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Factors Influencing the Decision to Extend Working Life: A Case Study of Thailand

Kaewkwan Tangtipongkul

Faculty of Economics, Thammasat University, Bangkok 10200, Thailand

E-mail: kaewkwan@econ.tu.ac.th

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Abstract

The changes in the population structure have led Thailand to become an aged society since 2005. Thailand's old-age dependency ratio *(*64+ per 15-64*)* increased from 5.44 percent in 1965 to 20.97 percent in 2023. Utilizing the 2018-2023 data from Thailand's National Labor Force Survey, this paper examines the factors influencing the decision to remain in the labor force, focusing on individuals aged 55-80 years old using Beehr's framework. Retirement is defined as the individual leaving the labor force with the intention to stay out permanently (Lazear, 1986). The logistic regression model shows that geographic regions, age, gender, education, marital status, and the position of family members in the co-residence composition influence an individual's decision to remain in the labor force. Males have a significantly higher propensity to remain in the labor force compared to females. Married or single individuals have a significantly higher propensity to remain in the labor force. Individuals whose highest educational attainment was primary, secondary and post-secondary, university level or higher have a higher propensity to remain in the labor force compared to individuals with no education in all years. As family size increases, they have a lower propensity to remain in the labor force. Individuals who are the head of household have a significantly higher propensity to remain in the labor force. The interaction terms between male and head of household have a significantly higher propensity to remain in the labor force. Individuals who are a spouse or married child of the head of household have a significant positive impact on the decision to remain in the labor force. These findings have important implications for Thailand's old-age policies, encouraging productive aging through employment opportunities while recognizing the importance of family support in enhancing the well-being of older adults.

Keywords**:** *elderly; household co-residence; labor force; Thailand*

1. Introduction

The changes in the population structure have led Thailand to become an aged society since 2005. Thailand's old-age dependency ratio (64+ per 15-64) increased from 5.44% in 1965 to 20.97% in 2023 (Figure 1). The proportion of the population aged 60 years old or over is forecast to reach 28.3% by 2030, 33.9% by 2040, and 38.3% by 2050 (Figure 2). Policies related to extending the retirement age and reemployment of older workers are essential to support the current and future population structure. These policies will allow older workers to have financial protection. According to Thailand Development Research Institute (2024) , the labor force participation rate of people aged 65 years old or over in Thailand was 27.72 percent in 2021. Information and Communications Technology (ICT) will become crucial in education. Anantanasuwong (2021) stated that strengthening lifelong learning skills is one of the main goals of building an active and healthy aging society. The literacy rate of older persons aged 65 years or over in 2015 was 73.3% for females and 85.4% for males (UN.ESCAP, 2022).

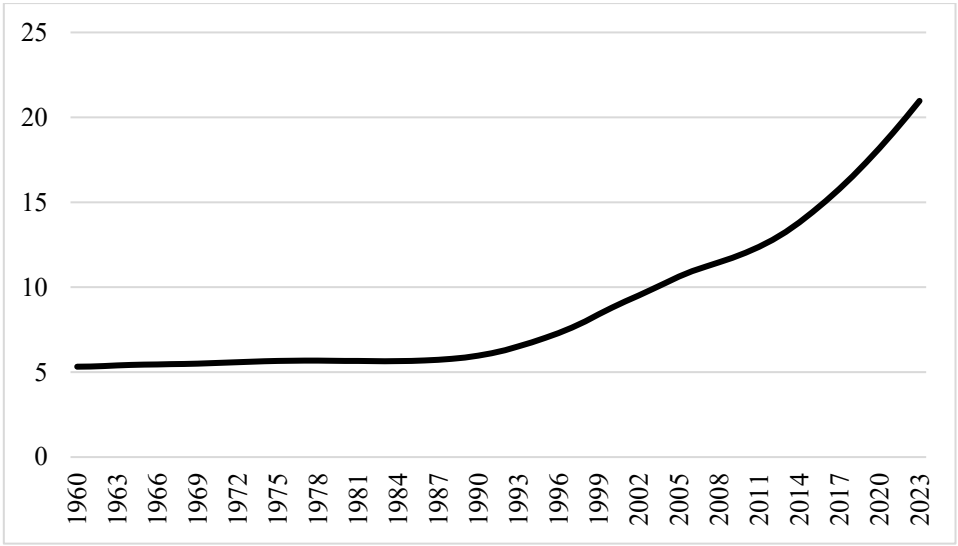

Figure 1 Age-dependency Ratio, Old (% or Working-age Population), Thailand. Adapted from "Age-dependency ratio is the ratio of older dependents people older than 64 to the working-age population those aged 15-64" by The World Bank. The data depict the proportion of dependents per 100 working-age population

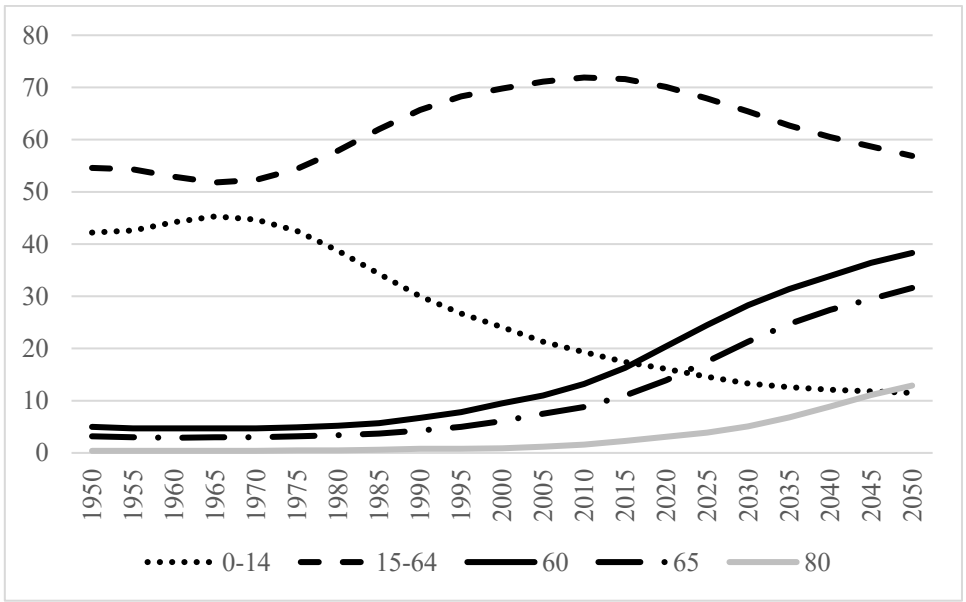

Figure 2 Proportion of the Total Population by Broad Age Group, 1950-2050, Thailand. Adapted from "Ageing in Asia and the Pacific: key facts" by ESCAP, 2022. https://www.population-trends-asiapacific.org/data

