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**AGEING OF EMPLOYEES IN POLAND COMPARED  
TO OTHER EUROPEAN UNION COUNTRIES:  
AGRICULTURAL WORKERS VS. OTHER OCCUPATIONS**

Key words: agricultural workers, ageing, labour supply, renewal ratio, international standard classification of occupations, labour force survey (LFS), occupation

**ABSTRACT.** The problem of the ageing labour force in agriculture and the effects of this process have been studied and widely discussed for a long time. The paper aims to determine the level and pace of ageing of employees in Poland compared to other European Union countries, and in particular to compare its scale between agricultural and other occupations. The study uses LFS data gathered in the EUROSTAT database and the comparative method in relation to values of the renewal ratio. The age structure of employees changed noticeably between 2002 and 2022. The proportion of employees aged 50-64 in the group of all employees increased by 11 pp. in the EU. The analyses show that in the years 2002-2022, in both the EU and Poland, agricultural workers were the oldest group among all the major occupation categories. The renewal ratio for the agricultural worker category was 1.2 in the EU and 1.4 in Poland in 2022. Nevertheless, in the period under consideration, in the EU and in Poland, the pace of ageing was relatively higher for other occupations, especially for services and sales workers, clerical support workers, and craft and related trades workers. On the other hand, managers are the only employee group in Poland reporting an increase in the renewal ratio. Changes in the age structure of the agricultural labour force in Poland and in the EU need to be explored in the context of the dynamic changes taking place in the agricultural sector in recent decades, and also in correlation with demographic trends in European societies.

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## INTRODUCTION

Ageing is a trend observed in many societies, and especially in countries characterised by a high level of economic development [Brown, Guttmann 2017]. The demographic process in which the number of young people decreases due to the dropping fertility rate and increasing life expectancy, has a strong influence on the economy, including the labour market [Auer, Fortuny 2000].

One consequence of population ageing has been the emergence of the concept of the “silver economy”. This is a broadly understood economic system focused on utilising the potential of older people and taking their needs into account [MRPiPS 2013]. According to Piotr Szukalski, the point of this model is to undertake actions not just benefitting individual older adults, but also prompting organisations and companies to support older people’s activeness [Szukalski 2012]. On the one hand, such endeavours should serve to fulfil the needs of older people, while, on the other, stimulating them to be active on various levels, also including employment. As the European Commission underlines [EC 2015], older adults may be a major asset on the labour market and as volunteers providing various services to the national economy and society.

The demographic processes observed in recent years are changing the age structure of whole societies as well as the age structure of employees in individual sectors of the economy. Up to now, a faster pace of ageing of the labour force was observed in occupations that mainly involve routine tasks based on physical labour, which was connected with intergenerational differences in career preferences. A large group of people at the age of starting employment were more inclined to remain outside the labour market, to develop their qualifications through continued education and seek financially attractive employment rather than start working in the peripheral and low-paying segments [Lewandowski et al. 2020].

In economies at a high level of development, agriculture is a peripheral and low-paying part of the labour market [Kumaş et al. 2014]. Low wages, tough working and entry-level conditions have caused a demographic crisis in the EU’s agricultural sector [Burton, Fischer 2015, Baer-Nawrocka, Kiryluk-Dryjska 2023]. These unfavourable demographics are substantiated by the dynamically decreasing number of farms and the shrinking group of people working in agriculture. Those leaving the agricultural sector, e.g. due to having reached retirement age, are not being adequately replaced by a population of new relatively younger employees. As a result, a labour force shortage is often observed in agri-food production, costs of labour at farms grow, and this is accompanied by an imbalance on agricultural labour markets, particularly in seasonal and labour-intensive agricultural production [Grochowska, Skarżyńska 2021].

The problem of the ageing labour force in agriculture and the effects of this process have been studied and widely discussed for a long time [Zagata, Sutherland 2015, EC 2019]. The ageing of employees in agriculture is perceived as a major problem for

the economy and rural communities, determining the future of rural areas and agricultural production itself [Vazonienė, Atkočiūnienė 2018, O'Meara 2019]. The issue of decreasing productivity as a result of labour force ageing seems extremely important in the case of rural areas, where the body's physical function is one of the key factors determining an employee's usefulness [Jakubowska 2016].

This is reflected in the ongoing public debate, but also in significant EU policy interventions using various Common Agricultural Policy tools with the aim of rejuvenating the agricultural sector [EC 2019, Baer-Nawrocka, Kiryluk-Dryjska 2023].

