

On Post-Retirement Employment Across Sectors in Lithuania

Kristina Zitikytė-Molienė

Department of Quantitative Methods and Modeling,
Faculty of Economics and Business Administration, Vilnius University, Lithuania
E-mail: kristina.zitikyte@evaf.vu.lt
<https://orcid.org/0000-0001-8521-9893>
<https://ror.org/03nadee84>

Abstract. An increasing life expectancy necessitates prolonged workforce participation. However, motivations for post-retirement employment vary. Financially secure retirees may work for personal fulfilment, social engagement, and societal relevance. Conversely, those with a lower socioeconomic status often undertake bridge jobs to mitigate poverty risk. The increasing vulnerability to poverty among older individuals further incentivizes prolonged employment. In Lithuania, the proportion of employed old-age pension recipients has remained relatively stable (12% in 2018 and 13% in 2024). Previous research (Zitikytė 2019) identified factors influencing bridge employment: a longer retirement record, higher pre-retirement wages, and residence in urban areas positively correlated with continued employment. In contrast, higher sickness rates, greater pension benefits, and prior unemployment benefits discouraged such employment. However, sectoral differences remain underexplored.

This paper examines how employment in various economic sectors influences post-retirement labor participation. By using unique administrative data from Lithuania, it investigates sector-specific employment patterns. This study hypothesizes that individuals retiring from high-skilled or public sector occupations are more likely to remain active in the labor force after retirement, while those from manufacturing, trade, and transport sectors are more likely to exit the labor market upon reaching the statutory retirement age.

Binary probability models assess the likelihood of post-retirement employment across sectors. The findings elucidate sectoral variations in workforce retention among older individuals. These insights inform targeted policy strategies to enhance employment opportunities for retirees, thereby addressing demographic and economic challenges associated with an aging workforce.

Keywords: post-retirement employment, sectors, older age, bridge employment.

Pensinio amžiaus žmonių užimtumas skirtinguose Lietuvos ekonomikos sektoriuose

Santrauka. Ilgėjanti gyvenimo trukmė lemia poreikį ilgiau dalyvauti darbo rinkoje. Tačiau motyvai dirbti išėjus į pensiją yra įvairūs. Finansiškai apsirūpinę pensininkai dažnai dirba siekdami savirealizacijos, socialinio įsitraukimo ir galimybės išlikti naudingiems visuomenei. Tuo tarpu žemesnio socialinio ir ekonominio statuso asmenys dirbti ilgiau skatina senatvėje išauganti skurdo rizika. Lietuvoje dirbančių senatvės pensijos gavėjų dalis išlieka gana stabili – 12 proc. 2018 m. ir 13 proc. 2024 m. Ankstesni tyrimai (Zitikytė, 2019) parodė, kad pensinio amžiaus asmenų užimtumą teigiamai veikia ilgesnis pensijos gavimo laikotarpis, didesnis darbo užmokestis iki pensijos ir gyvenimas mieste. Tuo tarpu didesnis sergamumas, didesnė pensija ir anksčiau

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gautos nedarbo išmokos mažina tikimybę tęsti darbinę veiklą sulaukus pensinio amžiaus. Vis dėlto skirtumai tarp ekonomikos sektorių iki šiol yra menkai ištirti.

Šiame straipsnyje nagrinėjama, kaip darbas skirtinguose ekonomikos sektoriuose veikia dalyvavimą darbo rinkoje išėjus į pensiją. Remiantis unikaliais Lietuvos administraciniais duomenimis, analizuojami skirtingiems sektoriams būdingi užimtumo po pensijos modeliai. Keliama hipotezė, kad aukštos kvalifikacijos asmenys, išėję į pensiją iš viešojo sektoriaus, yra labiau linkę tęsti darbinę veiklą, o dirbusieji gamybos, prekybos ir transporto sektoriuose dažniau pasitraukia iš darbo rinkos, sulaukę įstatymuose nustatyto senatvės pensijos amžiaus.

Siekiant įvertinti pensinio amžiaus asmenų tikimybę toliau dirbti skirtinguose sektoriuose, darbe yra taikomi dvinariai tikimybiniai modeliai. Tyrimo rezultatai atskleidžia ekonomikos sektorių skirtumus, išlaikant vyresnio amžiaus darbuotojus darbo rinkoje. Gauti rezultatai gali būti naudingi, formuojant tikslines viešosios politikos priemones, skirtas pensinio amžiaus asmenų užimtumo galimybėms didinti ir spręsti visuomenės senėjimo keliamus demografinius bei ekonominius iššūkius.

Pagrindiniai žodžiai: užimtumas po išėjimo į pensiją, ekonomikos sektoriai, vyresnio amžiaus asmenys.

1. Introduction

13% of people in the EU in 2023 continued working during the six months following the receipt of their first old-age pension (Zaccagni et al. 2024). The Baltic countries had the highest share of post-retirement workers, with Estonia leading at 54%, followed by Latvia at 44.2% and Lithuania at 43.7%.