A study by the United Nations Economic and Social Commission for Asia and the Pacific (UN.ESCAP) Khalid (2023) explores the challenges and developments related to the labor market trends of the aging society in the fourth industrial revolution in Malaysia, Singapore, and Thailand. Various policies in countries across the Asia-Pacific region aim to promote employment, education, and financial support for older persons (Henning & Roncarati, 2022). Nagarajan & Sixsmith (2023) discussed factors influencing older persons' decisions to remain in the workforce and found technology plays a significant role in accommodating the needs of older and younger workers. Studies investigate workplace perceptions of older workers (Andersen et al., 2024; Fabiani, 2024; Levine et al., 2022; Stevens et al., 2022; Jaldestad et al., 2021; Blomé et al., 2020; Frøyland & Terjesen, 2020; Ruzik-Sierdzińska, 2018; Edge et al., 2017; Roman, 2016). Levine et al. (2022) conducted a secondary analysis of cross-sectional survey data from a 2017 survey of faculty aged 55 years old and older at 14 U.S. medical schools and

found that women differed from men in the personal and professional factors influencing retirement decisions with women more likely to identify a sense of burnout, lack of access to career advancing resources and opportunities, feeling devalued at work, caregiving responsibilities and health insurance. Jaldestad et al. (2021) conducted a survey and semi-structured interviews among older blue-collar workers in Sweden, the Netherlands, and France and found that factors contributing to both retirement and a prolonged work life comprised individual, organizational, and societal levels. Frøyland & Terjesen (2020) found that positive perceptions of older workers include high levels of expertise and knowledge, but older workers were less flexible, less willing to adapt to new situations, and less productive compared to younger workers. Ruzik-Sierdzińska (2018) used Poland's labor force survey for the years 2013-2016 and found that education and health status are significant factors influencing retirement decisions among persons aged 50–74 years old. In addition, Sakai et al. (2025) had an exploratory sequential design using a mixed-methods approach, including interviews and questionnaire surveys and identified factors affecting job continuity in Japan including health condition, job performance, self-esteem, conservatism, employment system, workload, medical insurance and welfare programs, monetary and non-monetary rewards, relationships, attachment to the organization, distance between living and work, social support, economic situation, and employment policy. The policies regarding retirement extension and reemployment may argue that knowledge and experience from older workers are transferable to younger workers which is beneficial for employers (Tangtipongkul, & Srisuchart, 2018).

Several studies explore the determinants of the labor supply of older workers in Thailand (Arkornsakul et al., 2020; Kantachote & Wiroonsri, 2023; Paweenawat & Liao, 2021; Sirisub et al., 2019; Parkpoom et al., 2024; Luekitinan, 2019). Paweenawat & Liao (2021) found that pensions and poor health status negatively influence labor force participation. Sirisub et al. (2019) analyzed the associations between general characteristics, quality of work life, and job characteristics that contribute to the extension of work life of Thai registered nurses in the Ministry of Public Health. Arkornsakul et al. (2020) found that macroeconomic indicators such as GDP growth rate, GPP growth rate, inflation, unemployment rate, and average allowance per elderly have no impact at the aggregate level. In the private sector, Soonthornchawakan & Cintakulchai (2009) analyzed Thailand's household socio-economic survey data and recommended extending retirement based on workers' productivity in wholesale, retail, hotel, and restaurant industries. In addition, Soonthornchawakan & Kulthanavit (2015) found that the productivity of workers ages 55-59 years old declined significantly in the manufacturing industry due to poor health. Luekitinan (2019) analyzed older workers in the manufacturing industry and found that the most critical component was work return. Tangtipongkul & Srisuchart (2018) found that individuals working in retail have an approximately 9% higher propensity to delay their retirement compared to other industries. Parkpoom et al. (2024) analyzed Thailand' s 2017 elderly population survey database and found that factors that were associated with the desire to work included age, gender, reading and writing ability, marital status, physical health, sensory abilities, and participation in exercise and social activities.

The Thai pension system is funded by the annual government budget and grants pensions to all government officials based on the recipient's final month's salary. Thailand's pension system is illustrated in Table 1. The government-provided pension includes the Government Pension Fund for civil servants and the universal old-age allowance for those without any formal pension payment to secure basic needs. The Social Security Fund, or the compulsory savings, is contributed to by employers, employees, and the government. It is a Pay-As-You-Go scheme where contributions from existing members are used to pay retirees. The financial sustainability of the fund depends on the balance between the amount contributed and the amount of pension paid out. Voluntary savings include the Provident Fund, Retirement Mutual Fund, and National Savings Fund, which are privately financed personal provisions. They are incentivized with tax advantages and are intended to cover Thai citizens, especially informal workers, who are not covered by any pension scheme.

Table 1 Thai Pension System

Government-provided	**Compulsory saving**	**Voluntary savings**
Government Pension Fund	Social Security Fund	Provident Fund
Universal old-age allowance		Retirement Mutual Fund
		National Saving Fund

Source: International Labour Organization, 2022

The retirement age and the age to receive a pension in the Thai employment system are illustrated in Table 2. All formal workers in the public sector retire at 60 years old and are eligible to receive a pension and senior allowance at 50-60 years old. Formal workers in the private sector have no specific legal age for retirement. The retirement age for these workers can be negotiated between employers and employees in the employment contract. The retirement age usually agreed upon is 55 and is based on the eligibility to receive a pension from the Social Security Fund. Informal workers, such as agricultural workers and self-employed individuals, have no specific legal requirement for retirement and are not eligible to receive pensions.

Table 2 Age of Retirement and Pension Eligibility in the Thai Employment System

Employment sector	**Formal workers**		**Informal workers**
	Public sector	**Private sector**	
Age of retirement	60 years old	No specific legal requirement. Depends on the agreement between employer and employee.	No specific legal requirement.
Age eligibility to receive pension and senior allowances	50-60 years old	55 years old (with Social Security)	None

Source: Chamchan, 2008

2. Objectives

The objective of this study is to examine the factors influencing the decision to extend working life.

3. Materials and Methods

This study applies Beehr's framework (1986), which identifies the decisions to extend retirement as being influenced by individual characteristics and household co-residence composition. Individual characteristics include geographic region, gender, marital status, age, and education level. The definition of retirement is applied as the individual leaving the labor force with the intention to stay out permanently (Lazear, 1986).

The logistic regression model was utilized to describe factors associated with the decision to remain in the labor force. Börsch-Supan et al. (2004) applied this model to estimate retirement decisions. Based on Maddala (1983) and Wooldridge (2002), the logistic analysis model assumes that there is an underlying response variable y^* defined by the regression relationship in equation (1):

$$y^* = x\beta + u \tag{1}$$

where x_i represents individual and economic characteristics and the disturbance term u. A dummy variable y is defined by equation (2):

$$y = 1 \; if \; y^* > 0$$
$$y = 0 \; otherwise \tag{2}$$

From (1) and (2) we get

$$P(y = 1|x) = P(y^* > 0|x)P(u > -x\beta) = 1 - F(-x\beta) = F(x\beta) \tag{3}$$

where F is the cumulative distribution function for u. u has a standard logistic distribution. The logit model is shown by equation (4):

$$F(x\beta) = \frac{\exp(x\beta)}{1+\exp(x\beta)} \tag{4}$$

For the nonlinear model interpretation, the marginal effects of individual and household characteristics are calculated to interpret β_j on both continuous and discrete explanatory variables. The marginal effects derivations

are taken from Wooldridge (2002) and Cameron & Trevedi (2009). When x_j is continuous, the marginal effect is computed by equation (5):

$$\frac{\partial p(x)}{\partial x_j} = f(x\beta)\,\beta_j, where\ f(x\beta) = \frac{dF}{d(x\beta)}(x\beta) \quad (5)$$

There are two important properties to consider when explanatory variables are continuous. First, if $F(x\beta)$ is strictly increasing the CDF function, then the sign of marginal effect is determined by the sign of β_j. Second, concerning the relative effects for continuous variables x_j and x_h, the ratio of the partial effects is constant and is given by the ratio of corresponding coefficients by equation (6):

$$\frac{\partial p(x)/\partial x_j}{\partial p(x)/\partial x_h} = \frac{\beta_j}{\beta_h} \quad (6)$$

When x_K is the binary explanatory variable, the marginal effect of changing x_K from zero to one while holding all other variables fixed is computed by equation (7):

$$F(\beta_1 + \beta_2 x_2 + \cdots + \beta_{K-1}x_{K-1} + \beta_K x_K) - F(\beta_1 + \beta_2 x_2 + \cdots + \beta_{K-1}x_{K-1}) \quad (7)$$

For other discrete variables, such as number of family members in the household, the effect on the probability of x_K going from C_K to $C_K + 1$ is computed by equation (8):

$$F(\beta_1 + \beta_2 x_2 + \cdots + \beta_{K-1}x_{K-1} + \beta_K(C_K + 1)) - F(\beta_1 + \beta_2 x_2 + \cdots + \beta_{K-1}x_{K-1} + \beta_K C_K) \quad (8)$$

This study is based on the 2018-2023 data from Thailand's National Labor Force Survey conducted by the National Statistical Office. The sample is drawn randomly from different households in Thailand. In each year, the survey consists of four quarterly sets of data: a) January–March (dry or nonagricultural season), b) April–June (large groups of new workers entering the labor force after graduation), c) July–September (rainy and agricultural season), and d) October–December. The analysis is limited to individuals aged 55-80 years old at the time of the survey. Variables' names, means, and standard deviations are summarized in Table 3. The dependent variable is the decision to remain in the labor force. The explanatory variables are geographic region, gender, marital status, age, education level, and the relationships with the head of household in co-residence composition.