Discussions on the ageing of employees from the agricultural sector point out that this process has been taking place for a long time and also concerns, though with lesser intensity, other sectors and segments in most of the EU member states. It is the result of demographic fluctuation and the decreasing birth rate as well as the growing average life expectancy [Rachel et al. 2013]. These demographic changes are accompanied by lengthening employment among the population (for example, thanks to improved health and efforts to improve one's financial situation) and the increasing automation of labour. Limited labour supply in agriculture is the effect of this sector's unique structural transformation, stemming from factors like intensive concentration of factors of production caused by a necessity to maintain a competitive edge in domestic and international markets [Zegar 2018].

Identifying demographic tendencies in EU and Polish agriculture in comparison with other sectors of the economy has been difficult thus far, due to a lack of studies in this area as well as the limited availability of relevant and comparable data [Zagata, Sutherland 2015, Matthews 2018]. That is why the present paper aims to determine the level and pace of the ageing of employees in Poland compared to other EU countries, and in particular to compare its scale between agricultural and other occupations. The analysis conducted in the study has provided an answer to the question of how deep and unique the ageing of agricultural workers is within the major occupation categories functioning on the labour market.

## RESEARCH MATERIALS AND METHODS

The data used in the analysis came from the European Union Labour Force Survey (LFS), part of the EUROSTAT database, and covered the years 2002-2022. The LFS is the biggest representative survey of European households or natural persons, encompassing 34 countries, including the 27 EU member states. Its results are comparable over time and between countries, as it is based on uniform notions and classifications. In order to determine the level and pace of ageing of employees in individual occupations (in the EU, and in Poland in particular), one of the classifications used in the LFS was considered, namely the International Standard Classification of Occupations (ISCO-08). It includes the following nine "major groups" of occupations: 1) managers; 2) professionals; 3) technicians and associate professionals; 4) clerical support workers; 5) services and sales workers;

6) skilled agricultural, forestry and fishery workers; 7) craft and related trades workers; 8) plant and machine operators and assemblers; 9) elementary occupations, and armed forces occupations<sup>2</sup>. For simplification purposes and given the dominating proportion of agricultural employees in the “skilled agricultural, forestry and fishery workers” group in most EU member states, this group will hereinafter be referred to as agricultural workers [GUS 2021]. Due to the lack of data, the group of people working in the armed forces has been omitted from the calculations<sup>3</sup>.

The main indicator used to measure the scale and dynamics of employee ageing in the occupations under consideration was the proportion of particular age groups in the total number of employees. Further on, the analysis considered the changing proportions of the four main employee age groups<sup>4</sup>, i.e. ages 15-24, 25-49, 50-64, and 65 and over, as well as the percentage of employees aged 25-49 in relation to the percentage of employees aged 50-64. This last indicator is known as the renewal ratio [Kotowska 2019, Ouellet-Léveillé, Milan 2019].

## RESULTS

One important context of the demographic changes taking place on the European labour market in the years 2002–2022 was an increase in the number of employees, by more than 24 million, including almost 3 million in Poland. On the one hand, this process was the effect of increased activeness of the labour force (previously economically inactive people joining the labour market, e.g. women, people of retirement age), while being connected with the influx of economic migrants from outside the EU on the other. The overall labour supply in the period under consideration in the EU and in Poland was temporarily relatively more strongly affected by the increase in the population of working-age people (migrations, the economically inactive becoming active) than the natural movement of the population. Notwithstanding, according to LFS data, the age structure of employees changed significantly in the EU-27 between 2002 and 2022. The proportion of the youngest and young employees decreased, while the percentage of older and the oldest employees increased (Figure 1).

According to LFS data, between 2002 and 2022 the proportion of employees aged 50-64 in the total number of employees grew by 11 percentage points (p.p.) in the EU, from

<sup>2</sup> These major groups in the standard classification of occupations are made up of large, medium and elementary occupation groups, and they are significantly diverse in size [GOFIN.pl 2023].

<sup>3</sup> In the years 2002-2022, in the EU-27 as well as in Poland, the proportion of the armed forces occupations did not exceed 1% of the total number of employees.

<sup>4</sup> The calculations focused on the employee groups aged 25-49 and 50-64, which were the most numerous of the four categories in the period under analysis, both in the EU-27 and in Poland. In the EU in the years 2002-2022, the average proportion of employees aged 25-49 was 63%, and 26% for those aged 50-64. The corresponding percentages for Poland were 67% and 23%.

