

Original Paper

doi [10.15826/recon.2018.4.4.020](https://doi.org/10.15826/recon.2018.4.4.020)**Younger vs. older workers in ASEAN countries:
substitutes or complements?****Febry Wijayanti**Ural Federal University, Ekaterinburg, Russia; e-mail: febry.ie008@gmail.com**ABSTRACT**

The phenomenon of population ageing has led the countries of ASEAN (Association of Southeast Asian Nations) to face challenges in the sphere of employment since older workers are considered likely to prevent younger workers from entering the labor market. This paper seeks to describe the effect that an increase in the number of older workers has on the number of young workers. The study relies on the data provided by the International Labour Organization for the period between 2010 and 2016 and the OLS and 2SLS regression analysis methods. The results show that older workers do not impede the career progress of younger workers, in other work, that these two groups of workers are complements rather than substitutes for each other. Nevertheless, the phenomenon of population ageing should be an important concern for the governments of ASEAN countries because of the effect of this trend on the labour market. The fact that almost a half of the elderly population in ASEAN is still actively working indicates that the elderly suffer from the consequences of the economic downturn and still do not feel financially secure enough to retire. Thus, the role of the government in the current conditions is to create a suitable job market to accommodate elderly workers.

KEYWORDS

population ageing, ASEAN, older workers, employment, labor market

FOR CITATIONWijayanti, F. (2018) Younger vs. older workers in ASEAN countries: substitutes or complements? *R-economy*, 4(4), 151–157. doi: 10.15826/recon.2018.4.4.020**Молодые и возрастные работники в странах АСЕАН:
субституты или комплементарии?****Ф. Виджаянти**Уральский федеральный университет, Екатеринбург, Россия; e-mail: febry.ie008@gmail.com**АННОТАЦИЯ**

Феномен старения населения привел к тому, что страны АСЕАН (Ассоциация государств Юго-Восточной Азии) столкнулись с проблемами в сфере занятости, поскольку считается, что пожилые работники могут препятствовать выходу молодых работников на рынок труда. Эта статья нацелена на описание влияния увеличения числа пожилых работников на число молодых работников. Исследование опирается на данные, предоставленные Международной организацией труда за период с 2010 по 2016 г., а также методы регрессионного анализа OLS и 2SLS. Результаты показывают, что пожилые работники не препятствуют карьерному росту молодых работников на других работах, что эти две группы работников являются комплементариями, а не заменителями друг другу. Тем не менее, явление старения населения должно вызывать серьезную обеспокоенность у правительств стран АСЕАН из-за влияния этой тенденции на рынок труда. Тот факт, что почти половина пожилого населения в АСЕАН все еще активно работает, указывает на то, что пожилые люди страдают от последствий экономического спада и все еще не чувствуют себя в достаточной финансовой безопасности, чтобы выйти на пенсию. Таким образом, роль правительства в современных условиях заключается в создании подходящего рынка труда для размещения пожилых работников.

КЛЮЧЕВЫЕ СЛОВА

старение населения, АСЕАН, пожилые работники, трудоустройство, рынок труда

ДЛЯ ЦИТИРОВАНИЯWijayanti, F. (2018) Younger vs. older workers in ASEAN countries: substitutes or complements? *R-economy*, 4(4), 151–157. doi: 10.15826/recon.2018.4.4.020

Introduction

The population age structure in ASEAN is rapidly changing: the World Population data show that the population of ASEAN increased at the rate of 0.85% per annum or 633 million people in 2015 and this rate is expected to grow and reach 717 million in 2030 and 741 million people in 2035. In two decades, the proportion of the aging population is predicted to double: from 7.73% in 2015 to 15.49% in 2035 (ASEAN Population Forecast, 2013). Singapore and Thailand have the largest proportion of aging population – 31.74% and 23.39% respectively¹. This phenomenon is explained by improved health care and enhanced life expectancy of the population. According to the World Bank (2015), between 2000 and 2015, life expectancy in ASEAN rose by 4.2%. Singapore is at the top of the list with a life expectancy of around 82 years (increase by 4.8%) and the Philippines, at the bottom, with life expectancy of 69 years (2.89%). Increasing life expectancy has led to an increase in the older age population or population ageing.

