
RECENT CHANGES IN THE OCCUPATION MILIEU OF THE EU27 MEMBER STATES' LABOR MARKETS

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Received: October 2024 | Accepted: November 2024 | Published: December 2024

Please cite this paper as: Iordan, M., Chilian, M.N. (2024) Recent changes in the occupation milieu of the EU27 member states' labor markets, *Holistica Journal of Business and Public Administration*, Vol. 13, Iss. 2, pp.55-66

Abstract

The first two decades of the third millennium experienced an unprecedented swarm of economic, social and political changes that impacted virtually all the countries in the world. Under the increased pressures of demographic transitions, technological changes and environmental needs, the labor markets, on the one side, and the employees, on the other side, faced significant challenges as components of the national economic systems, in the first case, and as key agents of both the economic systems and the labor markets, in the latter, which resulted, among others, in a faster changing occupational milieu. In such a context, the paper aims to present an analysis of employment by occupation and age group and its quite recent changes in the EU27 member states. Such results reveal whether there is increased national specificity of the EU27 countries' labor markets and their occupational composition or we may find some convergence patterns across countries, age groups or groups of occupations. These highlight not only certain necessary policy actions that might have to be enforced, especially in areas such education, labor market regulation, company regulation and so on, but also the imperative of an increased, better, and more efficient cooperation between the government and private economic actors in order to deal with and alleviate the already existing gaps, misallocations, misalignments, inefficiencies, etc. and to prevent as much as possible the occurrence of newer and (possibly) more hazardous ones for the European economies and societies.

Keywords: Employment; Occupational Structures; EU27 Member States

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1. Introduction

Currently, the population ageing worldwide has reached a worrisome magnitude, especially in the advanced economies, but also in the middle-income and even in the developing ones. The effects of population ageing, especially on medium and long term, translate above all into an overall and specific decline in the size of workforce. Among the most obvious causes may be cited the overall decline in the share of the working-age population – a pervasive consequence of the decline in the fertility rates - and the lowering labor market participation rates among older employees, despite the socio-economic policies implemented especially with the view to alleviate such a phenomenon (EC, 2023). In the EU27 Member Countries, the demographic ageing has advanced sharply, towards high rises in the shares of older population cohorts in total population (Cedefop, 2023). Thus, the share of population aged 65+ increased by 27% from 2005 to 2020 and is expected to increase by additional 26% over the following 15 years. Under such circumstances, the forecasts show that until 2035 the share of population aged 65+ in total population will reach 26%; a significant upward rise from 17% in 2005 (Cedefop, 2023).

As according to Eurostat's EUROPOP2023 baseline population projection, the number of people in working age (officially considered to be 15-64 years of age, but in these projections, it was considered to be 20-64-years-olds) is expected to decline significantly over the coming decades, from a peak of 272 million people in 2009, towards 258 million by 2030, and only 236 million by 2050. Consequently, the ranks of active people are expected to follow a quite similar pattern; from a record 205 million people in 2022 downwards to 201 million in 2030, and only 184 million in 2050 (EC, 2023).

Some of the most important impacts of an ageing population on workforce and labor market, are the overall labor shortages and specific skills shortages that occur and may be amplified without appropriate planning and policy interventions (Alpass and Mortimer, 2007). In the EU27 Member States, the highest share of working aged population moves slowly towards the "older" top of demographic distribution and only the cohort of population aged 60+ is expected to grow between 2020 and 2035, while the young and mature groups of labor force (20-50 years of age) is expected to decline its share in the overall workforce (Cedefop, 2023). However, the phenomenon of workforce ageing and its associated issues vary among the EU27 Member States, in accordance with the specific circumstances of the national labor markets and also the national-specific demographic and migratory trends (EC, 2023).

Different age profiles across the occupational groups may give us hints about some already in place or potential future labor force shortages (Alpass and Mortimer, 2007). At the same time, the demographic and occupational structures are highly intertwined, each representing a key factor for the other one. Thus, the demographic structure supplies labor that enters the occupational structure, while, at the same time, the occupational structure acts both as barrier or enabler of a person's life choices, which, in turn, translate into factors that impact the demographic structure: fertility rates, life

expectancy and/or migration trends (Mariscal-de-Gante et al., 2023). Thus, in order to better understand what makes a well-functioning labor force, beside analyzing and understanding the demographic trends it is also essential to have knowledge about the occupational ageing patterns and paces (overall, group and occupation specific) (Ouellet-Léveillé and Milan, 2019).

Considering the above-mentioned issues, the paper presents an analysis of the working age employees (15-64 years of age) dynamics in the EU27 Member States and other European countries (Norway, Iceland, Switzerland, United Kingdom) by different age groups able to reveal the changes occurred within the employees' demographic structures (15-24 years, 25-49 years, 50-64 years, 15-39 years, and 40-59 years) over a longer period (2000-2022). An analysis by the main occupational groups (except for defense) and the same age groups is also provided.

2. Literature Review

Research on population ageing, in general, and the ageing workforce, in particular, has amplified significantly over the past decade, focused on different topics, such as the link between population and/or workforce ageing and productivity, the needs of older workers, the conditions favorable or not to a prolonged working life, the impact of digitalization on older workers, the learning and upskilling needs and capabilities of an aged workforce, etc. However, fewer studies approached the link between the demographic ageing and the occupational structure dynamics, though the likely "ageing" of certain occupations or occupational groups was researched in studies mostly focusing on the advanced economies (the EU Member States, the OECD countries, the USA, the UK, New Zealand, Canada, etc. – see, for instance, Cedefop, 2012; Alpass and Mortimer, 2007, United States Senate, 2017; CIPD, ILC, 2015; Ouellet-Léveillé and Milan, 2019).