Retirees in favorable financial conditions may choose to work beyond retirement for life satisfaction, social engagement (Dingemans & Henkens 2019; Sandor 2011), and to supplement their pension income (Cahill et al. 2006) – while being motivated by a desire to remain useful and avoid the stress of an abrupt retirement (Atchley 1989) – whereas others, particularly those at lower socioeconomic levels facing a rising poverty risk, take bridge jobs out of financial necessity, as evidenced by year 2012 EU-28 data showing that 37.5% of pensioners aged 50–69 worked solely to secure sufficient income, 14.6% did so both for income and to bolster future pension entitlements, 6.8% worked exclusively to increase future benefits, and 29.2% continued working for non-financial reasons such as job satisfaction (Cahill et al. 2006; Maestas & Zissimopoulos 2010; Aliaj et al. 2016; Komp et al. 2010; Sarfati 2008). Retirees may choose to continue working for a variety of reasons, such as the desire to maintain social connections (‘want’) or the need to boost their income (‘need’), and these two motives are most commonly distinguished in the literature on bridge employment. Nearly one-third of post-retirement workers in Lithuania cited financial necessity as their reason for continuing to work, another third were motivated by financial attractiveness, and the remaining third worked for personal fulfilment and productivity, while 5% emphasized the importance of work for social integration (Zaccagni et al. 2024). Consequently, although many individuals may prefer not to extend their working years, the need to maintain their consumption and avoid poverty can compel them to do so, even as older workers encounter challenges in retaining their jobs.

This article examines how employment in different economic sectors influences post-retirement labor force participation among old-age pension recipients in Lithuania, by using administrative data serving to identify sector-specific patterns of bridge employ-

ment. The purpose of this article is to assess whether the economic sector in which these individuals were employed before retirement affects their likelihood of continuing to work after reaching the statutory retirement age and to provide evidence that can inform policies promoting longer working lives.

2. Push and Pull Factors Influencing Prolonged Labor Market Participation

Individual and financial factors can determine older people's decision to continue working after retirement.

Individual factors. In this study, individual factors include the gender, health, occupation, the economic sector of employment and work history. These factors are discussed in greater detail below.

Gender. Empirical evidence indicates that men are more likely to extend their working lives than women (Shacklock et al. 2009; Komp et al. 2010; Maestas & Zissimopoulos 2010; Frieze et al. 2011; Lindemann & Unt 2016; Kong et al. 2022). Kong et al. (2022) found that female workers are more reluctant to delay retirement than their male counterparts. Moreover, women's lower labor force participation rates have been attributed to prevailing social norms and caregiving responsibilities (Hult 2008; Komp et al. 2010; Pleau 2010), with many perceiving a conflict between paid work and child rearing (Hult 2008) and facing both age and gender discrimination in retirement (Shacklock et al. 2009). According to Frieze et al. (2011), women who preferred early retirement were more likely to cite the desire to relax, thus suggesting that these women may have sacrificed career opportunities – as evidenced by lower marriage rates and delayed childbearing – despite a general desire for children. Nonetheless, women are increasingly offered incentives to continue working at older ages, as additional employment can boost social security benefits (Maestas & Zissimopoulos 2010). Furthermore, research indicates that the determinants of bridge employment differ by gender: Pleau (2010) reported that the marital status, earnings, and household wealth significantly influence employment decisions when accounting for gender interactions, while Komp et al. (2010) found that although occupational prestige affects both genders, its impact is stronger among men, with men's bridge employment choices also being shaped by wealth and education, whereas women's choices are primarily related to occupation. In Lithuania, men are more likely than women to continue working after reaching the retirement age (Zitikytė 2021), leading to a hypothesis that these gender-specific trends persist in the Lithuanian context.

Health. Most studies have found a strong association between poor health and reduced labor force participation (Kim & Feldman 2000; Buckley et al. 2013; Dingemans et al. 2016; Lindemann & Unt 2016; Wind et al. 2017; Zitikytė 2021; Kolesnik & Juškelienė 2022; Kong et al. 2022; Vanajan 2022; Navickė & Straševičiūtė 2023). Chronic health conditions in the years preceding retirement adversely affect older workers' health, work, and functioning (Vanajan 2022). As retirement ages increase, many older workers continue working even as they are newly diagnosed with chronic conditions; physical disabilities raise concerns about physical functioning, while mental health issues heighten

worries about mental functioning (Vanajan et al. 2022). Moreover, chronic diseases, physical health, mental health, and neuroticism predict delayed retirement intentions among male workers, whereas neuroticism is the sole predictor for female workers when demographic factors are controlled for (Kong et al. 2022). Additionally, respondents with fair-to-poor self-rated health or conditions such as diabetes, arthritis, chronic obstructive pulmonary disease, or cardiovascular disease are more likely to be retired or unable to work; approximately 10 percent of older baby boomers (born 1946–1955) who have left the workforce rate their health as poor or fair (Buckley et al. 2013). Kim and Feldman (2000) and Dingemans et al. (2016) also found that good health is significantly associated with bridge employment. Conversely, De Wind et al. (2013) demonstrated that both poor and good health influence early retirement through different pathways: poor health leads to an early retirement because employees feel entirely unable to work, foresee a future decline in work capacity, fear further deterioration in health, or feel pushed out by their employer despite not personally experiencing reduced work ability, whereas good health can prompt early retirement when individuals wish to enjoy life while they are still healthy. Case studies from Lithuania further confirm that health restrictions negatively impact older workers' employment (Zitikytė 2021; Aidukaitė & Blažienė 2022; Kolesnik & Juškelienė 2022; Navickė & Straševičiūtė 2023). Kolesnik and Juškelienė (2022) argue that poor physical and mental health, frequent ailments, pain, and a high prevalence of diseases are major factors limiting the active labor market participation of older workers. Supporting this, administrative data from Lithuania reveal a strong relationship between employment and health; Zitikytė (2021) found that individuals with more than ten episodes of sickness over the past decade were 3.2 to 5.2 percentage points less likely to engage in bridge employment compared to those with fewer absences.