Population aging is a challenge for the future as it requires the humanity to ensure sustainable development, which is described in the UN’s Sustainable Development Goals (SDGs), in particular Goal 8, promoting full and productive employment and decent work for all (SDG 8). The employed aging population or elderly workers will have an impact on employment opportunities, especially among young workers. This phe-

nomenon is described in the SDGs Report 2018, which indicated that youth were three times more likely to be unemployed than adults in 2017².

People continue to work even after reaching their retirement age to ensure the stable income of their households. Munnell & Sass [1] and Johnson & Mommaerts [2] argue that working longer has become for many people the best way to increase their retirement incomes, which decreases the chances of young people to reach the top of their career ladders and significantly influences their lifetime earnings and upward mobility. This phenomenon is known as lump of labor. In this paper, we are going to discuss it in more detail focusing on the case of ASEAN countries. The structure of this paper is as follows: it comprises an introduction, literature review, description of the data used and research methodology, discussion of results, and a conclusion.

Literature Review

“Lump of labor” theory

The “lump of labor” theory deals with the relation between younger and older workers, who can act either as substitutes for each other or as complements [3–5]. If there is a certain number of jobs in the labour market and the majority of these jobs are occupied by the non-retiring elderly, this means that fewer jobs are accessible for the young and that the rates of unemployment among the young should grow (substitutes). On the other hand, if the number of jobs in the labour market

¹ ASEAN+6 Population Forecast: Global Share, Aging and Dependency Ratio. Retrieved from <http://www.asean2013.gov.bn/images/aseanpopforecast.pdf>

² The Sustainable Development Goals Report. Retrieved from <https://unstats.un.org/sdgs/report/2018/overview/>

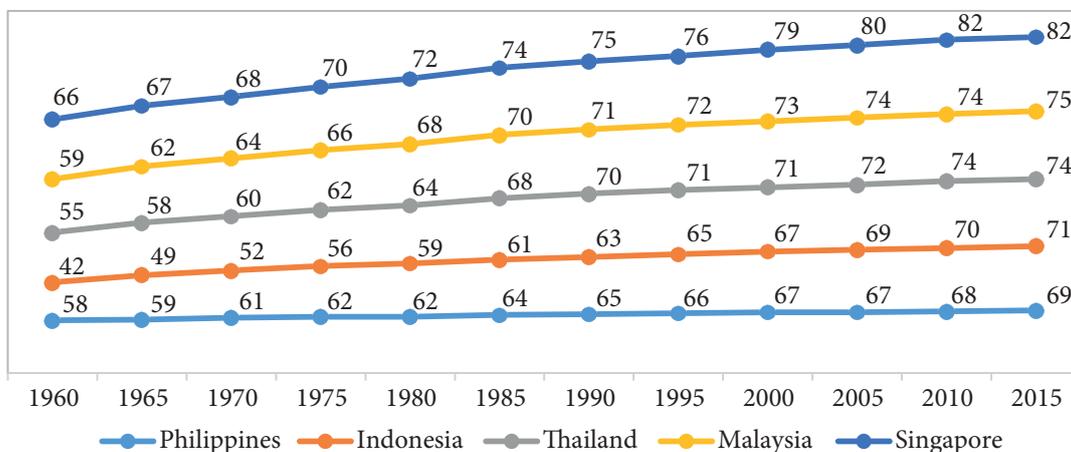


Figure 1. Life Expectancy

Source: Life expectancy at birth, total (years).

Retrieved from <https://data.worldbank.org/indicator/SP.DYN.LE00.IN>

can adjust to the labour supply and if the elderly can share their experience with the young, it means that they will be able to improve their work performance (complements). This view is widely spread in developed countries such as the USA and European countries. The “lump of labor” theory has been reviewed many times and used as a reason for promoting early retirement programs.

It is often argued that the labor market is dynamic and there is no limitation to the number of jobs in an economy [3; 5–7]. Due to rapid technological progress and market growth, production of new goods and services and the increasing national income [3–5] can generate more employment opportunities to adjust labor force changes in an economy. These factors can affect the employment situation, including the balance between older and younger workers. According to Schleife [8], there is a skill gap between older and younger workers, with the former struggling to keep up with the latter in adopting and using new technologies. Moreover, older workers have less time to benefit from the returns to their training investment. Nevertheless, the empirical study conducted by Jin [5] in the USA brought little evidence of trade-offs in the employment of older and younger workers.