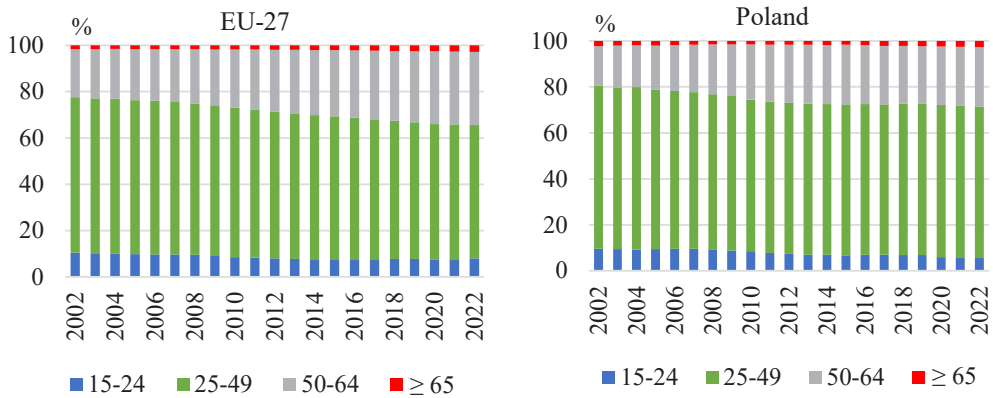


Figure 1. Employees in the EU and in Poland by age

Source: own calculations based on [EUROSTAT 2023]

21 to 32%, and by 9 p.p., i.e. from 17 to 26% in Poland. At the same time, the proportion of employees aged 25-49 decreased by 10 p.p., from 67 to 57%, and by 5 p.p., from 71 to 66%, respectively. The ageing of the labour force in the period under consideration was accompanied by changes on the European labour market, which were reflected in the changing employment distribution by occupation. Over the past 20 years, relatively the highest increase was in the proportion of professionals, who are usually highly qualified and employed in the services sector – by 10 p.p. in the EU-27 and in Poland. In 2022, professionals accounted for over a fifth of all occupations, which made them relatively the most numerously represented occupation among the nine categories being analysed. Proof of dynamic structural changes in the economy can also be found in the shrinking agricultural worker group. In Poland the proportion of this group decreased significantly and relatively the most, by 10 p.p., i.e. from 18 to 8%. A noticeable drop in the same group was also reported in the EU-27 – by 4 p.p., i.e. from 7 to 3%. Next to craft and related trades workers, it was the group whose proportion shrank relatively the most in the EU.

The rapidly progressing ageing of the agricultural labour force in the EU and in Poland was also confirmed by low values of the renewal ratio. The analysis shows that in both 2002 and 2022 in the EU-27, relatively the lowest value of this indicator was reported for the occupation category of agricultural workers: 1.8 and 1.2, respectively (Figure 2). In the case of Poland, agricultural workers were also one of the oldest groups of occupations, though the renewal ratio in the two aforementioned years was higher than the EU-27 average (2.7 and 1.4, respectively). In 2022 in Poland, the ratio of young to older employees was identical to that for the elementary occupations group: 1.4. In 2002, meanwhile, the renewal ratio for agricultural workers in Poland reached 2.7, slightly more than the value for the managers category (2.5).