The dummy variables are age, geographic region, gender, marital status, education level, and position of family members in the co-residence composition. The age group is classified into four groups: age of individuals between 55 to 60 years, 61 to 65 years, 66 to 70 years and 71 years and above. The geographic region is classified into five groups: Bangkok and its metropolitan region, central region, north region, northeastern region, and southern region. For municipality as proxy for urban characteristics in the zero-one dummy variable, zero is given to non-municipality or rural area and one is given to municipality or urban area. For gender in the zero-one dummy variable, zero is given to females and one is given to males. The marital status is classified into three groups: married, single, and divorced, widowed, or separated.

The education level is classified into four groups: no education, primary education, secondary or postsecondary education, and university level or above. For the head of household in the zero-one dummy variable, zero is given to the individual who is not the head of the household, and one is given to the individual who is the head of household. The positions of family members in the co-residence composition are categorized as grandparent, spouse, unmarried children, married children, and in-laws to the head of household. The interaction terms are included: 1) the interaction terms between the education level and the positions of family members in the co-residence composition and 2) the interaction terms between gender and the positions of family members in the co-residence composition.

Table 3 Descriptive Statistics of Dependent and Explanatory Variables, 55-80 years old, 2018-2023

Variable	Description	Year 2018 Mean (Standard deviation)	Year 2019 Mean (Standard deviation)	Year 2020 Mean (Standard deviation)	Year 2021 Mean (Standard deviation)	Year 2022 Mean (Standard deviation)	Year 2023 Mean (Standard deviation)
Sample size (N)		229,416	234,662	242,616	244,633	245,326	253,512
Dependent variable							
laborforce	Individual remains in the labor force	0.5168 (0.4997)	0.5085 (0.4999)	0.5152 (0.4998)	0.5208 (0.4996)	0.5231 (0.4995)	0.5309 (0.4990)
Explanatory variables							
Agegroup1§	Age of individuals between 55 to 60 years (Yes=1, No=0)	0.2950 (0.4561)	0.2911 (0.4543)	0.2858 (0.4518)	0.2816 (0.4498)	0.2776 (0.4478)	0.2728 (0.4454)
Agegroup2§	Age of individuals more than 60 to 65 years (Yes=1, No=0)	0.2552 (0.4360)	0.2591 (0.4382)	0.2584 (0.4378)	0.2601 (0.4387)	0.2576 (0.4373)	0.2510 (0.4336)
Agegroup3§	Age of individuals more than 65 to 70 years (Yes=1, No=0)	0.1793 (0.3836)	0.1831 (0.3867)	0.1879 (0.3907)	0.1863 (0.3894)	0.1881 (0.3908)	0.1968 (0.3976)
Male§	Gender (male=1, otherwise=0)	0.4462 (0.4971)	0.4461 (0.4971)	0.4460 (0.4971)	0.4471 (0.4972)	0.4453 (0.4970)	0.4451 (0.4970)
Bangkok§	Living in Bangkok (Yes=1, No=0)	0.0464 (0.2104)	0.0416 (0.1997)	0.0442 (0.2055)	0.0444 (0.2060)	0.0357 (0.1855)	0.0360 (0.1864)
South§	Living in the southern region (Yes=1, No=0)	0.1376 (0.3445)	0.1388 (0.3457)	0.1387 (0.3457)	0.1400 (0.3470)	0.1380 (0.3448)	0.1370 (0.3438)
North§	Living in the northern region (Yes=1, No=0)	0.2514 (0.4338)	0.2540 (0.4353)	0.2530 (0.4347)	0.2552 (0.4360)	0.2534 (0.4350)	0.2527 (0.4346)
Northeast§	Living in the northeastern region (Yes=1, No=0)	0.2823 (0.4501)	0.2850 (0.4514)	0.2814 (0.4497)	0.2823 (0.4501)	0.3011 (0.4588)	0.3023 (0.4593)
Urban§	Living in the municipality (Yes=1, No=0)	0.5534 (0.4971)	0.5530 (0.4972)	0.5524 (0.4973)	0.5465 (0.4978)	0.5218 (0.4995)	0.5248 (0.4994)
Educ1§	Educational attainment (Primary education =1, otherwise=0)	0.7316 (0.4431)	0.7302 (0.4439)	0.7182 (0.4499)	0.7133 (0.4522)	0.7041 (0.4564)	0.7020 (0.4574)
Educ2§	Educational attainment (Secondary or postsecondary education =1, otherwise=0)	0.1244 (0.3300)	0.1282 (0.3343)	0.1368 (0.3436)	0.1414 (0.3484)	0.1517 (0.3587)	0.1588 (0.3655)
Educ3§	Educational attainment (University level or higher=1, otherwise=0)	0.0796 (0.2706)	0.0813 (0.2733)	0.0877 (0.2828)	0.0888 (0.2844)	0.0931 (0.2906)	0.0929 (0.2903)
Married§	Marital status (married=1, otherwise=0)	0.6992 (0.4586)	0.7023 (0.4572)	0.6796 (0.4666)	0.5833 (0.4930)	0.5677 (0.4954)	0.5636 (0.4959)
Single§	Marital status (single=1, otherwise=0)	0.0525 (0.2230)	0.0538 (0.2256)	0.0569 (0.2317)	0.0587 (0.2351)	0.0622 (0.2415)	0.0638 (0.2444)
Family size	Number of family member in the household	3.2357 (1.6940)	3.1792 (1.6638)	3.2046 (1.6874)	3.1964 (1.6892)	2.9339 (1.4672)	2.8777 (1.4420)
Hhouse§	Head of household (Yes=1, No=0)	0.5911 (0.4916)	0.5908 (0.4917)	0.5867 (0.4924)	0.5877 (0.4922)	0.6032 (0.4892)	0.6049 (0.4889)
Grandparent§	Relationship with head of household: Is the respondent the grandparent to the head of household? (Yes=1, No=0)	0.0557 (0.2294)	0.0536 (0.2251)	0.0421 (0.2009)	0.0070 (0.0832)	0.0440 (0.2050)	0.0422 (0.2011)

Table 3 Cont.