Ageing and education

In modern conditions, with higher labor costs and an increase in the retirement age, many firms might choose to substitute younger workers for older workers. Freeman [9], Walker [10] and Böheim [7] believe that the decision to substitute one type of workers for another is usually based on the equality of their skill and competence levels. Nevertheless, the available empirical evidence shows that workers with equal skills and the five-year age difference are imperfect substitutes. Thus, different substitution rates between workers from different levels of education can negate the negative consequences of delaying the retirement age [3; 5; 7]. For example, young workers with a high school level of education may be easily replaced by older workers with a similar level of education because older workers are more experienced. Experienced workers are often considered as better investment for firms and firms are more likely to put greater effort in retaining them. Therefore, firms may be not that willing to replace older workers with younger ones, although the cost of hiring older workers increases significantly. The substitution could

occur, however, if it correlated with the technological development.

The technological revolution requires higher-level skills, even though many jobs can be done more efficiently by computers. However, learning new skills is expensive and older workers may not invest in acquiring new skills if the remainder of their work is too short to cover costs [5]. On the other hand, younger workers will learn new skills more easily because their period of work is longer and thus enables them to recover the costs incurred [7].

Research Methodology

This study uses the data from the annual Key Indicators of the Labour Market (KILM) of the International Labour Organization (ILO). The analysis focuses on five ASEAN countries in terms of the labor force activity of both old and young people in the period 2010–2016. In the studies conducted by Gruber & Milligan [6], Munnell and Wu [3], Jin [5], the sample is divided into two age groups: 15–24 (the “young”) and 55 and above (the “elderly”). Afterwards, several variables with OLS are examined to find out the ratio of older to younger workers:

$$Y_{st} = \beta_0 + \beta_1 \text{Olderemp}_{st} + X_{st} \beta_2 + \varepsilon_{st}. \quad (1)$$

The dependent variable, Y_{st} , is the youth employment rate in each state and each year. The independent variable is the elderly employment rate in each state and each year (Olderemp_{st}). The X_{st} are explanatory variables, such as gender, dependency ratio, and education level.

The previous methodology still raises questions due to the undiscovered causality relationship. According to Gruber & Milligan [6], Jin [5], the instrumental variable approach or 2SLS can be one way to solve the problem. The aim is to identify instrumental variables that 1) correlate with the work of older workers; and 2) have no direct impact on young workers. The mortality rate meets both criteria. The next step is to estimate the 2SLS model after the instrument is constructed. The first stage (2) estimates the effect of mortality rates on elderly workers (Olderemp_{st}):

$$\text{Olderemp}_{st} = a_0 + \beta_1 \widehat{MR}_{st} + X_{st} \beta_2 + \varepsilon_{st}. \quad (2)$$

The next step (3) replaces the predicted value of elderly workers ($\widehat{\text{Olderemp}}_{st}$) from the first stage (2) for the actual work of elderly workers:

$$Y_{st} = \beta_0 + \beta_1 \widehat{\text{Olderemp}}_{st} + X_{st} \beta_2 + \varepsilon_{st}. \quad (3)$$

Results and Discussion

ASEAN labour force

As Figure 2 shows, in ASEAN, the labour force aged 65 and above has been growing rapidly, although there was a decrease in 2013. There have also been some fluctuations in the labor force aged 55–64, which in 2014 increased by 0.43% and in 2015 decreased by 1.7%. However, compared to the decline in the young labor force, the situation with the old labor force is better. The decline in the number of young workers since 2011–2015 has been 2.04%. Thus, it may be concluded that ASEAN countries are now going through a demographic transition, which supports the prediction made by Aris Ananta [11], who also maintained that this transition will affect economy and politics in ASEAN.

Elderly population is a vulnerable group because they suffer more than other age groups from the consequences of the economic downturn [12].

