinc =2 if Moderateinc =3 if Highinc	Satisfaction with economic status with 3 categories: Lowinc: Scale range 0-3 Moderateinc: Scale range 4-7 Highinc: Scale range 8-10	Number
Year2020	Year	Year Dummy (1= Year2020, 0= otherwise)	Dummy

3.2 Ordered Logit Regression Model

An ordered logit model is an appropriate model for analysis when the dependent variable consists of more than two categories that can be measured on an ordinal scale. Thus, the continuous latent variable (SWB^{*}_{it}) in the population is equivalent to:

$$SWB^{*}_{it}= \beta_0+ \beta_1 Pension_{it}+\beta_2 Age7079_{it}+\beta_3 Age80over_{it}+\beta_4 Female_{it}+\beta_5 Married_{it}+\beta_6 Bachelorab_{it} +\beta_7 Urban_{it}+\beta_8 Central_{it}+\beta_9 East_{it}+\beta_{10} North_{it}+\beta_{11} Northeast_{it}+\beta_{12} South_{it} +\beta_{13} Excellenth_{it} +\beta_{14} Income_{it}+\beta_{15} Year2020_{it}+\nu_i+ \varepsilon_{it}$$

This study observes the level of subjective well-being (SWB*), which is an ordered categorical variable, also known as an "observed variable" in the ordered logit model. However, SWB^{*}_{it} refers to the continuous or latent index that determines what the ordinal variable SWB equals. SWB^{*}_{it} is considered to have a linear function with parameters, which depends on the various observed explanatory variables, as well as the individual-specific error term (ν_i) and the random error (ε_{it}). In this study, we assume individual-specific effect (ν_i) to be random variable. This allows us to estimate the coefficients for time-invariant variables, many of which are included in our model such as gender, highest education, and region of residence. Hence, the continuous latent variable (SWB^{*}_{it}) has several threshold points (κ_j), which is represented as shown below:

SWB_{it} = 1 if $SWB^{*}_{it} \leq \kappa_1$ implying a Low level of subjective well-being
SWB_{it} = 2 if $\kappa_1 < SWB^{*}_{it} \leq \kappa_2$ implying a Medium level of subjective well-being
SWB_{it} = 3 if $SWB^{*}_{it} > \kappa_2$ implying a High level of subjective well-being

Given that the error term has a logistic distribution, the following probability formulas can be obtained:

$$Pr(SWB_{it}=1) = F\left(\kappa_1-(X_{it}\beta+\nu_i)\right)$$
$$Pr(SWB_{it}=2) = F\left(\kappa_2-(X_{it}\beta+\nu_i)\right)-F\left(\kappa_1-(X_{it}\beta+\nu_i)\right)$$
$$Pr(SWB_{it}=3) = 1-F\left(\kappa_2-(X_{it}\beta+\nu_i)\right)$$

Where the cut-off or threshold points (κ_1 and κ_2) will be estimated along with the coefficients. $F(\cdot)$ refers to the cumulative distribution function (CDF) of the logistic distribution, which converts the linear combination of the explanatory variables and error terms into a probability value. It is then used to calculate the likelihood that the observed categorical outcome falls within a given threshold range. In addition, the explanatory variables (X_{it}) featured in these probability equations also relate to those identified in the specification model mentioned earlier. These equations will be employed to estimate the likelihood that the unobserved variable (SWB^{*}_{it}) falls within the specified threshold limits.

Regarding the panel structure of the data, which tracks the same individuals across multiple time periods, the random-effects ordered logit model appears to be more appropriate as the main method of this study. This is because it accounts for some unobserved individual-specific factors that remain constant over time and may influence the subjective well-being, which can lead to within-individual correlation. In contrast, the ordered logit model assumes independence between observations, which may not be appropriate in panel data and could result in biased estimates. As noted by Wooldridge (2010), using a random-effects framework helps improve the reliability of the estimated effects.