Variable	Description	Year 2018 Mean (Standard deviation)	Year 2019 Mean (Standard deviation)	Year 2020 Mean (Standard deviation)	Year 2021 Mean (Standard deviation)	Year 2022 Mean (Standard deviation)	Year 2023 Mean (Standard deviation)
Spouse§	Relationship with head of household: Is the respondent the spouse to the head of household? (Yes=1, No=0)	0.2954 (0.4562)	0.2977 (0.4572)	0.2976 (0.4572)	0.2954 (0.4562)	0.2883 (0.4530)	0.2883 (0.4530)
Unmarried child§	Relationship with head of household: Is the respondent the unmarried child to the head of household? (Yes=1, No=0)	0.0064 (0.0795)	0.0063 (0.0790)	0.0100 (0.0993)	0.0183 (0.1340)	0.0066 (0.0811)	0.0068 (0.0823)
Married child§	Relationship with head of household: Is the respondent the married child to the head of household? (Yes=1, No=0)	0.0112 (0.1054)	0.0115 (0.1065)	0.0091 (0.0951)	0.0003 (0.0180)	0.0109 (0.1040)	0.0116 (0.1070)
Hhouse§xEduc1§	Interaction terms between Hhousehold§ and Educ1§ (Yes=1, No=0)	0.4297 (0.4950)	0.4282 (0.4948)	0.4185 (0.4933)	0.4152 (0.4928)	0.4215 (0.4938)	0.4222 (0.4939)
Hhouse§xEduc2§	Interaction terms between Hhousehold§ and Educ2§ (Yes=1, No=0)	0.0779 (0.2680)	0.0797 (0.2709)	0.0845 (0.2782)	0.0884 (0.2839)	0.0953 (0.2937)	0.0997 (0.2996)
Hhouse§xEduc3§	Interaction terms between Hhousehold§ and Educ3§ (Yes=1, No=0)	0.0488 (0.2155)	0.0503 (0.2186)	0.0533 (0.2246)	0.0536 (0.2252)	0.0582 (0.2341)	0.0573 (0.2325)
Grandparent§x Educ1§	Interaction terms between Grandparent§ and Educ1§ (Yes=1, No=0)	0.0434 (0.2039)	0.0421 (0.2009)	0.0320 (0.1760)	0.0043 (0.0658)	0.0332 (0.1792)	0.0326 (0.1775)
Grandparent§x Educ2§	Interaction terms between Grandparent§ and Educ2§ (Yes=1, No=0)	0.0040 (0.0629)	0.0038 (0.0616)	0.0039 (0.0621)	0.0016 (0.0400)	0.0042 (0.0644)	0.0041 (0.0640)
Grandparent§x Educ3§	Interaction terms between Grandparent§ and Educ3§ (Yes=1, No=0)	0.0013 (0.0361)	0.0013 (0.0363)	0.0017 (0.0408)	0.0009 (0.0303)	0.0021 (0.0455)	0.0019 (0.0434)
Spouse§xEduc1§	Interaction terms between Spouse§ and Educ1§ (Yes=1, No=0)	0.2236 (0.4166)	0.2249 (0.4175)	0.2218 (0.4154)	0.2189 (0.4135)	0.2105 (0.4077)	0.2087 (0.4064)
Spouse§xEduc1§	Interaction terms between Spouse§ and Educ1§ (Yes=1, No=0)	0.2236 (0.4166)	0.2249 (0.4175)	0.2218 (0.4154)	0.2189 (0.4135)	0.2105 (0.4077)	0.2087 (0.4064)
Spouse§xEduc2§	Interaction terms between Spouse§ and Educ2§ (Yes=1, No=0)	0.0316 (0.1750)	0.0333 (0.1794)	0.0353 (0.1844)	0.0357 (0.1855)	0.0389 (0.1933)	0.0412 (0.1989)
Spouse§xEduc3§	Interaction terms between Spouse§ and Educ3§ (Yes=1, No=0)	0.0215 (0.1452)	0.0219 (0.1464)	0.0238 (0.1525)	0.0244 (0.1543)	0.0250 (0.1560)	0.0251 (0.1565)
Unmarried child§xEduc1§	Interaction terms between Unmarried child§ and Educ1§ (Yes=1, No=0)	0.0034 (0.0585)	0.0030 (0.0550)	0.0052 (0.0720)	0.0102 (0.1006)	0.0034 (0.0585)	0.0032 (0.0565)

Table 3 Cont.

Variable	Description	Year 2018 Mean (Standard deviation)	Year 2019 Mean (Standard deviation)	Year 2020 Mean (Standard deviation)	Year 2021 Mean (Standard deviation)	Year 2022 Mean (Standard deviation)	Year 2023 Mean (Standard deviation)
Unmarried child§xEduc2§	Interaction terms between Unmarried child§ and Educ2§ (Yes=1, No=0)	0.0012 (0.0353)	0.0015 (0.0382)	0.0022 (0.0471)	0.0040 (0.0629)	0.0013 (0.0363)	0.0016 (0.0403)
Unmarried child§xEduc3§	Interaction terms between Unmarried child§ and Educ3§ (Yes=1, No=0)	0.0013 (0.0362)	0.0014 (0.0370)	0.0020 (0.0443)	0.0034 (0.0583)	0.0014 (0.0368)	0.0015 (0.0383)
Married child§xEduc1§	Interaction terms between Married child§ and Educ1§ (Yes=1, No=0)	0.0067 (0.0816)	0.0070 (0.0831)	0.0054 (0.0730)	0.0002 (0.0126)	0.0064 (0.0796)	0.0066 (0.0808)
Married child§xEduc2§	Interaction terms between Married child§ and Educ2§ (Yes=1, No=0)	0.0024 (0.0491)	0.0026 (0.0512)	0.0021 (0.0458)	0.0001 (0.0105)	0.0028 (0.0528)	0.0031 (0.0553)
Married child§xEduc3§	Interaction terms between Married child§ and Educ3§ (Yes=1, No=0)	0.0019 (0.0433)	0.0016 (0.0406)	0.0015 (0.0384)	0.00003 (0.0057)	0.0015 (0.0388)	0.0017 (0.0409)
Hhouse§xMale§	Interaction terms between Hhousehold§ and Male§ (Yes=1, No=0)	0.3395 (0.4735)	0.3373 (0.4728)	0.3342 (0.4717)	0.3336 (0.4715)	0.3293 (0.4700)	0.3286 (0.4697)
Grandparent§xMale§	Interaction terms between Grandparent§ and Male§ (Yes=1, No=0)	0.0142 (0.1185)	0.0136 (0.1160)	0.0123 (0.1100)	0.0056 (0.0749)	0.0117 (0.1076)	0.0110 (0.1044)
Spouse§xMale§	Interaction terms between Spouse§ and Male§ (Yes=1, No=0)	0.0706 (0.2561)	0.0729 (0.2600)	0.0738 (0.2615)	0.0744 (0.2624)	0.0797 (0.2708)	0.0806 0.2722)
Unmarried child§xMale§	Interaction terms between Unmarried child§ and Male§ (Yes=1, No=0)	0.0020 (0.0443)	0.0022 (0.0468)	0.0034 (0.0580)	0.0061 (0.0778)	0.0026 (0.0507)	0.0027 (0.0523)
Married child§xMale§	Interaction terms between Married child§ and Male§ (Yes=1, No=0)	0.0037 (0.0606)	0.0039 (0.0621)	0.0029 (0.0535)	0.0001 (0.0107)	0.0037 (0.0609)	0.0042 (0.0645)
Q1§	Quarter 1 (Yes=1, No=0)	0.2393 (0.4266)	0.2416 (0.4281)	0.2404 (0.4273)	0.2415 (0.4280)	0.2476 (0.4316)	0.2482 (0.4320)
Q2§	Quarter 2 (Yes=1, No=0)	0.2508 (0.4335)	0.2506 (0.4333)	0.2485 (0.4321)	0.2501 (0.4331)	0.2502 (0.4331)	0.2493 (0.4326)
Q3§	Quarter 3 (Yes=1, No=0)	0.2585 (0.4378)	0.2575 (0.4372)	0.2592 (0.4382)	0.2575 (0.4373)	0.2511 (0.4336)	0.2508 (0.4335)

Note: § is dummy variable

4. Results

This study is based on the 2018-2023 data from Thailand's National Labor Force Survey conducted by the National Statistical Office. The sample is drawn randomly from different households in Thailand. The analysis is limited to individuals aged 55-80 years old at the time of the survey. The estimated effect on the probability of individuals who decide to remain in the labor force is shown in Table 4. Individuals who decide to remain in the labor force were estimated as a function of the following explanatory variables: geographic region, gender, marital status, age, education level, the position of family members in the co-residence composition, the interaction terms between the education level and the positions of family members in the co-residence composition and the interaction terms between gender and the positions of family members in the co-residence composition. The dependent variable is given the value of 1 if individuals decide to remain in the labor force and 0 otherwise. The definition of retirement in this paper is applied as the individual being out of the labor force.