Due to the downturn in the economy, these people are forced out of the labour market and have to rely on their savings or the earners in their households [13]. These factors determine such trends as active aging. Looking at Figure 1, we see the growth in the number of older workers indicated. The word ‘active’ here refers to the ongoing involvement of the elderly into various activities ranging from social, economic and cultural to sport and routine activities of daily living [14; 15]. Therefore, active aging is a broad and complex idea that plays a significant role in the global strategy for managing aging populations [6; 15]. HR strategies of many companies place greater emphasis on older workers. This trend may be associated with such phenomena as an encore career, a decrease in economic welfare or the need to accommodate the so-called “boomerang kids” [2; 17].

As Figure 3 demonstrates, the proportion of people aged 55 and over in the employment growth decreased by 3.22 % in 2011, then it rose by

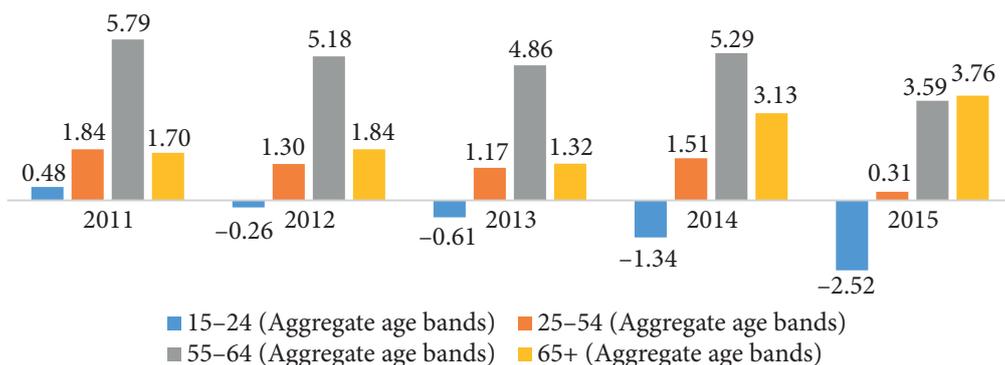


Figure 2. ASEAN Labor Force Growth

Source: Key Indicators of the Labour Market. Retrieved from https://www.ilo.org/ilostat/faces/wcnav_defaultSelection?_afz-Loop=1678824381434283&_afzWindowMode=0&_afzWindowId=null#!%40%40%3F_afzWindowId%3Dnull%26_afz-Loop%3D1678824381434283%26_afzWindowMode%3D0%26_adf.ctrl-state%3Dd5dq2kvxh_4ILO

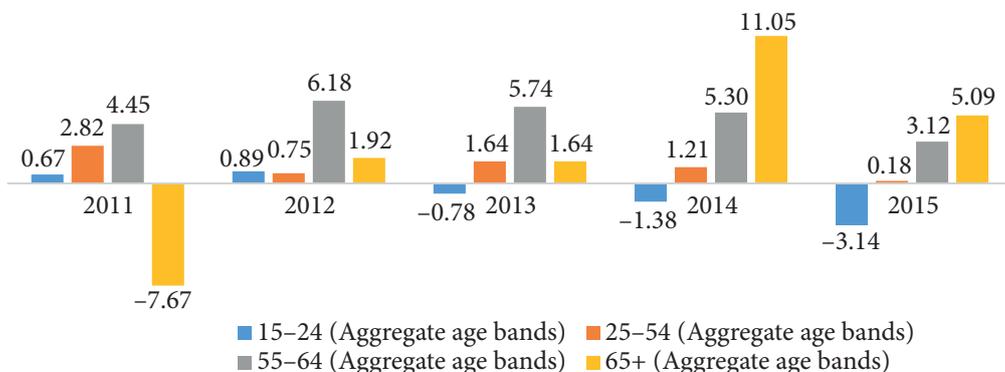


Figure 3. ASEAN Employment Growth 2011–2015

Source: Key Indicators of the Labour Market. Retrieved from https://www.ilo.org/ilostat/faces/wcnav_defaultSelection?_afz-Loop=1678824381434283&_afzWindowMode=0&_afzWindowId=null#!%40%40%3F_afzWindowId%3Dnull%26_afz-Loop%3D1678824381434283%26_afzWindowMode%3D0%26_adf.ctrl-state%3Dd5dq2kvxh_4ILO