4. Results

The main modeling tool in this study is the random-effects ordered logit model, given the panel structure of the data. However, a likelihood ratio test was conducted to check whether the random-effects ordered logit model is appropriate for the data. The random-effects ordered logit model was found to be best suited for Models 2, 4, and 6, whereas Models 1, 3, and 5 are best suited to the ordered logit model. Raw regression results for both random-effects ordered logit models and ordered logit regression models are shown in Tables 2 and 3, respectively. Table 2 displays the odds ratios corresponding to each variable for the random-effects ordered logit model. Meanwhile, Table 3 illustrates the odds ratios for each variable using the ordered logit model.

Table 2 Random-effects ordered logistic model

Variables	Model 1 Odds Ratio	Model 2 Odds Ratio	Model 3 Odds Ratio	Model 4 Odds Ratio	Model 5 Odds Ratio	Model 6 Odds Ratio
Pension	1	0.999994	0.999954	0.9999534	0.9999003*	0.99985***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age7079	0.8527*	0.7474***	0.8790	0.7786***	0.8976	0.8058**
	(0.074)	(0.063)	(0.077)	(0.066)	(0.081)	(0.071)
Age80over	1.0572	0.8034**	1.1103	0.8578	1.1943	0.9566
	(0.109)	(0.081)	(0.117)	(0.088)	(0.145)	(0.113)
Female	1.1964**	1.1201	1.1992**	1.1235	1.1940**	1.1155
	(0.091)	(0.083)	(0.091)	(0.083)	(0.091)	(0.083)
Married	1.5339***	1.4310***	1.5355***	1.4317***	1.5277***	1.4214***
	(0.121)	(0.110)	(0.121)	(0.109)	(0.120)	(0.109)
Bachelorab	1.1787	1.2494	1.1193	1.1904	1.2007	1.2777
	(0.340)	(0.359)	(0.324)	(0.342)	(0.346)	(0.366)
Urban	1.4949***	1.5597***	1.4943***	1.5564***	1.4850***	1.5437***
	(0.128)	(0.132)	(0.128)	(0.131)	(0.128)	(0.131)
Central	1.0033	1.1031	0.5599	0.7135	0.9990	1.0935
	(0.122)	(0.131)	(0.255)	(0.319)	(0.121)	(0.129)
East	2.2260***	2.8249***	1.9200	2.0523	2.2115***	2.7929***
	(0.409)	(0.508)	(1.114)	(1.168)	(0.405)	(0.500)
North	1.2576**	1.4802***	1.2599	1.7660	1.2518*	1.4691***
	(0.144)	(0.167)	(0.560)	(0.764)	(0.144)	(0.165)
Northeast	1.2617*	1.4218***	2.5613*	3.5241**	1.2688**	1.4320***
	(0.151)	(0.168)	(1.435)	(1.978)	(0.152)	(0.169)
South	1.0240	1.0277	0.3813**	0.3716**	1.0174	1.0175
	(0.124)	(0.122)	(0.154)	(0.146)	(0.123)	(0.169)
Excellenth	5.7014***		5.6450***		5.6687***	
	(0.535)		(0.529)		(0.532)	
Income	3.6206***	5.0899***	3.6579***	5.1313***	3.5978***	5.0316***
	(0.297)	(0.424)	(0.300)	(0.427)	(0.295)	(0.418)
Year (=2020)	0.7754***	0.9539	0.7688***	0.9436	0.3258**	0.2775***
	(0.057)	(0.066)	(0.057)	(0.066)	(0.151)	(0.124)
Central_Pens			1.0001	1.000054		
			(0.000)	(0.000)		
East_Pens			1.0000	1.00004		
			(0.000)	(0.000)		
North_Pens			0.9999	0.9999		
			(0.000)	(0.000)		
Northeast_Pens			0.9999	0.9999*		
			(0.000)	(0.000)		
South_Pens			1.0001***	1.0001***		
			(0.000)	(0.000)		
Year_Pens					1.0001*	1.0001***
					(0.000)	(0.000)
Prob>= Chibar2	0.1137	0.0092	0.1415	0.0143	0.1199	0.0112

Note: H_0: The variance of random effects is zero, implying that the ordered logit model (without random effects) is sufficient.
*** $p < 0.01$, ** $p < 0.05$, *$p < 0.1$.