Occupation. Occupational factors are closely intertwined with educational factors. Higher occupational prestige increases the likelihood that an older individual will engage in paid work (Komp et al. 2010; Damman & Henkens 2015). Prestigious occupations typically offer greater autonomy and more appealing tasks, thus making continued employment more attractive. Moreover, Komp et al. (2010) emphasized that individuals in high-prestige occupations often possess specialized skills that enhance their value to employers and incentivize delayed retirement. Consequently, older individuals with higher occupational prestige tend to remain employed longer than those in lower-prestige occupations. In Lithuania, Zitikytė (2021) found that individuals employed in elementary occupations or as skilled agricultural workers were approximately 20 percentage points less likely to work compared to managers, while technicians, clerical support workers, and plant and machine operators were about 14 percentage points less likely to work than managers.

Sector. The impact of different economic activities on employment in an older age is pronounced (Pleau 2010; Vilkoitytė & Skučienė 2020; Zitikytė 2022; Navickė & Straševičiūtė 2023). For example, Pleau (2010) found that working in the manufacturing industry is associated with a lower likelihood of continued employment, while Navickė and Straševičiūtė (2023) reported that workers in manufacturing, construction, transport,

and agriculture are the least likely to remain in the labor market. Conversely, employees in public administration, education, and health sectors are more inclined to work into an old age. Supporting this, Vilkoitytė and Skučienė (2020) observed that the lowest desire to continue working was among individuals in agriculture (66.8%), manufacturing (67.1%), and education (69.5%), whereas those in finance (78.5%), wholesale and retail trade (71.9%), and health services (71.4%) most frequently expressed a wish to remain employed. Zitikytė (2022) further examined the impact of sectoral employment during the pandemic, which yielded a finding that individuals in manufacturing and trade were 1.9 to 2.2 percentage points more likely to remain employed compared to those in other sectors, and that workers in information and communication companies had a 2.0-to-3.1 percentage point higher probability of staying employed. In contrast, those employed in construction, transport, and administrative activities were 3 to 4 percentage points less likely to continue working than individuals in other economic activities.

Work history. Also, it can be assumed that a person who is in the labor market for longer is more likely to work beyond retirement than a person who is in the labor market for a shorter time, because he or she may have accrued more experience, developed better work skills and may have better chances to stay in the labor market for longer. Zitikytė (2021) demonstrated that a longer acquired pension record is associated with a higher likelihood of engaging in bridge employment; specifically, each additional year of pension record increases the probability of working by 3.2 to 5 percentage points. However, beyond a certain point, an exceptionally high pension record does not further increase – and may even decrease – the likelihood of continued employment.

Financial factors. Among the financial factors influencing the decision to take up employment in retirement, wage and old-age benefit are considered.

Wage. The wage factor is frequently discussed in the literature, but its impact on post-retirement employment is mixed. Kim and Feldman (2000) as well as Frieze et al. (2011) found that retirees with higher wages are less likely to engage in any form of bridge employment because financial security reduces the motivation to continue working. In fact, Kim and Feldman (2000) noted that the higher is a retiree's salary, the less likely they are to pursue bridge employment. Conversely, Cahill et al. (2006) and Lindemann and Unt (2016) identified a U-shaped relationship between post-retirement work and income, indicating that retirees with either low or high incomes are more likely to remain in the labor market – albeit for different reasons. Higher wages are often associated with higher-status positions, which may encourage prolonged labor market participation, whereas lower wages can reflect a need to work so that to mitigate the risk of poverty. Aidukaitė and Blažienė (2022) found that enhanced financial benefits – such as higher wages, improved conditions for receiving an old-age pension while working, and opportunities to increase pension benefits – motivate employees aged 50 and above to stay in the labor market longer. Similarly, in Lithuania, Zitikytė (2021) observed that a higher average wage during the final three years before retirement increases the likelihood of post-retirement labor market participation, thus suggesting that financially secure individuals are better able to maintain continuous employment. This may be attributed to the

fact that higher-skilled workers, who typically earn more, are less frequently replaced due to the specialized qualifications they possess.