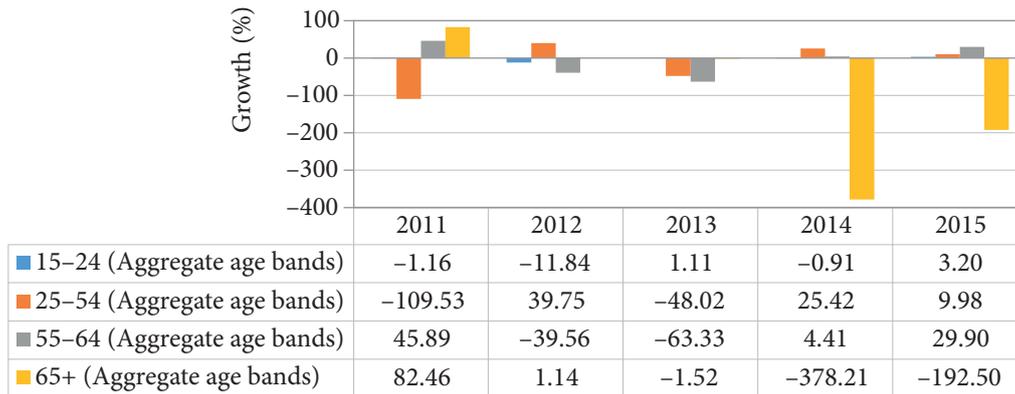


Figure 4. ASEAN Unemployment Growth 2011–2015

Source: Key Indicators of the Labour Market. Retrieved from https://www.ilo.org/ilostat/faces/wcnav_defaultSelection?_afz-Loop=1678824381434283&_afzWindowMode=0&_afzWindowId=null#!%40%40%3F_afzWindowId%3Dnull%26_afz-Loop%3D1678824381434283%26_afzWindowMode%3D0%26_adf.ctrl-state%3Dd5dq2kvxh_4ILO

16.35 % in 2014 and fell by almost a half – 8.14%. This proves that active ageing is a major trend in ASEAN countries. Whatever the reasons, elderly workers are more prone to continuing working and thus competing with younger workers on the labour market.

As Nasir et al. [13] pointed out, in the early twenty-first century, the old age dependency ratio in developed and developing countries is increasing rapidly. Japan, Singapore, and several industrial countries have demonstrated a rise in the average and older age of employed population [11; 13; 18], which leads to the growth in unemployment. As we can see from Figure 4, the number of young and economically active people has fallen while unemployment has risen since 2011. On the other hand, there has been a growth in the working population aged 25–54 and those aged 55 and over, which has affected unemployment. This means that older workers are more likely to compete with young workers. However, another reason for the rise in youth unemployment is that some part of the younger population are still studying or are looking for jobs in the informal sector.

Older workers vs. younger workers relationship

As Table 1 shows, the coefficient of determination young workers terms model is 0.885. This means that 88.5% of the variation in the quantity of young workers can be explained by the two variables, while 11.5% of the variation in the quantity of young workers is explained by the residual. The independent variables used in the estimates have a significant simultaneous effect on the quantity

of young workers in ASEAN. The condition can be known through F-sig, which is worth 0.00.

Such variables as older workers' employment, older workers' unemployment, education level and dependency rate have a significant positive correlation with young workers through t-statistic probability value with a level of significance less than 1% or 5%. A 1% increase in the employment of older workers will increase the quantity of young workers by 0.641%. A 1% increase in the unemployment of older workers will decrease the quantity of young workers by 0.236%. A 1% increase in the education level will increase the quantity of young workers by 0.518%. Furthermore, a 1% increase in the dependency rate will increase the quantity of young workers by 0.368%. Otherwise, the gender variable has an insignificant positive correlation with the number of young workers through t-statistic probability value having the insignificance level of more than 5% or 10%.

Table 1 shows that older workers have a significant impact on young workers in five ASEAN countries. Older workers are the key independent variable that has a positive influence on young workers, which means that an increase in the number of older workers leads to an increase in the number of younger ones. Thus, older workers do not prevent young workers from entering the labor market in ASEAN countries. We have remodeled this situation by supposing that an endogenous variable could be affecting older or young workers, but this did not significantly influence the result, which is consistent with the earlier equation that older workers do not adversely affect job opportunities of the young. Thus, our

findings correspond to the results of the previous research [3; 5; 6], which has failed to find any evidence that there is substitution between younger and older workers.