Table 3 Ordered logistic regression model

Variable	Model 1 Odds Ratio	Model 2 Odds Ratio	Model 3 Odds Ratio	Model 4 Odds Ratio	Model 5 Odds Ratio	Model 6 Odds Ratio
Pension	1	0.9999	0.9999	0.9999	0.9999*	0.999985***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age7079	0.8606*	0.7658***	0.8859	0.7953***	0.9042	0.8212**
	(0.071)	(0.060)	(0.074)	(0.063)	(0.079)	(0.067)
Age80over	1.0599	0.8200**	1.1118	0.8721	1.1939	0.9691
	(0.105)	(0.076)	(0.113)	(0.084)	(0.140)	(0.106)
Female	1.1890**	1.1107	1.1925**	1.1144	1.1868**	1.1067
	(0.086)	(0.076)	(0.086)	(0.076)	(0.086)	(0.076)
Married	1.5133***	1.4016***	1.5173***	1.4044***	1.5077***	1.3934***
	(0.113)	(0.098)	(0.114)	(0.099)	(0.113)	(0.098)
Bachelorab	1.1649	1.2283	1.1077	1.1730	1.1863	1.2548
	(0.324)	(0.331)	(0.310)	(0.317)	(0.329)	(0.338)
Urban	1.4748***	1.5135***	1.4766***	1.5146***	1.4659***	1.4999***
	(0.120)	(0.117)	(0.120)	(0.117)	(0.119)	(0.116)
Central	0.9997	1.0864	0.5715	0.7267	0.9955	1.0777
	(0.116)	(0.118)	(0.251)	(0.303)	(0.115)	(0.117)
East	2.1701***	2.6749***	1.8665	1.9694	2.1579***	2.6494***
	(0.381)	(0.444)	(1.049)	(1.063)	(0.378)	(0.440)
North	1.2428**	1.4441***	1.2555	1.7200	1.2377*	1.4351***
	(0.136)	(0.149)	(0.540)	(0.699)	(0.136)	(0.149)
Northeast	1.2543**	1.3903***	2.5049*	3.2981**	1.2611**	1.4001***
	(0.144)	(0.150)	(1.361)	(1.748)	(0.144)	(0.152)
South	1.0278	1.0329	0.3903**	0.3878***	1.0211	1.0227
	(0.119)	(0.112)	(0.152)	(0.143)	(0.118)	(0.112)
Excellenth	5.3539***		5.3357***		5.3314***	
	(0.395)		(0.394)		(0.393)	
Income	3.4667***	4.6156***	3.5196***	4.6858***	3.4493***	4.5769***
	(0.246)	(0.309)	(0.251)	(0.315)	(0.244)	(0.306)
Year (=2020)	0.7877***	0.9657	0.7799***	0.9550	0.3377**	0.2946***
	(0.056)	(0.064)	(0.552)	(0.063)	(0.151)	(0.124)
Central_Pens			1.0001	1.0000		
			(0.000)	(0.000)		
East_Pens			1.0000	1.0000		
			(0.000)	(0.000)		
North_Pens			0.9999	0.9999		
			(0.000)	(0.000)		
Northeast_Pens			0.9999	0.9999*		
			(0.001)	(0.000)		
South_Pens			1.0001***	1.0001***		
			(0.000)	(0.000)		
Year_Pens					1.0001*	1.0001***
					(0.000)	(0.000)
Pseudo R-sq.	0.1927	0.1123	0.1951	0.1153	0.1932	0.1134

For Models 2, 4, and 6, which exclude the physical health variable (Excellenth), the results are discussed from Table 2. However, Table 3 will be discussed for Model 1, 3, and 5 with the inclusion of physical health as one of the explanatory variables.

Based on the results from Table 2, the findings from Model 2 indicate that older adults aged 70-79 have 25.26 percent lower odds of reporting a greater subjective well-being, while those aged 80 and over have 19.66 percent lower odds of reporting higher level of subjective well-being compared to those aged 60-69. Married individuals have 43.10 percent higher odds of reporting higher subjective well-being than unmarried ones.

Regarding residential factors, individuals living in urban areas have 55.97 percent higher oods of having higher subjective well-being compared to those living in rural areas. Individuals residing in the East, North, and Northeast have 182.49 percent, 48.02 percent, and 42.18 percent higher odds, respectively, of reporting higher subjective well-being compared to those residing in Bangkok and its vicinity. Hence, income plays a significant role, with higher income perception associated with 408.99 percent higher odds of reporting higher subjective well-being.