Several points can be discussed from Table 4. The results show that individuals in Bangkok and its metropolitan area have a lower propensity to remain in the labor force compared to individuals in the central region, whereas those in the northern and southern regions have a higher propensity to remain in the labor force compared to individuals in the central region. Individuals in the urban area have a lower propensity to remain in the labor force compared to individuals in the rural area. Individuals in the age group between 55 to 60 years old, between 61 to 65 years old, or between 66 to 70 years old have a higher propensity to remain in the labor force compared to individuals aged above 70 years old in all years. Males have a significantly higher propensity to remain in the labor force compared to females in all years by approximately more than 10%. Married or single individuals have a significantly higher propensity to remain in the labor force compared to divorced, widowed, or separated in all years. There is a presumption that married individuals are more motivated, work harder, and earn higher incomes (Byron & Manaloto, 1980). However, Fabiani (2024) found that marital status exhibits diverse impacts; being single or divorced tends to increase the odds of late retirement for females, while, for males, marital status has no effect.

Individuals whose highest educational attainment was primary, secondary and postsecondary, university level or higher have a higher propensity to remain in the labor force compared to individuals with no education in all years. Parkpoom et al. (2024) found that seniors who had the ability to read and write were 1.21 times more likely to wish to work than those who were unable to read and write. In addition, Andersen et al. (2024) found that higher levels of education were positively associated with working beyond the statutory pension age.

The position of family members in the co-residence composition has a significant impact on the individual's decision to remain in the labor force. As family size increases, they have a lower propensity to remain in the labor force. Chen et al. (2021) found that an increase in family size has negative effects on the labor supply of mothers but not of fathers. Individuals who are head of household have a significantly higher propensity to remain in the labor force in all years. The interaction terms between head of household and the highest educational attainment indicate a significantly lower propensity to remain in the labor force compared to unmarried children to the head of household with no education. The interaction terms between male and head of household have a significantly higher propensity to remain in the labor force in all years.

Individuals aged 55-80 years old as grandparents to the head of household have a significant positive impact on the decision to remain in the labor force in the years 2021 and 2023. The interaction terms between grandparents to the head of household and the highest educational attainment have a significantly lower propensity to remain in the labor force compared to grandparents to the head of household with no education. The interaction terms between male and grandparents to the head of household have significantly higher propensity to remain in the labor force in the years 2020 and 2021. Ma (2022) found that caring for grandchildren prevents many middle-aged grandmothers from working.

Individuals aged 55-80 years old as spouses to the head of household have a significant positive impact on the decision to remain in the labor force in all years. The interaction terms between spouse to the head of household and the highest educational attainment into account have a significantly lower propensity to remain in the labor force compared to spouse to the head of household with no education. The interaction terms between male and spouse to the head of household have a significantly higher propensity to remain in the labor force in all years.

Individuals aged 55-80 years old as unmarried children to the head of household have a significant negative impact on the decision to remain in the labor force in the years 2018, 2021-2023. The interaction terms between unmarried children to the head of household and the highest educational attainment have a significantly higher propensity to remain in the labor force compared to unmarried children to the head of household with no education. The interaction terms between male and unmarried children to the head of household have a significantly lower propensity to remain in the labor force in the years 2018 and 2019. Shen et al. (2016) revealed that intergenerational co-residence allows women to share the burden of housework with their parents, thus leading to increased labor supply.

Individuals aged 55-80 years old as married children to the head of household have a significant positive impact on the decision to remain in the labor force in all years. The interaction terms between married children to the head of household and the highest educational attainment into account have a significantly lower propensity to remain in the labor force compared to married children to the head of household with no education.

Table 4 Marginal Effect of Variables of Individuals in the Labor Force, 55-80 years old, 2018-2023

Explanatory variables	Marginal effects of variables for individuals in the labor force					
	2018	**2019**	**2020**	**2021**	**2022**	**2023**
Agegroup1§	0.4073***	0.4082***	0.4141***	0.4222***	0.4243***	0.4302***
	(0.0025)	(0.0025)	(0.0024)	(0.0023)	(0.0022)	(0.0022)
Agegroup2§	0.1961***	0.1900***	0.1994***	0.2143***	0.2052***	0.2228***
	(0.0029)	(0.0029)	(0.0028)	(0.0027)	(0.0027)	(0.0026)
Agegroup3§	0.0530***	0.0543***	0.0554***	0.0720***	0.0636***	0.0842***
	(0.0034)	(0.0034)	(0.0033)	(0.0032)	(0.0032)	(0.0030)
Male§	0.1218***	0.1082***	0.1199***	0.1047***	0.1573***	0.1610***
	(0.0118)	(0.0116)	(0.0100)	(0.0085)	(0.0104)	(0.0103)
Geographic region						
Bangkok§	-0.1039***	-0.0950***	-0.0848***	-0.0491***	-0.0433***	-0.0312***
	(0.0059)	(0.0061)	(0.0059)	(0.0059)	(0.0065)	(0.0064)
South§	0.0566***	0.0530***	0.0586***	0.0541***	0.0429***	0.0461***
	(0.0038)	(0.0038)	(0.0037)	(0.0036)	(0.0037)	(0.0036)
Northeast§	0.0111***	-0.0007	-0.0010	-0.0042	0.0052*	0.0148***
	(0.0031)	(0.0031)	(0.0030)	(0.0030)	(0.0030)	(0.0029)
North§	0.0384***	0.0292***	0.0211***	0.0249***	0.0180***	0.0271***
	(0.0032)	(0.0032)	(0.0031)	(0.0031)	(0.0031)	(0.0031)
Urban§	-0.0410***	-0.0458***	-0.0412***	-0.0471***	-0.0421***	-0.0368***
	(0.0024)	(0.0024)	(0.0023)	(0.0023)	(0.0023)	(0.0023)
Educational attainment						
Educ1§	0.3629***	0.3662***	0.3038***	0.2212***	0.2875***	0.3649***
	(0.0205)	(0.0204)	(0.0192)	(0.0163)	(0.0219)	(0.0230)
Educ2§	0.3249***	0.3353***	0.2810***	0.2339***	0.2986***	0.3570***
	(0.0192)	(0.0195)	(0.0187)	(0.0163)	(0.0193)	(0.0184)
Educ3§	0.2878***	0.2737***	0.2362***	0.1330***	0.1750***	0.2371***
	(0.0209)	(0.0223)	(0.0208)	(0.0207)	(0.0247)	(0.0235)
Marital status						
Married§	0.1857***	0.1882***	0.1552***	0.0824***	0.0723***	0.0732***
	(0.0034)	(0.0033)	(0.0031)	(0.0028)	(0.0028)	(0.0027)
Single§	0.1107***	0.1179***	0.1163***	0.1049***	0.0634***	0.0652***
	(0.0060)	(0.0059)	(0.0054)	(0.0050)	(0.0053)	(0.0051)
Household living characteristics						
Family size	-0.0123***	-0.0105***	-0.0087***	-.0053***	-0.0056***	-0.0046***
	(0.0007)	(0.0007)	(0.0007)	.0007	(0.0008)	(0.0008)
Hhouse§	0.2914***	0.2796***	0.3006***	0.3265***	0.2859***	0.3571***
	(0.0236)	(0.0240)	(0.0205)	(0.0162)	(0.0228)	(0.0244)
Grandparent§	0.0037	-0.0315	-0.0311	0.4267***	-0.0425	0.1020***
	(0.0330)	(0.0348)	(0.0341)	(0.0288)	(0.0349)	(0.0343)
Spouse§	0.2340***	0.2169***	0.2545***	0.3234***	0.3026***	0.3557***
	(0.0240)	(0.0248)	(0.0208)	(0.0156)	(0.0214)	(0.0220)
Unmarried child§	-0.1934**	-0.0627	-0.0627	0.1538***	-0.2490***	-0.1762***
	(0.0791)	(0.0706)	(0.0560)	(0.0413)	(0.0559)	(0.0634)
Married child§	0.3076***	0.2738***	0.3421***	0.3304***	0.2355***	0.3297***
	(0.0447)	(0.0545)	(0.0408)	(0.1234)	(0.0534)	(0.0346)
Interaction terms						
Hhouse§xEduc1§	-0.2555***	-0.2518***	-0.1875***	-0.1061***	-0.1672***	-0.2437***
	(0.0244)	(0.0247)	(0.0221)	(0.0183)	(0.0245)	(0.0265)
Hhouse§xEduc2§	-0.2803***	-0.2652***	-0.2188***	-0.1706***	-0.2403***	-0.2957***
	(0.0227)	(0.0232)	(0.0223)	(0.0198)	(0.0237)	(0.0243)
Hhouse§xEduc3§	-0.3301***	-0.3092***	-0.3242***	-0.2528***	-0.2794***	-0.3484***
	(0.0205)	(0.0213)	(0.0187)	(0.0198)	(0.0233)	(0.0217)