Old-age benefit. The generosity of pensions plays a crucial role in two keyways. First, higher old-age pensions enhance the appeal of retirement – which is a phenomenon known as the ‘income effect’. Second, the decision to remain in the labor market depends on how an additional year of work affects the total income from both earnings and pensions, which is a dynamic referred to as the ‘substitution effect’ (Sarfati 2008). Public old-age pensions are primarily designed to provide sufficient income in retirement; however, achievement of both sustainability and adequacy in pension systems requires balancing income security with work incentives. As Sarfati (2008) noted, while more generous benefits may lead to higher taxes and weaker work incentives, lower replacement rates can reduce tax burdens and strengthen work incentives, albeit at the risk of increasing poverty among retirees. Bussolo et al. (2015) suggested that if leisure is considered a normal good – where demand rises with income – a reduction of expected pension benefits may encourage delayed retirement, whereas an increasing pension generosity may lead to an earlier retirement. Nevertheless, changes in pension generosity do not necessarily impact the labor supply directly; for example, Kim and Feldman (2000) found no significant relationship between pension benefits and bridge employment. In general, a more generous pension system is negatively associated with bridge employment behavior. Moreover, while a higher pension size typically reduces the likelihood of working, this effect is reversed for the highest pensions – which means that individuals receiving either the lowest or the highest pensions are more likely to work than those receiving average (i.e., ‘mid-range’) pensions (Navickė & Straševičiūtė 2023). To evaluate financial incentives for continued work, Zitikytė (2021) calculated the pension replacement rate by dividing the old-age pension by the wage received in the last year before retirement. The findings revealed that individuals with a lower replacement rate were 7.2 to 10 percentage points more likely to engage in bridge employment than those with a higher replacement rate. Additionally, it was observed that higher wages are associated with a lower replacement rate (Zitikytė 2021).

All factors examined in this article may function as either push or pull factors influencing retirement employment. This study aims to clarify their impact, with a particular focus on economic sectors, which can significantly constrain or incentivize extended work, and which have not yet been extensively examined in the Lithuanian context.

3. Methodology and Data

3.1 The Goal of Empirical Research and Hypotheses

The aim of empirical research is to identify the factors associated with older people’s decision to remain in the labor market after reaching retirement age. The analysis focuses on individual and financial characteristics that may influence participation in bridge employment. Previous research suggests that the decision to continue working after re-

tirement is shaped by a combination of personal resources, employment-related factors, and financial incentives. Therefore, this study examines whether the demographic characteristics, health status, occupational position, sector of employment, length of employment history, earnings, and pension level are associated with the likelihood of working after retirement.

The study sample consisted of 16.1 thousand new old-age pension recipients who began receiving their pensions in 2023. The empirical analysis is based on administrative data and aims to determine which characteristics distinguish individuals who continue working after retirement from those who exit the labor market.

Based on the theoretical framework and previous empirical findings, seven hypotheses are formulated:

H₁: Men are more likely to do bridge jobs than women.

H₂: Good health will be positively related to participation in bridge employment.

H₃: Higher-skilled workers, including managers and professionals, are more likely to extend their careers and work longer than unskilled workers.

H₄: Individuals employed in the information and communications, finance, education, and public administration sectors are more likely to continue working during retirement than those employed in the industry, construction, and agriculture sectors.

H₅: The longer a person has an acquired retirement record, the more likely the person is to remain in the labor market during retirement.

H₆: The higher the salary, the greater the likelihood that a person will work in retirement.

H₇: The higher the old-age pension, the more likely a person is to work in old age.

The next subsection presents models that are used to test the hypotheses raised.

3.2 The Model to be Tested

To examine the factors influencing post-retirement employment, linear probability, logit, and probit models were applied. The dependent variable in these models indicates whether an individual remains in the labor market after retirement, taking a value of ‘1’ if the retiree continues working, and ‘0’ if the retiree does not work while receiving old-age benefits.

The two standard binary outcome models, the logit, and the probit models, specify different functional forms for this probability as a function of regressors. The logit model specifies:

$$L_i = \Lambda [\beta_0 + \beta_1 \text{gender} + \beta_{21} \text{sick}_L + \beta_{22} \text{sick}_H + \beta_3 \text{occupation} + \beta_4 \text{sector} + \beta_{51} \text{experience} + \beta_{52} \text{experience}^2 + \beta_6 \text{pension_replacement_rate}],$$

where Λ is the cumulative distribution function of the logistic function. An alternative model is the probit model, which specifies:

$$I_i = \lambda [\beta_0 + \beta_1 \text{gender} + \beta_{21} \text{sick}_L + \beta_{22} \text{sick}_H + \beta_3 \text{occupation} + \beta_4 \text{sector} + \beta_{51} \text{experience} + \beta_{52} \text{experience}^2 + \beta_6 \text{pension_replacement_rate} + \varepsilon],$$

In both regressions, the form of the factors included in the regression is visible.

3.3 Data and Data Sources

The gender variable was coded as a binary indicator, where a value of ‘1’ represents males and ‘0’ denotes females. To evaluate the effect of morbidity on post-retirement employment, two dummy variables were constructed: *sick_L*, representing individuals with fewer than 10 recorded cases of illness over a 10-year period, and *sick_H*, representing those with 10 or more cases of illness within the same timeframe. The occupations were divided into four groups: managers, professionals (specialists, technicians, junior professionals, and clerks), workers (service workers, salespersons, skilled agricultural, forestry and fishery workers, skilled workers and craftsmen, plant and machine operators and assemblers) and unskilled workers (corresponding to the occupational groupings in the Lithuanian occupational classification). Sectoral factors are incorporated into the models as separate dummy variables, representing the following sectors: manufacturing, education, wholesale and retail trade, administrative and support service activities, human health and social work activities, transportation and storage, construction, public administration, professional, scientific, and technical activities, arts, entertainment and recreation, agriculture, forestry and fishing, information and communication, and financial and insurance activities. The variable experience represents the number of years of accumulated retirement contributions. To account for potential non-linear effects, a squared term (*experience*²) was included in the model with the objective to capture diminishing marginal effects. It is hypothesized that an increase in retirement contribution years initially raises the likelihood of engaging in bridge employment (*experience*), while, at higher levels, this positive effect diminishes (*experience*²), thus reflecting a tapering influence of an extensive retirement history on post-retirement employment. To assess the effect of relative changes in the pension and wage levels on the likelihood of bridge employment, both variables – those of the pension and average wage – were log-transformed. This logarithmic transformation allows the coefficients to be interpreted as the percentage change in the probability of bridge employment associated with a proportional change in income. In the final model, it was chosen to show how the pension replacement rate affects the decision whether to work or not, because this factor combines the two previously mentioned elements and also allows to assess how a person values the pension they receive compared to their pre-retirement salary (*pension_replacement_rate*).