In Model 4, the interaction terms for different regions are added to determine regional diversity in receiving pensions. The South region appears to be strongly negative significant, with those in the South having 62.84 percent lower odds of experiencing greater subjective well-being compared to those in Bangkok and its vicinity. Moreover, the results also indicate that pensioners residing in the South have 0.0001 percent higher odds of reporting greater level of subjective well-being in comparison to those residing in Bangkok and vicinity. In contrast, pensioners residing in the northeast have 0.0001 percent lower odds of reporting higher subjective well-being in comparison to those residing in Bangkok and vicinity areas, thus the impact is very small. Besides, some variables such as Age7079, Married, Urban, Northeast and Income all maintain their significance and direction similar to Model 2.

To explore whether there is a distinct impact on subjective well-being in different years, Model 6 includes an interaction term of year dummy (2020) and pension. The results reveal that the pension variable became highly significant compared to the other variables, implying that the odds of reporting a better subjective well-being category decrease by about 0.0015 percent with each one-baht increase in pension amount, though the effect is too small. This negative association might reflect age-related declines in subjective well-being that align with higher old age pension amounts, even though age is being controlled in the model. The year dummy (2020) appears to be highly significant and is associated with lower subjective well-being, with individuals in this period having 72.25 percent lower odds of reporting higher subjective well-being, compared to 2015. Thus, the interaction term between the year dummy (2020) and pension also indicates that the odds of reporting improved subjective well-being increase by 0.001 percent in 2020 for every one-baht increase in pension amount. Furthermore, other remaining variables, including Age7079, Married, Urban, Region influences (East, North, and Northeast), and Income, show similar results to Model 2.

Moving on to the results from Table 3, the results from Model 1 indicate that older adults aged 70-79 have 13.94 percent lower odds of reporting a higher category of subjective well-being compared to younger individuals (aged 60-69). Being female is associated with 18.9 percent higher odds of reporting a higher level of subjective well-being compared to being male. Being married has higher odds of reporting higher subjective well-being by 51.33 percent compared to unmarried individuals. Regarding residential factors, individuals living in urban areas have higher odds of having higher subjective well-being by 47.48 percent compared to those in rural areas. Individuals living in the East, North, and Northeast have 117.01 percent, 24.28 percent, and 25.43 percent higher odds of reporting higher subjective well-being, respectively, compared to those living in Bangkok and vicinity areas.

Health and income perception also play significant roles. Individuals with excellent self-reported health status have higher odds of reporting higher subjective well-being by 435.39 percent compared to those who have worsened health status. Higher income perception is associated with 246.67 percent higher odds of reporting higher subjective well-being. Furthermore, the odds of reporting higher subjective well-being are 21.33 percent lower in 2020 compared to 2015.

The results from Model 3, which adds the interaction terms between different regions and pension, indicate that residing in the South has a highly negative impact on subjective well-being, with the individuals in this region experiencing 60.97 percent lower odds of experiencing greater subjective well-being, compared to those in Bangkok and its vicinity. In addition, the interaction term between living in the South and pension slightly suggests that pensioners living in the South have 0.001 percent higher odds of reporting higher subjective well-being compared to those in Bangkok and its vicinity. Hence, other variables, including Female, Married, Urban, Region influences (Northeast), Excellenth, Income, and the year dummy (2020), remain consistent with Model 1.