Table 1
Employment of older and younger workers

Independent Variable	Dependent Variable	
	Youth employment	
	OLS	2SLS
Older workers' employment	0.641*** (0.043)	0.867*** (0.085)
Older workers' unemployment	-0.236*** (0.048)	-0.268*** (0.056)
Gender	-0.032 (0.118)	-0.004 (0.138)
Education	0.480*** (0.596)	0.500*** (0.083)
Dependency rate	0.368*** (0.072)	0.270*** (0.801)
R Squared	0.885	0.837
Adjusted R Squared	0.883	0.833
Prob. (F Statistic)	0.000	0.000
Durbin Watson Stat	0.624	

Source: data calculation

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Supporting previous research such as Schleife [5], Munnell & Wu [3], Boheim [7], Jin [5] and many others finding that education or human capital is very important for the uptake of developing technology and productivity of firms. This study shows that level of education has an impact on deciding hiring worker and consider how investment in the aspect of human capital will benefit to improve firm performance. So, hiring a young worker with high education level more valuable than the older worker to improving the productivity of the firm. Nevertheless, employers could decide to hire older worker caused older workers to have less absenteeism, less turnover, superior interpersonal, to make rapid decisions while working, dependability, and greater accuracy and a bunch of experiences [12;

19; 20]. These abilities can benefit fully for the employers to hire them in case to increase productivity for companies.

As Table 1 demonstrates, unemployment among older workers has a significant negative relation with the number of younger workers while the dependency rate, on the contrary, has a significant positive relation. This can be explained by the fact that traditionally, in ASEAN countries, the welfare and socio-economic needs of the elderly remain the responsibility of their children, especially their sons. In addition, the distribution of intra-home resources is also complex, especially in the case of “boomerang kids”.

Conclusion

In this study we explore the impact of elderly workers on the job opportunities of younger workers in five ASEAN countries. As we know, population aging is caused by the declining fertility rates and the increasing life expectancy. In ASEAN, the chances of young workers are affected by the number of older workers, but also by the young workers' education level and dependency ratio variables. They have a significant and positive relation (except for the unemployment variable) to the variables related to young workers, both simultaneously and partially. Secondly, we found that there is an inverse relationships between the number of young workers and the unemployment of older workers.

However, more research is required into this problem: it is necessary to expand the range of indicators and involve more data on ASEAN to provide us with a more in-depth understanding of the employment and unemployment trends among younger and older workers in these countries. Moreover, in addition to the factors discussed in this study, we should consider other factors that contribute to active aging, such as wages, working hours, and productivity in each age group.

References

1. Munnell, A. H., & Sass, S. A. (2007). The Labor Supply of Older Americans. *Working Paper* No. 6. Retrieved from http://crr.bc.edu/wp-content/uploads/2007/06/wp_2007-12-508.pdf
2. Johnson, R. W., & Mommaerts, C. (2011). Age Differences in Job Displacement, Job Search, and Reemployment. *Working Paper* No. 2011-3. doi: [10.2139/ssrn.1736644](https://doi.org/10.2139/ssrn.1736644)
3. Munnell, A. H., & Wu, A. Y. (2012). Are Aging Baby Boomers Squeezing Young Workers Out of Jobs? *Issue in Brief* No. 12–18. Retrieved from http://crr.bc.edu/wp-content/uploads/2012/09/IB_12-18-508.pdf
4. Boeri, T., Garibaldi, P., & Moen, E. (2017). Inside severance pay. *Journal of Public Economics*, 145, 211–225. Retrieved from http://sites.carloalberto.org/garibaldi/doc/Ipud_final_Nov4.pdf