Table 4 Cont.

Explanatory variables	Marginal effects of variables for individuals in the labor force					
	2018	**2019**	**2020**	**2021**	**2022**	**2023**
Interaction terms						
Grandparent§xEduc1§	-0.2680***	-0.2543***	-0.1876***	-0.2270*	-0.1739***	-0.2846***
	(0.0266)	(0.0281)	(0.0314)	(0.1196)	(0.0331)	(0.0296)
Grandparent§xEduc2§	-0.2904***	-0.2644***	-0.1961***	-0.4002***	-0.2342***	-0.3016***
	(0.0296)	(0.0321)	(0.0362)	(0.0641)	(0.0347)	(0.0310)
Grandparent§xEduc3§	-0.3512***	-0.2861***	-0.2424***	-0.4131***	-0.1411***	-0.3454***
	(0.0345)	(0.0410)	(0.0408)	(0.0590)	(0.0462)	(0.0335)
Spouse§xEduc1§	-0.2952***	-0.2855***	-0.2340***	-0.1644***	-0.2467***	-0.3090***
	(0.0229)	(0.0232)	(0.0216)	(0.0187)	(0.0237)	(0.0249)
Spouse§xEduc2§	-0.3425***	-0.3321***	-0.2978***	-0.2650***	-0.3480***	-0.3751***
	(0.0185)	(0.0187)	(0.0190)	(0.0178)	(0.0182)	(0.0188)
Spouse§xEduc3§	-0.3323***	-0.3288***	-0.3362***	-0.2936***	-0.3481***	-0.3987***
	(0.0199)	(0.0196)	(0.0177)	(0.0185)	(0.0192)	(0.0173)
Unmarried child§xEduc1§	0.2333***	0.0925	0.1630***	0.1154***	0.2717***	0.1827***
	(0.0688)	(0.0698)	(0.0502)	(0.0444)	(0.0451)	(0.0563)
Unmarried child§xEduc2§	0.2450***	0.0839	0.1663***	0.0095	0.2179***	0.1109*
	(0.0695)	(0.0740)	(0.0530)	(0.0507)	(0.0566)	(0.0664)
Unmarried child§xEduc3§	0.2878***	0.1710**	0.1734***	0.0628	0.2996***	0.2276***
	(0.0603)	(0.0680)	(0.0535)	(0.0508)	(0.0432)	(0.0534)
Married child§xEduc1§	-0.2519***	-0.2033***	-0.2281***	-0.2652	-0.0618	-0.2402***
	(0.0606)	(0.0679)	(0.0690)	(0.2034)	(0.0741)	(0.0621)
Married child§xEduc2§	-0.2715***	-0.1972***	-0.2427***	-0.3991***	-0.0864	-0.2703***
	(0.0601)	(0.0710)	(0.0690)	(0.1202)	(0.0760)	(0.0600)
Married child§xEduc3§	-0.2364***	-0.1920***	-0.2263***	-0.3570*	-0.0825	-0.2297***
	(0.0664)	(0.0735)	(0.0729)	(0.1925)	(0.0788)	(0.0670)
Hhouse§xMale§	0.0258**	0.0322***	0.0313***	0.0803***	0.0259**	0.0245**
	(0.0123)	(0.0121)	(0.0106)	(0.0090)	(0.0111)	(0.0109)
Grandparent§xMale§	-0.0008	0.0261	0.0773***	0.1505***	0.0266	0.0142
	(0.0181)	(0.0180)	(0.0168)	(0.0343)	(0.0173)	(0.0172)
Spouse§xMale§	0.0881***	0.1006***	0.0981***	0.1267***	0.0698***	0.0670***
	(0.0125)	(0.0123)	(0.0108)	(0.0092)	(0.0114)	(0.0112)
Unmarried child§xMale§	-0.2274***	-0.1031***	-0.0373	-0.0335*	-0.0195	-0.0506
	(0.0275)	(0.0315)	(0.0265)	(0.0200)	(0.0315)	(0.0302)
Married child§xMale§	0.0337	0.0190	-0.0212	0.0985	-0.0103	0.0125
	(0.0275)	(0.0268)	(0.0286)	(0.1251)	(0.0268)	(0.0255)
Q1§	-0.0008	0.0103***	-0.0423***	-0.0075**	-0.0147***	-0.0107***
	(0.0033)	(0.0033)	(0.0033)	(0.0032)	(0.0032)	(0.0031)
Q2§	0.0192***	0.0155***	-0.0328***	-0.0002	-0.0139***	-0.0113***
	(0.0033)	(0.0032)	(0.0032)	(0.0032)	(0.0032)	(0.0031)
Q3§	0.0255***	0.0080**	-0.0088***	0.0054*	0.0003	0.0027
	(0.0033)	(0.0032)	(0.0032)	(0.0031)	(0.0031)	(0.0031)
Sample size	229,416	234,662	242,616	244,633	245,326	253,512
Pseudo R-squared	0.1510	0.1478	0.1450	0.1430	0.1419	0.1454

Note: Numbers are reported as marginal effects at a representative value. Numbers in parentheses represent standard errors. (§) dy/dx stands for the discrete change of the dummy variable from 0 to 1. *Indicates that the variable coefficient in the underlying logit regression differs significantly from zero at the 10 percent level. ** Indicates that the variable coefficient in the underlying logit regression differs significantly from zero at the 5 percent level. *** Indicates that the variable coefficient in the underlying logit regression differs significantly from zero at the 1 percent level.