Table 4 Robustness check - coefficients from random-effects panel data estimation

Variables	**Model 1 Coefficient**	**Model 2 Coefficient**	**Model 3 Coefficient**	**Model 4 Coefficient**	**Model 5 Coefficient**	**Model 6 Coefficient**
Pension	-0.00000517	-00000907.0	-0.0000344*	-0.0000367*	-0.0000547*	-0.0000914***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age7079	-0.0391	-0.1126**	-0.0274	-0.0969**	-0.0129	-0.0686
	(0.046)	(0.048)	(0.046)	(0.049)	(0.048)	(0.051)
Age80over	-0.0021	-0.1472**	0.0156	-0.1227**	0.0584	-0.0459
	(0.055)	(0.057)	(0.056)	(0.058)	(0.065)	(0.068)
Female	0.0917**	0.0591	0.0923**	0.0603	0.0905**	0.0573
	(0.040)	(0.042)	(0.040)	(0.042)	(0.040)	(0.042)
Married	0.2226***	0.2003***	0.2205***	0.1980***	0.2208***	0.1974***
	(0.041)	(0.044)	(0.041)	(0.044)	(0.041)	(0.044)
Bachelorab	-0.0584	-0.0418	-0.0635	-0.0522	-0.0474	-0.0236
	(0.139)	(0.147)	(0.140)	(0.148)	(0.139)	(0.147)
Urban	0.1334***	0.1749***	0.1327***	0.1738***	0.1308***	0.1703***
	(0.045)	(0.048)	(0.045)	(0.048)	(0.045)	(0.048)
Central	-0.1039	-0.0437	-0.4572*	-0.3655	-0.1067	-0.0486
	(0.066)	(0.069)	(0.243)	(0.256)	(0.066)	(0.069)
East	0.6200***	0.7787***	0.2985	0.3794	0.6190***	0.7761***
	(0.084)	(0.088)	(0.276)	(0.292)	(0.084)	(0.088)
North	0.1723***	0.2747***	0.0190	0.2334	0.1697***	0.2698***
	(0.060)	(0.064)	(0.224)	(0.237)	(0.060)	(0.064)
Northeast	0.0934	0.1651**	0.3362	0.5126*	0.0955	0.1682**
	(0.064)	(0.068)	(0.270)	(0.285)	(0.064)	(0.068)
South	-0.1527**	-0.1503**	-0.6543*	-0.7082***	-0.1565**	-0.1567**
	(0.066)	(0.070)	(0.217)	(0.230)	(0.066)	(0.070)
Excellenth	0.9797***		0.9759***		0.9763***	
	(0.040)		(0.040)		(0.040)	
Income	0.6577***	0.9296***	0.6603***	0.9321***	0.6557***	0.9247***
	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
Year (=2020)	0.0388	0.1257***	0.0334	0.1192***	-0.3902	-0.5879**
	(0.039)	(0.041)	(0.039)	(0.041)	(0.247)	(0.260)
Central_Pens			0.00004	0.00004		
			(0.000)	(0.000)		
East_Pens			0.00004	0.00005		
			(0.000)	(0.000)		
North_Pens			0.00002	0.000005		
			(0.000)	(0.000)		
Northeast_Pens			-0.00003	-0.00004		
			(0.000)	(0.000)		
South_Pens			0.00007**	0.00007***		
			(0.000)	(0.000)		
Year_Pens					0.0001*	0.00009***
					(0.000)	(0.000)
Cons	5.7172	5.6041	5.9398	5.8096	6.1139	6.2642
	(0.128)	(0.135)	(0.193)	(0.204)	(0.259)	(0.274)
R-sq. (Overall)	0.2475	0.1593	0.2493	0.1619	0.2480	0.1606

For Model 5, which includes the interaction term between pension and the year dummy (2020), the results are largely consistent with Model 1, with only minor differences. The pension variable is statistically significant, implying that with each one-baht increase in the pension amount, the odds of reporting a higher subjective well-being category slightly decrease by approximately 0.001 percent, although the effect size is very small. As discussed previously, this may be related to the pension amount increasing for older pension groups and could therefore be an indication that subjective well-being decreases with age, rather than necessarily due to a

higher pension payment. The interaction term between pension and the year dummy (2020) also appears to be significant, suggesting that with each one-baht increase in pension amount, the odds of reporting improved subjective well-being increase by 0.001 percent in 2020 compared to 2015. Accordingly, other variables, including Female, Married, Urban, Regions influences (East, North, and Northeast), Excellenth, Income, and year dummy (2020), still maintain similar results to Model 1.