3.4 Data Analysis Methods

Due to the fact that the study employs binary choice models (logit and probit), marginal effects are estimated to facilitate the interpretation of the results. Therefore, the main for-

mulas used to calculate the marginal effects of the logit and probit models are presented below. For linear probability models, the marginal effects are the coefficients, and they do not depend on x :

$$\frac{dp}{dx_i} = \beta_i$$

For the logit and probit models, the marginal effects are calculated as:

$$\frac{dp}{dx_i} = F'(x'\beta)\beta_i$$

Marginal effects for the logit model are determined as follows:

$$\frac{dp}{dx_j} = \Lambda(x'\beta) [1 - \Lambda(x'\beta)] \beta_j = \frac{e^{x'\beta}}{(1+e^{x'\beta})^2} \beta_j$$

Marginal effects for the probit model are calculated as shown below:

$$\frac{dp}{dx_j} = \Phi(x'\beta) \beta_j$$

Further in the work, like in most papers, marginal effects at the mean will be calculated and interpreted.

4. Shortcomings of Longer Working Lives in Lithuania: Overview of the Situation

The share of new old-age pension recipients working 12 months after retirement is increasing: according to this study, 61 percent of new old-age pension recipients are still employed, whereas Zitikytė (2019) reported that the share was 39 percent in 2010 and 48 percent in 2017. The data indicate that individuals who earned 27.5% more in salary prior to retirement are more likely to continue working during retirement compared to those who are no longer employed post-retirement. Those who remained in the labor force also had a 5.2 percent or two years longer pensionable service and received a pension that was 6.5 percent higher than those who exited the labor market upon reaching retirement age (see Table 1).

Table 1. Characteristics of Working and Non-Working Retirees

	Working	Non-working	Change in working vs. non-working, %
Average wage prior to retirement, Eur	1 553	1 218	+27.5
Average wage beyond retirement, Eur	1 802	0	-
Amount of average pension, Eur	572	537	+6.5
Average experience, years	40	38	+5.2

Source: Social Insurance Fund Board

The highest proportion of employed old-age pensioners is observed in the health care and social work sector (75.9%), followed by arts, entertainment, and recreation (71.5%) (see Table 2). Similarly, a slightly lower share of pensioners remains employed in information and communication activities (67.5%), finance and insurance (65.6%), and education (64.5%). In contrast, the lowest proportions of working pensioners are recorded in the construction sector (52.1%) and agriculture, forestry, and fishing (47.3%).

Table 2. Share of Working Retirees by Economic Activity (%)

Economic activity	Total sample	Working retirees	Share of working retirees, %
Manufacturing	3 049	1 679	55.1%
Education	2 415	1 557	64.5%
Wholesale and retail trade	2 230	1 408	63.1%
Administrative and service activities	2 009	1 156	57.5%
Health care and social work	1 450	1 100	75.9%
Transport and storage	1 015	626	61.7%
Construction activities	1 001	522	52.1%
Public governance	912	498	54.6%
Professional, scientific and technical activities	509	324	63.7%
Accommodation and food service activities	493	276	56.0%
Artistic, entertainment and recreational activities	452	323	71.5%
Agriculture, forestry and fishing	275	130	47.3%
Information and communication activities	203	137	67.5%
Finance and insurance activities	122	80	65.6%
Total	16 135	9 816	60.8%

Source: Social Insurance Fund Board

An examination of longitudinal employment trends (see Figure 1) indicates sector-specific patterns of labor market withdrawal among pension recipients.

Individuals previously employed in healthcare and social work, and education tend to exit the labor force gradually, whereas a more accelerated decline is observed among those from public governance. Similarly, a steady decrease in employment is evident in the manufacturing, trade, construction, and transport sectors. By contrast, the pace of the labor market exit is more moderate among those employed in accommodation and food service activities, as well as administrative and support services. Notably, individuals working in these sectors who were already employed at the onset of their pension receipt are more likely to remain in the workforce for an extended period. A comparable pattern is observed among former workers in the information and communication, and finance

and insurance sectors. While a subset exists in the labor market within the first year of pension eligibility, a substantial proportion continues employment beyond that point.