5. Discussion and Conclusion

This study aims to analyze the factors that lead to the individual's decision to remain in the labor force in Thailand. This study is based on the 2018-2023 data from Thailand's National Labor Force Survey conducted by the National Statistical Office. The sample is drawn randomly from different households in Thailand. The analysis is limited to individuals ages 55-80 years old at the time of the survey. The definition of retirement is applied as the individual leaving the labor force with the intention to stay out permanently (Lazear, 1986). Kikkawa & Gasper (2023) reviewed relevant literature and suggested that the structure of social security, pension, education, health status, household structures, gender norms, and technological change and adoption at the workplace explain the observed patterns of labor supply among older persons in advanced economies, and some of these factors are relevant in developing Asian countries. This study supports the assumption that geographic regions, age, gender, education, marital status, position of family members in the co-residence composition, the interaction terms between the education level and the positions of family members in the co-residence composition and the interaction terms between gender and the positions of family members in the co-residence composition impact the individual's decision to remain in the labor force. The estimated effect on the probability of remaining in the labor force for individuals aged 55-80 years old in 2018-2023. This study finds that individuals in the age group between 55 to 60 years old, between 61 to 65 years old, or between 66 to 70 years old have a higher propensity to remain in the labor force compared to individuals ages above 70 years old in all years.

Males have a significantly higher propensity to be in the labor force compared to females by approximately more than 10%. Minhat & Suwanmannee (2023) found that having good health and being a male worker were the most common factors influencing the individual's decision to work beyond retirement age. Married or single individuals have a significantly higher propensity to remain in the labor force compared to divorced, widowed, or separated individuals. Boonyasana & Chinnakum (2020) investigated the determinants of planned retirement age of informal workers in Chiang Mai province and found that singles positively impact planned retirement age. Individuals who are head of household have a significantly higher propensity to remain in the labor force in all years. The interaction terms between male and head of household have a significantly higher propensity to remain in the labor force in all years. Individuals ages 55-80 years old whose highest educational attainment was primary, secondary and postsecondary, university level or higher have a higher propensity to remain in the labor force compared to individuals with no education in all years. Ruzik-Sierdzińska (2018) found that longer formal education often leads to later retirement, which is allied to a higher level of education and often means higher expected earnings and lower chances of unemployment, better health, and higher general job satisfaction.

The position of family members in the co-residence composition of individuals aged 55-80 years old has a significant impact on the individual's decision to remain in the labor force. Individuals who are grandparents to the head of household have a significant positive impact on the decision to remain in the labor force in the years 2021 and 2023. The interaction terms between grandparents to the head of household and the highest educational attainment have a significantly lower propensity to remain in the labor force compared to grandparents to the head of household with no education. Individuals who are spouses to the head of household have a significant positive impact on the decision to remain in the labor force in all years. The interaction terms between being spouse to the head of household and highest educational attainment have a significantly lower propensity to remain in the labor force compared to spouse to the head of household with no education. Adhikari et al. (2011) found that the elderly with low educational attainment were more likely to remain in the labor force. Kikkawa & Gasper (2023) also found that the lack of career options upon the first retirement can explain the early exit from the labor market among skilled workers.

As family size increases, individuals have a lower propensity to remain in the labor force. Cools et al. (2017) found persistent and growing career penalties linked to family size among women. Individuals who are unmarried children to the head of household have a significant negative impact on the decision to remain in the labor force in the years 2018, 2021-2023. The interaction terms between unmarried children to the head of household and the highest educational attainment into account have a significantly higher propensity to remain in the labor force compared to unmarried children to the head of household with no education. Individuals who are married children to the head of household have a significant positive impact on the decision to remain in the labor force. The interaction terms between married children to the head of household and highest educational attainment have a significantly lower propensity to remain in the labor force compared to married children to the head of

household with no education. He (2023) found that the presence of unmarried adult children increases the likelihood of elderly parents remaining in the labor force. Conversely, Tong et al. (2019) found that co-residence with married children has the lowest labor force participation among older adults, while living with unmarried children, particularly sons, increased the likelihood of employment. Pazim and Hanim (2019) found that older adults receiving support from their adult children were less likely to engage in the labor market, and co-residence was not a statistically significant factor. Zhan & Mao's (2025) findings contribute to a deeper understanding of how intergenerational care shapes women's retirement decisions over time.

These findings have important implications for Thailand's old-age policies, encouraging productive aging through employment opportunities to ensure independence while recognizing the importance of family support in enhancing the well-being of older adults.

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7. References

Adhikari, R., Soonthorndhada, K., & Haseen, F. (2011). Labor force participation in later life: Evidence from a cross-sectional study in Thailand. *BMC Geriatrics*, *11*(1), Article 15. https://doi.org/10.1186/1471-2318-11-15

Anantanasuwong, D. (2021). Population ageing in Thailand: Critical issues in the twenty-first century. In Narot, P., & Kiettikunwong, N. (Eds.), *Education for the Elderly in the Asia Pacific. Education in the Asia-Pacific Region: Issues, Concerns and Prospects*, *59.* Springer, Singapore. https://doi.org/10.1007/978-981-16-3326-3_3

Andersen, L. L., Calatayud, J., Núñez-Cortés, R., Polo-López, A., & López-Bueno, R. (2024). Facilitators and barriers for working beyond statutory pension age: A prospective cohort study across 26 European countries. *Scandinavian Journal of Work, Environment & Health*, *50*(8), Article 622. https://doi.org/10.5271/sjweh.4189

Arkornsakul, P., Puttitanun, T., & Jongadsayakul, W. (2020). Labor supply intention of the elderly in Thailand. *Chiang Mai University Journal of Economics*, *24*(2), 1-16.

Beehr, T. A. (1986). The process of retirement: A review and recommendations for future investigation. *Personnel Psychology*, *39*(1), 31-55. https://doi.org/10.1111/j.1744-6570.1986.tb00573.x

Blomé, M. W., Borell, J., Håkansson, C., & Nilsson, K. (2020). Attitudes toward elderly workers and perceptions of integrated age management practices. *International Journal of Occupational Safety and Ergonomics, 26*(1), 112–120. https://doi.org/10.1080/10803548.2018.1514135

Boonyasana, P., & Chinnakum, W. (2021). The determinants of planned retirement age of informal worker in Chiang Mai province, Thailand. In Sriboonchitta, S., Kreinovich, V., & Yamaka, W. (Eds.), *Behavioral Predictive Modeling in Economics* (pp.363-375). Springer, Cham. https://doi.org/10.1007/978-3-030-49728-6_24

Börsch-Supan, A., Schnabel, R., Kohnz, S., & Mastrobuoni, G. (2004). Micro-modeling of retirement decisions in Germany. In *Social Security Programs and Retirement Around The World: Micro-estimation* (pp. 285-344). University of Chicago Press.

Byron, R. P., & Manaloto, E. Q. (1990). Returns to education in China. *Economic Development and Cultural Change*, *38*(4), 783-796. https://doi.org/10.1086/451833

Cameron, A. C., & Trevedi, P. K. (2009). *Microeconometrics using stata.* Texas, US: Stata Press.