Across all models, age differences persist as older elderly are likely to have lower odds of reporting higher subjective well-being. Subjective well-being can therefore deteriorate with age, as key significant life events and experiences during the aging process tend to reduce the life satisfaction of elderly people (Chen, 2001). For marital status, married individuals consistently have higher odds of reporting higher subjective well-being compared to non-married ones. This implies that marriage may bring potential emotional benefits and support, resulting in a higher level of subjective well-being (Haring-Hidore et al., 1985). Urban residents are extremely likely to have higher odds of reporting higher subjective well-being compared to rural residents, meaning that urban areas could be attributed to more opportunities for social mobility than rural areas (Navarro et al., 2020).

There is also evidence of regional differences, which shows minor changes in pension receipt by location. However, general patterns remain largely consistent for the Northeast, North, and East regions, as individuals appear to have higher odds of reporting higher subjective well-being across the models, where those living in the South exhibit lower odds of reporting higher subjective well-being compared to Bangkok and vicinity areas. This finding may be linked to exposure to violent events and insecurity in the South region, as noted by Ford et al., (2022). Interestingly, the positive interaction term between pension and the South region suggests that the old age pension may play a buffering role, helping to enhance subjective well-being among elderly individuals living in the South despite the region's underlying insecurity. In addition, health status appears to be one of the most influential variables. Better health status is associated with higher subjective well-being. This could be because those with better health tend to be more psychologically resilient and feel more supported by others (Carandang et al., 2020; Xu et al., 2019; Zhu et al., 2020).

Income perception is also considered as another crucial variable for subjective well-being, with higher income perception being associated with higher odds of reporting higher subjective well-being, which resonates with the results from Park, and Joshanloo (2021). The year 2020 continues to have a negative impact on subjective well-being, as individuals in that year had lower odds of reporting higher subjective well-being. This implies that some external circumstances and economic disruptions in that specific year, such as the COVID-19 pandemic, may potentially have a substantial negative impact on subjective well-being, hence the subjective well-being might fluctuate over time.

To ensure reliability of the results from the main models, robustness checks were performed to confirm the findings from different specification models. In particular, we used raw subjective well-being scores ranging from 0 to 10 as the dependent variable and employ random-effects panel data estimation as an empirical technique in this section. The results indicate that the relevance of the pension remains very small, implying that while pensions do play a role in one's subjective well-being, it may be due to other factors. Age differences continue to exist with older individuals aged 70-79 exhibiting lower subjective well-being, while those that are aged 80 years and older do so but with mixed effects, indicating that the relationship between age and well-being varies within this age group. Married status still emerges as one of the strongest predictors of subjective well-being, with married individuals likely to have higher subjective well-being. Individuals in urban areas continue to be associated with higher subjective well-being. Among regional differences, the elderly in the East and North region indicate significantly higher subjective well-being, while those living in the South appear to have lower subjective well-being compared to Bangkok and vicinity areas.

Hence, excellent health is significantly associated with higher subjective well-being compared to those with worsened health, while higher perception of income is consistently associated with higher levels of subjective well-being. In addition, even though the overall effects of pensions remain very small, they appear to be more evident in the South region, indicating potential regional differences in how pensions impact the subjective well-being of the elderly population. Lastly, the Year 2020 contains mixed results across models – while some years show a positive association with higher well-being, others exhibit a negative relationship. This suggests that the impact of time-related factors is not consistent.

5. Conclusion

This paper used a random-effects ordered logit model as the primary method when analyzing the impacts on subjective well-being given the panel structure of the data, while the ordered logit model was used as the alternative method. The analysis was based on the 2015 and 2020 waves from the Center for Aging Society Research (CASR) at the National Institute of Development Administration (NIDA), which was restricted to respondents who received the old age pension for the entire year and those who did not receive it at all, as well as those who had completed the subjective well-being and other section questions.

The results indicate that the old age pension has a minimal impact on subjective well-being, relative to other non-financial factors. Nonetheless, the old age pension appears to have a small positive impact for the elderly who live in the South. Along with pensions, other variables such as age, marital status, residential areas, regions, health status, and income perception tend to have stronger impacts on subjective well-being. Subjective well-being decreases with age. Marriage, living in urban areas, better health status, and higher income perception are all associated with improved subjective well-being. Meanwhile, the findings of this study demonstrate regional differences in subjective well-being.