5. Jin, J. (2017). *Do Elderly Workers Crowd Out Younger Workers in the United States?* New York: Union College.
6. Gruber, J., & Milligan, K. (2010). Do Elderly Workers Substitute for Younger Workers in the United States? In J. Gruber, & D. A. Wise (Eds), *Social Security Programs and Retirement around the World: The Relationship to Youth Employment* (pp. 345–360). University of Chicago Press.
7. Böheim, R. (2014). The Effect of Early Retirement Schemes on Youth Employment. *IZA World of Labor*, No. 70. doi: [10.15185/izawol.70](https://doi.org/10.15185/izawol.70)
8. Schleife, K. (2006). Computer Use and the Employment Status of Older Workers – An Analysis Based on Individual Data. *Labour*, 20(2), 325–348. doi: [10.1111/j.1467-9914.2006.00341.x](https://doi.org/10.1111/j.1467-9914.2006.00341.x)
9. Freeman, R. (1998). Working-sharing to Full Employment: Serious Option or Populist Fallacy? In R. Freeman, & P. Gottschalk (Eds), *Generating Jobs: How to Increase Demand for Less-Skilled Workers* (pp. 195–222). New York: Russell Sage Foundation.
10. Walker, T. (2000). The “Lump-of-Labor” Case Against Work-Sharing: Populist Fallacy or Marginalist Throwback? In L. Golden, & D. M. Figrat (Eds), *Working Time: International Trends, Theory and Policy Perspectives* (pp. 196–211). London & New York: Routledge.
11. Ananta, A. (2012). Financing Indonesia’s Ageing Population. In D. Singh, & P. Thambipillai (Eds.), *Southeast Asian Affairs 2012* (pp. 135–150). Singapore: ISEAS – Yosuf Ishak Institute.
12. Rogers, B., Marshall, J., Garth, K., Mopkins, D., Remington, J., Siemering, K., & Spivey, J. (2011). Focus on the Aging Worker. *AAOHN Journal*, 59(10), 447–457. doi: [10.3928/08910162-20110927-01](https://doi.org/10.3928/08910162-20110927-01)
13. Nasir, Z. M., & Ali, S. M. (2001). Labour Market Participation of the Elderly [with Comments M. A. Chaudhry]. *The Pakistan Development Review*, 39(4), 1075–1084. Retrieved from <https://ru.scribd.com/document/263757902/1075-1086-pdf>
14. Walker, A. (2006). Active Ageing in Employment: Its Meaning and Potential. *Asia-Pacific Review*, 13(1), 78–93. doi: [10.1080/13439000600697621](https://doi.org/10.1080/13439000600697621)
15. Stenner, P., McFarquhar, T., & Bowling, A. (2011). Older People and “Active Ageing”: Subjective Aspects of Ageing Actively. *Journal of Health Psychology*, 16(3), 467–477. doi: [10.1177/1359105310384298](https://doi.org/10.1177/1359105310384298)
16. Mendoza-Ruvalcaba, N. M., & Arias-Merin, E. D. (2015). “I am active”: effects of a program to promote active aging. *Clinical Interventions in Aging*, 10, 829–837. doi: [10.2147/CIA.S79511](https://doi.org/10.2147/CIA.S79511)
17. McCormack, K. (2009, November 12). How to Discover Your Encore Career. *Bloomberg*. Retrieved from <https://www.bloomberg.com/news/articles/2009-11-11/how-to-discover-your-encore-careerbusinessweek-business-news-stock-market-and-financial-advice>
18. Lit, P. K. (2006). The Japanese Experience with Population Ageing and the Financing of Social Security, Health and other Social Services for the Elderly: Lessons for Other Nations. *Asian Journal of Social Science*, 34(4), 618–629. doi: [10.1163/156853106778917781](https://doi.org/10.1163/156853106778917781)
19. Lahey, J. N. (2006). *Ageing and the Labor Market: Dissertation Summary*. Michigan: W.E. Upjohn Institute for Employment Rewards.
20. Lettmayr Ch. F., Director A., & Riihimäki T. (2010). *The Right Skills for Silver Workers: An Empirical Analysis*. Luxembourg: Publications Office of the European Union. doi: [10.2801/34094](https://doi.org/10.2801/34094)

Information about the author

Febry Wijayanti – Master Student in Economics, Ural Federal University (19, Mira St., Ekaterinburg, 620002, Russia); e-mail: kozlovskaya9696@mail.ru.