Chamchan, C. (2008). Issues in considering the new concept of the elderly's definition and the age of retirement in Thailand. Thai Population Journal, 4(1), 131-150. [in Thai]

Chen, C., Zhao, W., Chou, S. Y., & Lien, H. M. (2021). The effect of family size on parents' labor supply and occupational prestige: Evidence from Taiwan and Mainland China. *China Economic Review*, *66*, Article 101596. https://doi.org/10.1016/j.chieco.2021.101596

Cools, S., Markussen, S., & Strøm, M. (2017). Children and careers: How family size affects parents' labor market outcomes in the long run. *Demography*, *54*(5), 1773-1793. https://doi.org/10.1007/s13524-017-0612-0

Edge, C. E., Cooper, A. M., & Coffey, M. (2017). Barriers and facilitators to extended working lives in Europe: A gender focus. *Public Health Reviews*, *38*(1), Article 2. https://doi.org/10.1186/s40985-017-0053-8

Fabiani, M. (2024). To retire or not to retire? A comprehensive examination of retirement decision dynamics in Italy. *Societies*, *14*(5), Article 63. https://doi.org/10.3390/soc14050063

Frøyland, K., & Terjesen, H. C. A. (2020). Workplace perceptions of older workers and implications for job retention. *Nordic Journal of Working Life Studies*, *10*(2), 23–41. https://doi.org/10.18291/njwls.v10i2.120819

He, P. (2023). Unmarried children and labor supply decisions of elderly parents. *Social Security and Administration Management*, *4*, 1-7. https://doi.org/10.23977/socsam.2023.040601

Henning, S., & Roncarati, M. (2022). *Promoting decent work opportunities for older persons in the Asia-Pacific region in the context of the fourth industrial revolution*. Retrived from https://hdl.handle.net/20.500.12870/5178

International Labour Organization. (2022). *Thailand Social Protection Diagnostic Review: Review of the pension system in Thailand*. Retrived from https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@asia/@ro-bangkok/documents/publication/wcms_836733.pdf

Jaldestad, E., Eriksson, A., Blom, P., & Östlund, B. (2021). Factors influencing retirement decisions among blue-collar workers in a global manufacturing company implications for age management from a system perspective. *International Journal of Environmental Research and Public Health*, *18*(20), Article 10945. https://doi.org/10.3390/ijerph182010945

Kantachote, K., & Wiroonsri, N. (2023). Do elderly want to work? Modeling elderly's decision to fight aging Thailand. *Quality & Quantity*, *57*(1), 509-539. https://doi.org/10.1007/s11135-022-01366-0

Khalid, M. A. (2023). *The future of employment in Malaysia, Singapore and Thailand: Demographic and labour market trends of ageing societies in the context of the fourth industrial revolution*. Retrived from https://hdl.handle.net/20.500.12870/6039

Kikkawa, A., & Gaspar, R. (2023). Trends and characteristics of labor force participation among older persons in developing Asia: Literature review and cross-country assessment. *Journal of Population Ageing*, *16*(4), 959-983. https://doi.org/10.1007/s12062-022-09377-3

Lazear, E. P. (1986). Retirement from the labor force. *Handbook of Labor Economics*, *1*, 305-355. https://doi.org/10.1016/S1573-4463(86)01008-8

Levine, R. B., Walling, A., Chatterjee, A., & Skarupski, K. A. (2022). Factors influencing retirement decisions of senior faculty at US medical schools: Are there gender-based differences? *Journal of Women's Health*, *31*(7), 974-982. https://doi.org/10.1089/jwh.2021.0536

Luekitinan, W. (2019). The retirement factors of elder worker in Thai manufacturing: Describing the situation. *Journal of Advanced Management Science*, *7*(2), 64-68. https://doi.org/10.18178/joams.7.2.64-68

Ma, X. (2022). Grandchildren care and labor supply of middle-aged grandmothers: Evidence from China. *Journal of Family and Economic Issues*, *43*(3), 581-598. https://doi.org/10.1007/s10834-021-09794-0

Maddala, G. S. (1983). *Limited-dependent and qualitative variables in econometrics*. Cambridge University Press.

Minhat, H. S., & Suwanmanee, S. (2023). Working beyond retirement age: A systematic review. *Malaysian Journal of Medicine & Health Sciences*, *19*(3), 315-324. https://doi.org/10.47836/mjmhs.19.3.41

Nagarajan, N. R., & Sixsmith, A. (2023). Policy initiatives to address the challenges of an older population in the workforce. *Ageing International*, *48*(1), 41-77. https://doi.org/10.1007/s12126-021-09442-w

Parkpoom, P., Laohasiriwon, W., & Mahato, R.K. (2024). Factors affecting the desire to work among elderly people in Thailand. *Journal of Public Health and Development*, *22*(3), 187-201. https://doi.org/10.55131/jphd/2024/220316

Paweenawat, S. W., & Liao, L. (2021). *Labor supply of older workers in Thailand: The role of co-residence, health, and pensions*. Tokyo, Japan: Asian Development Bank Institute (ADBI). Retrived from https://hdl.handle.net/10419/238581

Roman, R. (2016). Workplace perception and job-satisfaction of older workers. MPRA Paper 70917, University Library of Munich, Germany. Retrived from https://mpra.ub.uni-muenchen.de/70917/

Ruzik-Sierdzińska, A. (2018). An attempt to identify factors influencing retirement decisions in Poland. *Acta Universitatis Lodziensis. Folia Oeconomica*, *4*(336), 43-59. https://doi.org/10.18778/0208-6018.336.03

Sakai, K., Nagata, T., Mori, T., Sueyoshi, N., Inoue, S., Odagami, K., ... & Mori, K. (2025). Determinants of job continuity among older workers: A mixed-methods research in Japan. *Industrial Health*, *63*(2), 129-140. https://doi.org/10.2486/indhealth.2024-0081

Shen, K., Yan, P., & Zeng, Y. (2016). Coresidence with elderly parents and female labor supply in China. *Demographic Research*, *35*, 645-670. https://doi.org/10.4054/DemRes.2016.35.23

Sirisub, P., Suwannapong, N., Tipayamongkholgul, M., Howteerakul, N., & Noree, T. (2019). Intention to extend working life among thai registered nurses in ministry of public health: A national survey. *Nursing Research and Practice*, *2019*(1), Article 7919404. https://doi.org/10.1155/2019/7919404

Soonthornchawakan, N., & Cintakulchai, S. (2009). *Job opportunities creations for the elderly*. Bangkok: Economic Research Training Center, Faculty of Economics, Thammasat University. [in Thai]

Soonthornchawakan, N., & Kulthanavit, P. (2015). *The study of age-productivity profiles and the old, aged labor' s working in manufacturing sector, trade and services sector and wholesale-retail trade and hotel-restaurants sector*. Bangkok: Foundation of Thai Gerontology Research and Development Institute. Retrived from https://thaitgri.org/?p=37096 [in Thai]

Stevens, M. J., Barker, M., Dennison, E., Harris, E. C., Linaker, C., Weller, S., & Walker-Bone, K. (2022). Recent UK retirees' views about the work-related factors which influenced their decision to retire: A qualitative study within the Health and Employment After Fifty (HEAF) cohort. *BMC Public Health*, *22*(1), Article 116. https://doi.org/10.1186/s12889-022-12541-1

Tangtipongkul, K., & Srisuchart, S. (2018). The decision to retire early: Evidence from private service sector in Thailand. *Journal of Population and Social Studies*, *26*(2), 149-164. https://doi.org/10.25133/JPSSv26n2.011

Thailand Development Research Institute. (2024) An examination of gaps and policy options to promote human capital development and labor force participation of older persons. Retrived from https://tdri.or.th/wp-content/uploads/2025/05/Q_Sep2024-1.pdf

Tong, Y., Chen, F., & Su, W. (2019). Living arrangements and older people's labor force participation in Hong Kong, 1986–2016. *Social Science & Medicine*, *229*, 50-59. https://doi.org/10.1016/j.socscimed.2018.10.011

United Nations Economic and Social Commission for Asia and the Pacific. (2022) *Asia-Pacific report on population ageing 2022: Trends, policies and good practices regarding older persons and population ageing*. Retrived from https://www.unescap.org/kp/2022/asia-pacific-report-population-ageing-2022-trends-policies-and-good-practices-regarding

Wooldridge, J. M. (2002). *Econometric analysis of cross section and panel data*. London, UK: Massachusetts Institute of Technology.

Zhan, P., & Mao, Y. (2025). A study on the long-term trend of middle-aged female labor supply in urban China: The explanation from inter-generational care. *Journal of Asian Economics*, *101*, Article 102058. https://doi.org/10.1016/j.asieco.2025.102058