In conclusion, the findings of this study highlight several important policy implications for enhancing the subjective well-being and life satisfaction of elderly people in Thailand. Given the minimal impact of the old age pension on subjective well-being, this raises questions about the adequacy of pension benefits. Revising the pension amounts to ensure they provide sufficient support for improving the subjective well-being of older adults should be considered. In light of the negative impact of age on subjective well-being, policies that could help elderly people to increase their subjective well-being include the promotion of more social engagement opportunities and provision of mental health support. Such initiatives can foster social relationships among older adults and preserve their subjective well-being.

Considering the positive impact of income perception on subjective well-being, allowing for a more flexible retirement period may help elderly individuals feel more satisfied with their income by reducing financial concerns and enabling them to accumulate sufficient wealth for retirement. Furthermore, although living in the South is negatively associated with subjective well-being, the significant positive interaction term between the old age pension and the South region indicates that pensions may partially offset the effects, contributing to improved subjective well-being among the elderly in this area. Therefore, enhancing pension benefits or providing additional support in regions affected by conflict or insecurity could be an effective policy tool to reduce regional disparities in subjective well-being among older adults. Lastly, since good physical health is highly associated with higher subjective well-being, policies promoting more healthy aging programs, such as those focusing on nutrition and exercise, should be addressed for the elderly population in order to maintain their excellent health.

This study also acknowledges several limitations. First, endogeneity and selection bias remain potential concerns in estimating the causal impact of old age pensions on subjective well-being. Although instrumental variable *(*IV*)* techniques are commonly used to address such issues, identifying a valid and strong instrument in this context proves challenging. Second, the researchers did not employ fixed-effects estimation, as it would eliminate time-invariant variables, such as gender and highest education, which are important factors for explaining subjective well-being among the elderly. Future research could address these limitations by identifying valid instrumental variables or employing estimation methods that allow for the inclusion of time-invariant factors. This will thus provide more comprehensive insights regarding the impact of the old age pension on subjective well-being. Finally, despite age being controlled in the model, the effect found in this study – in which each one-baht increase to the pension amount resulted in a decline of subjective well-being – may reflect age-related declines in subjective well-being since older pension-receiving age groups receive a larger pension amount. Future research should seek to isolate these two variables further to clarify this finding.

6. References

Abruquah, L. A., Yin, X., & Ding, Y. (2019). Old age support in urban China: The role of pension schemes, self-support ability and intergenerational assistance. *International Journal of Environmental Research and Public Health*, *16*(11), Article 1918. https://doi.org/10.3390/ijerph16111918

Cantril, H. (1965) *The pattern of human concerns*. Rutgers University Press. Retrieved from https://archive.org/details/patternofhumanco0000cant

Carandang, R. R., Shibanuma, A., Asis, E., Chavez, D. C., Tuliao, M. T., & Jimba, M. (2020). "Are Filipinos aging well?": Determinants of subjective well-being among senior citizens of the community-based ENGAGE study. *International Journal of Environmental Research and Public Health*, *17*(20), Article 7636. https://doi.org/10.3390/ijerph17207636

Chen, C. (2001). Aging and life satisfaction. *Social Indicators Research*, *54*, 57-79. https://doi.org/10.1023/A:1007260728792

Chen, Y., & Tan, Y. J. (2018). Income and subjective well-being: Evidence from Singapore's first national non-contributory pension. Retrieved from https://ink.library.smu.edu.sg/soe_research/2245/

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, *95*(3), 542-575. https://psycnet.apa.org/doi/10.1037/0033-2909.95.3.542

Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13

Ding, Y. (2017). Personal life satisfaction of China's rural elderly: Effect of the New Rural Pension Programme. *Journal of International Development*, *29*(1), 52-66. https://doi.org/10.1002/jid.3264

Etinzock, M. N. (2018). *Happiness and the elderly: A subjective wellbeing impact of social grants in South Africa*. University of the Witwatersrand, Johannesburg (South Africa).