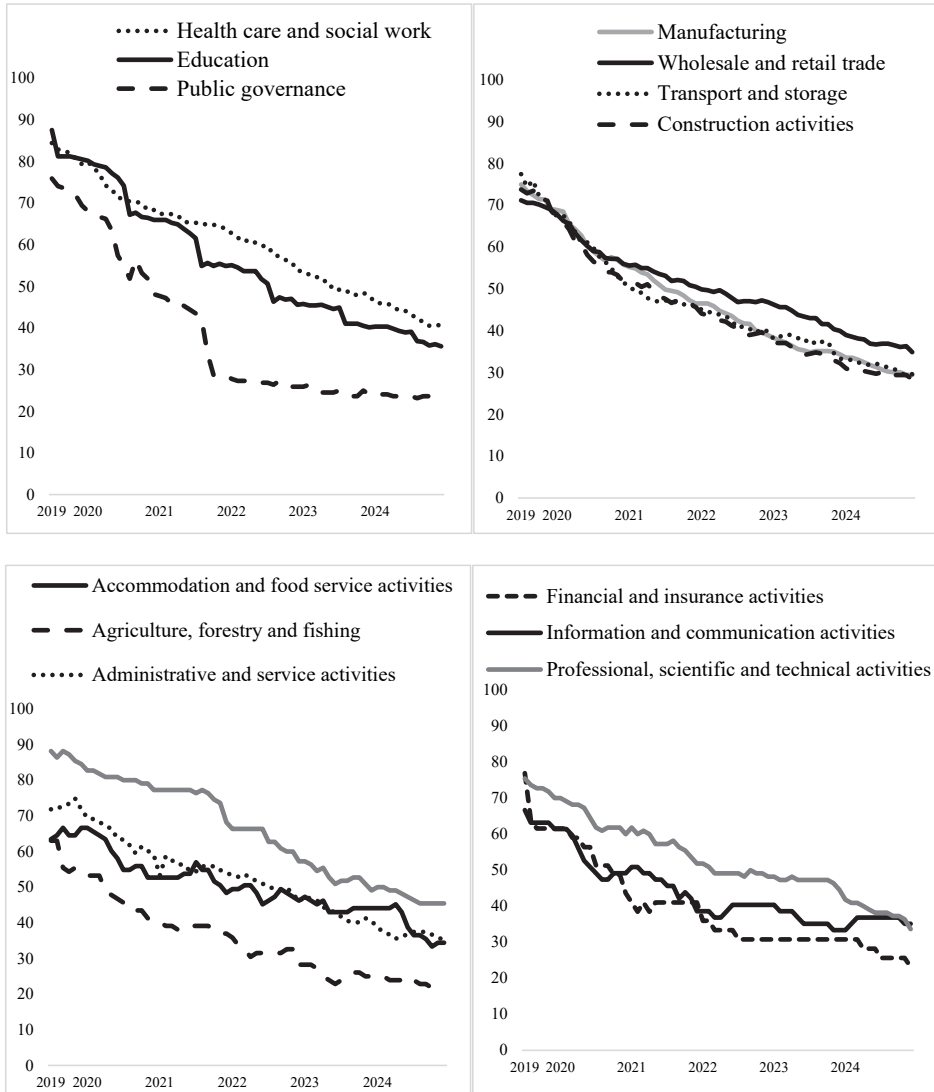


Figure 1. Share of Working Retirees by Economic Activity (%)

Source: Estimated by the author

The highest proportion of retired individuals who remain employed is observed among managers, with 70.4% continuing to work (see Table 3).

Table 3. Share of Working Retirees by Occupation (%)

Occupation	Total sample	Working retirees	Share of working retirees, %
Managers	1 277	899	70.4%
Professionals:			
specialists	4 072	2 808	69.0%
technicians, junior professionals	731	445	60.9%
clerks	474	302	63.7%
Workers:			
service workers	1 729	1 064	61.5%
machine operators and assemblers	2 639	1 489	56.4%
skilled workers and craftsmen	2 478	1 291	52.1%
skilled agricultural, forestry and fishery workers	102	42	41.2%
Unskilled workers	2 632	1 476	56.1%
Total	16 135	9 816	60.8%

Source: Social Insurance Fund Board

Similar employment rates are seen among professionals (69.0%) and clerical workers (63.7%), followed by technicians and associate professionals (60.9%). A third group, comprising various occupational categories, exhibits comparatively lower post-retirement employment rates, ranging from 61.5% among service workers to 41.2% among skilled workers in agriculture, forestry, and fisheries. The lowest proportions of retired workers remaining in the labor force are found among skilled workers and craftsmen (52.1%), unskilled workers (56.1%), and machine operators and assemblers (56.4%). These findings suggest a positive correlation between the occupational skill level and the likelihood of continued employment after retirement, thus indicating that individuals with higher qualifications are more likely to remain in the workforce during retirement.

5. Results

While national statistics indicate that a higher proportion of male retirees remain in employment compared to female retirees (11 percent of women and 16 percent of men are employed while receiving a retirement pension), the data analyzed in this study reveal that, one year after retirement, the employment rates of women are slightly higher than those of men (62.4 percent of women and 58.9 percent of men are employed while receiving a retirement pension). This is confirmed by Figure 2, which shows that 45% of female pensioners aged 64 work, compared to 41% of men.

This suggests that, in the initial phase of retirement, an even higher proportion of women are still working. However, it is plausible that gender disparities become more pronounced over time, as longer-term trends – such as those observed in Lithuanian na-

tional statistics – tend to show a widening gap in post-retirement employment between men and women.