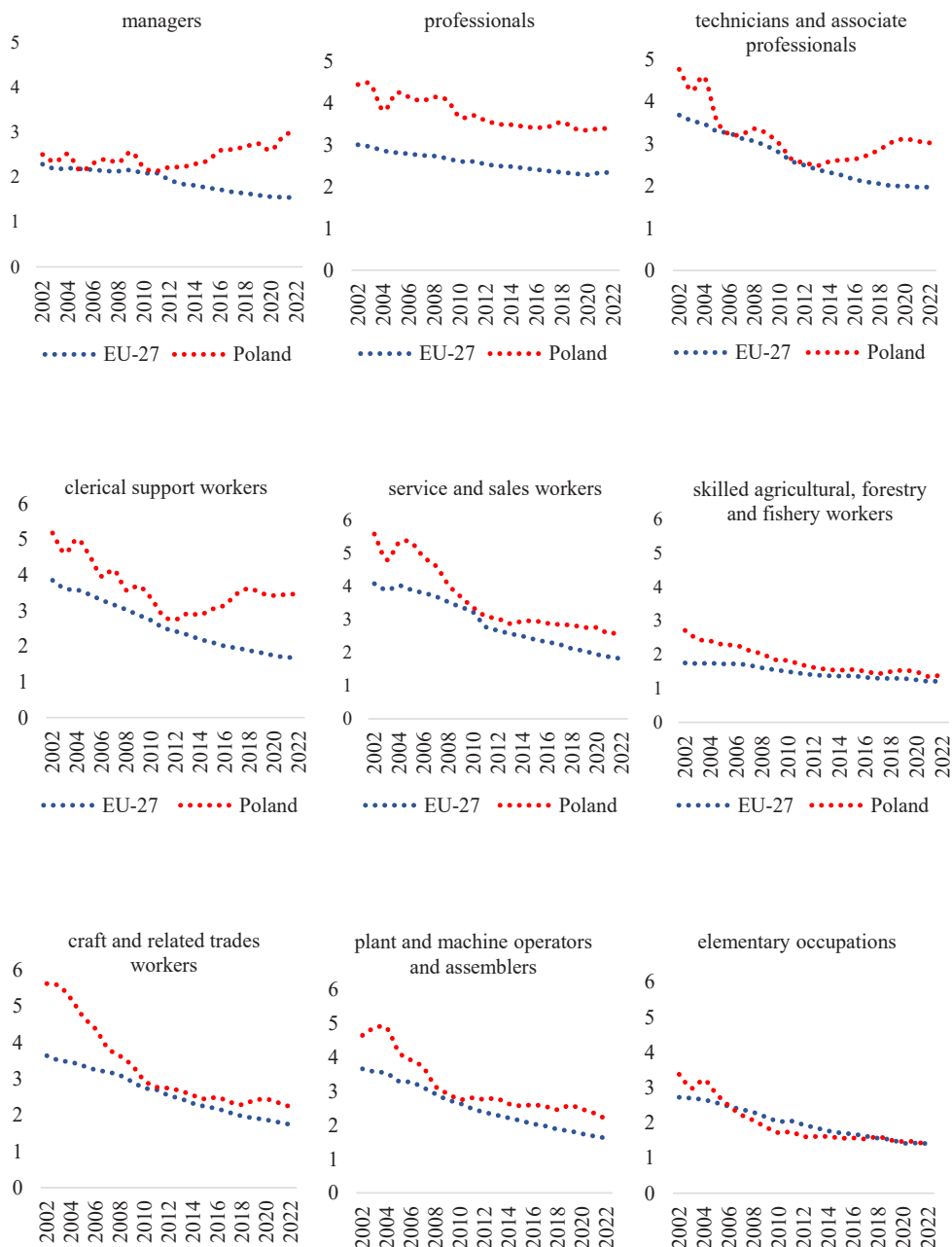


Figure 2. Renewal ratio in the EU-27 and in Poland in the years 2002-2022

Source: own calculations based on [EUROSTAT 2023]

The LFS data additionally show that in the period under consideration the ageing process affected all employees in the major categories of occupations on the European labour market. The overall renewal ratio for the EU-27 decreased from 3.2 to 1.8, i.e. by 1.4. However, the values for the various occupations were very diverse. In the years 2002-2022 in the EU-27, the renewal ratio decreased relatively the most for services and sales workers – from 4.1 to 1.8, and for clerical support workers – from 3.8 to 1.7. Relatively the smallest change was reported in the agricultural workers group (from 1.8 to 1.2), and also among professionals and managers. In Poland, relatively the fastest-ageing group was that of craft and related trades workers (the renewal ratio dropped from 5.6 to 2.2). Similarly, to the whole of the EU, services and sales workers were a dynamically ageing group in Poland (the renewal ratio dropped from 5.6 to 2.7). As regards agricultural workers in 2022, the renewal ratio in Poland reached 1.4, which was the same as the value for the elementary occupations group. These two categories were among the oldest in Poland; the pace of ageing of agricultural workers (renewal ratio decrease by 1.3) was relatively slower and similar to the relatively young group of professionals (decrease by 1.0). The only occupation group in Poland reporting an increase in the renewal ratio was that of managers (increase from 2.5 to 3.0).

## CONCLUSIONS

The changes in the age structure of employees presented here and involving a decrease in the proportion of younger in favour of older age groups, especially the most numerous groups of employees aged 25–49 and 50–64, were an effect of the overall demographic trend of ageing of the population observed in most European societies. This process, caused mainly by the lengthening life expectancy and decreasing fertility rate, affected the economy by reducing the number of economically active young people and increasing the size of the group of older employees who will soon withdraw from the labour market. European LFS data show that shrinking of the young employee category and growth of the older employee group was observed not only in agriculture but in the other occupations as well, and especially among services and sales workers, clerical support workers, and craft and related trades workers, where the pace of ageing was relatively faster.