Etinzock, M. N., & Kollamparambil, U. (2019). Subjective well-being impact of old age pension in South Africa: A difference in difference analysis across the gender divide. *South African Journal of Economic and Management Sciences*, *22*(1), 1-12. https://doi.org/10.4102/sajems.v22i1.2996

Ford, K., Jampaklay, A., & Chamratrithirong, A. (2022). A multilevel longitudinal study of individual, household and village factors associated with happiness among adults in the southernmost provinces of Thailand. *Applied Research in Quality of Life*, *17*(3), 1459-1476. https://doi.org/10.1007/s11482-021-09973-z

Gurven, M., Buoro, Y., Rodriguez, D. E., Sayre, K., Trumble, B., Pyhälä, A., ... & Reyes-García, V. (2024). Subjective well-being across the life course among non-industrialized populations. *Science Advances*, *10*(43), Article 0952. https://doi.org/10.1126/sciadv.ado0952

Haring-Hidore, M., Stock, W. A., Okun, M. A., & Witter, R. A. (1985). Marital status and subjective well-being: A research synthesis. *Journal of Marriage and the Family*, *47*(4), 947-953. https://doi.org/10.2307/352338

Kim, E. H. W. (2018). The effect of income on subjective well-being in later life: A case study of a government pension in South Korea. *Lee Kuan Yew School of Public Policy Research Paper*, *18-02.* https://doi.org/10.2139/ssrn.3118036

Ko, P. C., & Möhring, K. (2021). Chipping in or crowding-out? The impact of pension receipt on older adults' intergenerational support and subjective well-being in rural China. *Journal of Cross-Cultural Gerontology*, *36*, 139-154. https://doi.org/10.1007/s10823-020-09422-8

Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*, *46*, 137-155. https://doi.org/10.1023/A:1006824100041

Milovanska-Farrington, S., & Farrington, S. (2022). Happiness, domains of life satisfaction, perceptions, and valuation differences across genders. *Acta Psychologica*, *230*, Article 103720. https://doi.org/10.1016/j.actpsy.2022.103720

Navarro, M., D'Agostino, A., & Neri, L. (2020). The effect of urbanization on subjective well-being: Explaining cross-regional differences. *Socio-Economic Planning Sciences*, *71*, Article 100824. https://doi.org/10.1016/j.seps.2020.100824

OECD. (2013). *OECD guidelines on measuring subjective well-being*. OECD Publishing. https://doi.org/10.1787/9789264191655-en

Pak, T. Y. (2020). Social protection for happiness? The impact of social pension reform on subjective well-being of the Korean elderly. *Journal of Policy Modeling*, *42*(2), 349-366. https://doi.org/10.1016/j.jpolmod.2019.12.001

Park, M. S. A., & Joshanloo, M. (2021). Satisfaction with life declines with age in Malaysia: An exploratory analysis of factors influencing subjective well-being in a developing/middle-income country. *Applied Research in Quality of Life*, *16*(2), 471-486. https://doi.org/10.1007/s11482-019-09756-7

Rose, C. (2016) *The old age allowance in Thailand: Wellbeing and self-worth for older people.* Lund University. Retrieved from http://lup.lub.lu.se/student-papers/record/8902374

Teerawichitchainan, B., & Pothisiri, W. (2021). Expansion of Thailand's social pension policy and its implications for family support for older persons. *International Journal of Social Welfare*, *30*(4), 428-442. https://doi.org/10.1111/ijsw.12481

Thaithatkul, P., Chalermpong, S., Laosinwattana, W., & Kato, H. (2022). Mobility, activities, and happiness in old age: Case of the elderly in Bangkok. *Case Studies on Transport Policy*, *10*(2), 1462-1471. https://doi.org/10.1016/j.cstp.2022.05.010

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT press.

Xu, W., Sun, H., Zhu, B., Bai, W., Yu, X., Duan, R., ... & Li, W. (2019). Analysis of factors affecting the high subjective well-being of Chinese residents based on the 2014 China family panel study. *International Journal of Environmental Research and Public Health*, *16*(14), Article 2566. https://doi.org/10.3390/ijerph16142566

Zhu, J., Liang, C., Lucas, J., Cheng, W., & Zhao, Z. (2020). The influence of income and social capital on the subjective well-being of elderly Chinese people, based on a panel survey. *Sustainability*, *12*(11), Article 4786. https://doi.org/10.3390/su12114786