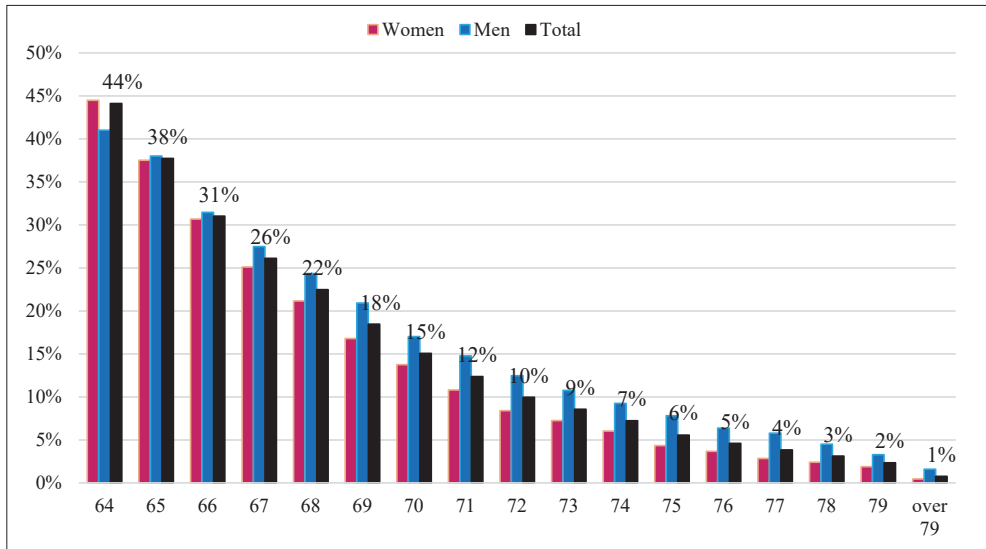


Figure 2. **Share of Working Retirees by Age and Gender (%)**

Source: Social Insurance Fund Board

In the initial models, the gender variable exhibited a negative coefficient, thus indicating that men were 0.6 percentage points less likely to engage in post-retirement employment compared to women. This finding aligns with both the descriptive statistics and the preliminary analysis of the sample data. However, it contrasts with the conclusions of most previous studies (e.g., Shacklock et al., 2009; Komp et al., 2010; Maestas & Zissimopoulos, 2010; Frieze et al., 2011; Lindemann & Unt, 2016; Kong et al., 2022), which generally report higher male participation in retirement work. This divergence likely reflects the unique socio-economic context of Lithuania, where women's labor market activity tends to be more pronounced after pension receipt. Although older men typically exhibit higher participation rates at advanced retirement ages, women in Lithuania appear to be more inclined to remain or re-enter the workforce upon becoming pension beneficiaries. Later, their employment begins to decline and remains lower than that of men.

The models indicated that managers were 3.6 percentage points more likely to work in retirement compared to professionals, employees, and unskilled workers. Similarly, professionals were 2.6 percentage points more likely to work in retirement than the other groups, while workers were only 0.04 percentage points more likely to do so. Consequently, the hypothesis that higher-skilled workers – such as managers and professionals – are more likely to extend their careers and continue working beyond retirement age, compared to unskilled workers, has not been rejected. These findings align with those of Komp et al. (2010) and Damman and Henkens (2015).

The interaction between the gender and the occupational category revealed distinct patterns: male managers and professionals were more likely to remain employed after retirement compared to their female counterparts, whereas male skilled and unskilled workers were less likely to do so (see Table 4 and Table 5).

Table 4. Results of the models

	LPM		Logit		Probit	
intercept	-0.080	0.090	-1.720***	0.395	-1.080***	0.243
managers × gender	0.138***	0.018	0.672***	0.090	0.394***	0.053
<i>sick_H</i>	-0.095***	0.012	-0.403***	0.050	-0.251***	0.031
<i>sector_{manufacturing}</i>	-0.056***	0.010	-0.240***	0.045	-0.147***	0.028
<i>sector_{construction}</i>	-0.074***	0.016	-0.314***	0.071	-0.192***	0.044
<i>sector_{agriculture}</i>	-0.130***	0.030	-0.550***	0.128	-0.341***	0.080
<i>sector_{health}</i>	0.122***	0.014	0.605***	0.068	0.365***	0.040
<i>sector_{entertainment}</i>	0.085***	0.023	0.402***	0.110	0.241***	0.066
<i>sector_{education}</i>	0.010	0.011	0.041	0.050	0.023	0.031
experience	0.020***	0.005	0.080***	0.023	0.050***	0.014
experience ²	-0.0002*	0.000	-0.001	0.0003	-0.0004*	0.0002
<i>replacement_L</i>	0.097***	0.009	0.448***	0.039	0.271***	0.024

Source: estimated by the author

Note: Standard errors are reported in the adjacent columns. Statistical significance is denoted as follows: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Specifically, male managers were 2.9 percentage points more likely to be employed in retirement than female managers, and male professionals were 0.7 percentage points more likely than their female peers. In contrast, male skilled workers were 1.3 percentage points less likely, and male unskilled workers were 2.2 percentage points less likely to be employed in retirement compared to women in the same categories. However, when these variables were incorporated into a comprehensive model, the occupational categories of professionals, skilled and unskilled workers were excluded due to a lack of statistical significance. In the final model, the gender remained a significant factor only for managers, thus indicating that gender differences in post-retirement employment persist in higher-status occupations but not in lower-skilled roles.