The changing age structure of the agricultural labour force in Poland and in the EU needs to be considered in the context of the dynamic changes that have been occurring in the agricultural sector in recent decades, including the concentration, automation and specialisation of agricultural production, which have resulted in a decrease in the number of farms, a greater scale of production, and lower labour input [Zegar 2018]. These processes reflected structural changes stemming mainly from the sector's adaptation to the situation in its environment, and especially to the situation in the other elements of the agri-food chain and on global markets.

Employee ageing brings challenges for agricultural employers as they deal with adjusting the organisation of production processes to their ageing employees and pursuing an appropriate, “non-discriminatory and just” hiring policy. It also requires suitable shaping of the social security system and demographic trends on the labour market as well as technological changes. The effects of the ageing of agricultural employees may be diverse, from pressure on wage increases to reduced productivity of farms due to deteriorating employee health or outdated qualifications and skills [Dixon 2003, Calvo-Sotomayor et al. 2019].

In the context of the ageing of the great majority of the population working in the various occupation groups, including in agricultural jobs, it is necessary to work on increasing and extending the economic activeness of various employee groups, improving their mobility and, above all, making EU and national labour markets more open to employees from outside the EU [Fargues, McCormic 2013]. It is estimated that over the next two decades, in view of labour automation and population growth on a global scale, labour demand will exceed supply [Bloom et al. 2018]. At the same time, increased demand for workers in some segments of agricultural production will be alleviated by the trend towards automation of production processes and their digitalisation. The chances for robotisation and computerisation of labour in the agriculture, fishery and forestry sector are estimated to be high compared to other sectors of the economy. The probability of computerisation of the tasks of farmers and agricultural managers is low, contrary to those of contract workers and other agriculture-related occupations [Frey, Osborne 2017]. The possible options being suggested to resolve the deficit of hired labour in agriculture include robots that use artificial intelligence [Saiz-Rubio, Rovira-Mas 2020]. The McKinsey report [MGI 2017] also underlines that AI, progress in robotisation and machine learning will free up human labour.

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## STARZENIE SIĘ PRACOWNIKÓW W POLSCE NA TLE INNYCH KRAJÓW UNII EUROPEJSKIEJ: PORÓWNANIE ROLNIKÓW Z INNYMI ZAWODAMI

Słowa kluczowe: rolnicy, starzenie się, podaż pracy, współczynnik odnowy demograficznej, międzynarodowa klasyfikacja zawodów i specjalności, badanie aktywności ekonomicznej ludności (BAEL), zawód i specjalność

**ABSTRAKT.** Problem starzenia się zasobów pracy w rolnictwie i skutki tego procesu są badane i szeroko dyskutowane od dawna. Celem artykułu jest określenie poziomu i tempa procesu starzenia się osób pracujących w Polsce na tle innych krajów Unii Europejskiej, a w szczególności porównanie jego skali w zawodach rolniczych i w pozostałych profesjach. Na potrzeby badania wykorzystano dane BAEL zgromadzone w bazie EUROSTAT oraz metodę porównawczą w odniesieniu do wartości współczynnika odnowy demograficznej. Między 2002 a 2022 rokiem znacząco zmieniła się struktura wieku osób pracujących. Udział pracowników w wieku 50-64 lata wśród ogółu pracujących wzrósł w UE o 11 p.p. Z przeprowadzonych analiz wynika, że w latach 2002-2022 zarówno w UE, jak i w Polsce rolnicy byli najstarszą grupą spośród wszystkich głównych kategorii zawodowych. Wartość współczynnika odnowy demograficznej dla kategorii rolników w 2022 roku wyniosła 1,2 dla UE i 1,4 dla Polski. Niemniej, w rozpatrywanym okresie w UE i w Polsce dynamika starzenia się była relatywnie większa dla innych profesji, w tym zwłaszcza dla pracowników usług i sprzedawców, pracowników biurowych oraz robotników przemysłowych i rzemieślników. Z kolei kierownicy, to jedyna grupa zawodowa w Polsce, dla której odnotowano zwiększenie się współczynnika odnowy demograficznej. Zmiany w strukturze wiekowej rolniczych zasobów pracy w Polsce i w UE należy rozpatrywać w kontekście dynamicznych przeobrażeń w sektorze rolnym zachodzących w ostatnich dekadach, jak również w powiązaniu z trendami demograficznymi w społeczeństwach europejskich.

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