Table 5. Marginal Effects of the Models

	LPM	Logit	Probit
intercept	-0.080	-0.385	-0.258
managers × gender	0.138	0.151	0.094
<i>sick_H</i>	-0.095	-0.090	-0.060

	LPM	Logit	Probit
<i>sector_{manufacturing}</i>	-0.056	-0.054	-0.035
<i>sector_{construction}</i>	-0.074	-0.070	-0.046
<i>sector_{agriculture}</i>	-0.130	-0.123	-0.082
<i>sector_{health}</i>	0.122	0.135	0.087
<i>sector_{entertainment}</i>	0.085	0.090	0.058
<i>sector_{education}</i>	0.010	0.009	0.006
experience	0.020	0.018	0.012
experience ²	-0.0002	-0.0002	-0.0001
<i>replacement_t</i>	0.097	0.100	0.065

Source: estimated by the author

The results indicate that a lower morbidity () is associated with a higher likelihood of continued employment after retirement, whereas a higher morbidity () significantly reduces the probability of working beyond the retirement age. A high morbidity () remained a statistically significant factor, indicating that individuals with higher levels of morbidity were between 6.0 and 9.5 percentage points more likely to be out of the labor force during retirement (see Table 4). Consequently, the hypothesis concerning the impact of morbidity on the retirement behavior has not been rejected. These findings are consistent with prior research (Kim & Feldman, 2000; Buckley et al., 2013; Dingemans et al., 2016; Lindemann & Unt, 2016; Wind et al., 2017; Zitikytė, 2021; Kolesnik & Juskelienė, 2022; Kong et al., 2022; Vanayan, 2022; Navickė & Straševičiūtė, 2023).

Employment in both the information and communication sector and the finance and insurance sector was associated with higher employment in an old age; however, the associations were not statistically significant enough to be included in the final models. Analysis of the remaining economic sectors shows that the probability of working in retirement is from 3.5 to 5.6 percentage points lower for those previously employed in manufacturing, 4.6 to 7.4 percentage points lower for those in construction, and from 8.2 to 13.0 percentage points lower for those in agriculture. In contrast, the probability is from 8.7 to 13.5 percentage points higher for those employed in health care and social work, from 5.8 to 9.0 percentage points higher for those in arts and crafts, and from 0.6 to 1.0 percentage points higher for those in education.

The hypothesis concerning the influence of economic sectors on the labor market participation in later life has been partially supported. Consistent with the findings made by Pleau (2010) and Navickė and Straševičiūtė (2023), individuals employed in the manufacturing, construction, and agricultural sectors demonstrated a lower likelihood of continued labor market engagement, whereas those in the education and health sectors exhibited a greater propensity to remain employed into an older age. In contrast, employment in the public administration sector did not emerge as a significant determinant; the distribution of working and non-working individuals within this sector was approximately equal, thus indicating no distinctive pattern.

Furthermore, a higher accumulation of pensionable service was associated with a 1.2-to-2.0 percentage point increase in the probability of working during retirement. However, this positive relationship diminished at very high levels of pensionable service, thus suggesting a non-linear effect. These findings are consistent with those reported by Zitikyte (2021), who examined similar patterns among pensioners in an earlier cohort.

From previous analyses of the Lithuanian data, it was expected that a higher pension would be associated with a higher probability that a person would choose to work in retirement, and this result has been confirmed in this study once again. The same was found with pre-retirement wages – as it was discovered that higher wages indicated a higher probability that a person would work in retirement. Finally, those with a lower pension replacement rate were 6.5–10 percentage points more likely to work after reaching the retirement age. Cahill et al. (2006) and Lindemann and Unt (2016) identified a U-shaped relationship between post-retirement employment and income, thereby suggesting that retirees with either low or high incomes are more likely to remain in the labor market. This pattern was also observed in the case of Lithuania. A higher pension replacement rate appeared to be associated with a greater likelihood of continuing to work while receiving a pension; however, this relationship was not statistically significant and, therefore, was not included in the final model. Overall, the findings support the existence of a U-shaped relationship between the labor income and the willingness to work in retirement. Nevertheless, the inclination to continue working is stronger among individuals with higher incomes, who tend to have lower replacement rates and greater incentives along with opportunities to remain in the workforce.

6. Conclusion

Overall, the empirical findings largely support the proposed hypotheses. H_1 has only been partially supported, as gender differences in post-retirement employment remain significant only among managers. H_2 has been supported, thus confirming that better health is associated with a higher likelihood of continued employment after retirement. H_3 received partial support, as higher-skilled occupations, particularly managerial positions, were associated with greater post-retirement employment, whereas other occupational categories were not statistically significant in the final model. H_4 has also been partially supported: employment in manufacturing, construction, and agriculture reduces the likelihood of working after retirement, while employment in healthcare increases it; however, the expected positive effects for information and communication, finance, education, and public administration were not consistently confirmed. H_5 has been supported, demonstrating that a longer pensionable employment record increases the probability of remaining economically active after retirement, although the relationship is nonlinear. H_6 and H_7 have been supported, thereby indicating that both higher pre-retirement earnings and a higher pension income are associated with a greater likelihood of bridge employment. Thus, the findings suggest that opportunities for post-retirement employment in Lithuania are unequally distributed. Individuals with higher lifetime ear-

nings, greater human capital, and more favorable employment conditions are more likely to remain economically active after retirement, whereas those with lower qualifications, poorer health, and employment histories in physically demanding sectors face more limited opportunities to extend their working lives.

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