The literature highlights different processes that may impact, directly and/or indirectly, the occupational age structures (see, for instance, Alpass and Mortimer, 2007): the time required for overall and specific education and training and the associated costs, the amount of physical activity required to complete specific occupation tasks, the possible hierarchical career paths (which may influence the age structure within particular occupations, for instance, in the higher education sector), economic factors (such as expanding and declining industries; the industries in decline being usually less likely to be able to attract newly trained/skilled young workers), working conditions (which may directly impact the retirement rates), territorial features (for particular sectors, skills and/or occupational shortages may be localized, while territories in decline or stagnating may find difficult to attract and locally stabilize the newly trained/skilled young workers they need, even for basic activities and services, such as education and health care), social policies (for instance, policies that favor lower retirement rates for certain professions), shifts in consumer preferences (due to the changes in expenditure categories objectively induced by the ageing of population, some industries might require an increasing workforce; for instance, personal elder care, healthcare, while others might see a declining one; for instance, child and primary education).

The specific growth patterns within occupations, due to factors outside the demographic domain, impact the “occupational aging”: while the rapidly growing occupations attract younger employees and, thus, slow down the pace of occupational aging, the declining occupations attract fewer (if at all) “young blood” and become increasingly “grey” along with the natural process of ageing of their remaining workforce. Moreover, structural changes such as increased automation are considered as a deterrent factor for the overall number of workers (Ouellet-Léveillé and Milan, 2019), though the pros and cons in relation to overall and specific occupational ageing are still under much debate.

In the literature, the main factors considered to determine the change in the occupational structures are considered to be the technical and organizational change, trade, the changing structure of demand, institutional change and changes in the structure of labor supply (see, for instance, Autor and Dorn, 2013; Mariscal-de-Gante et al., 2023). Also, some studies analyze demographic factors which, via changes in labor supply and in the patterns of economic demand, may impact the evolution of the occupational structures (see, for instance, Oesch and Rodriguez-Menés 2011; Oesch, 2013; Dwyer, 2013; Murphy and Oesch, 2018; Mariscal-de-Gante et al., 2023).

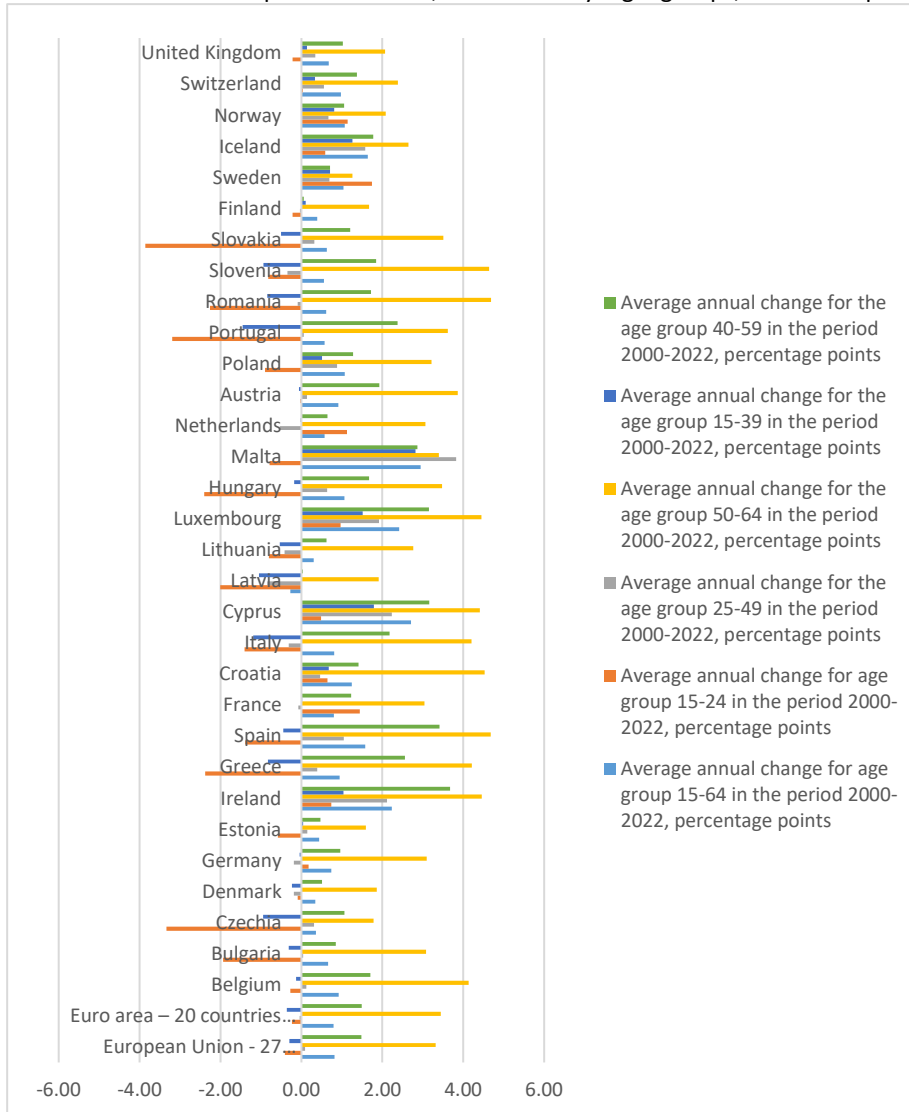
3. Methodology

The paper presents an analysis of working age employees (15-64 years) dynamics (annual average dynamics and change in share over the period) in the EU27 Member States and other European countries (Norway, Iceland, Switzerland, United Kingdom) by different age groups able to reveal the changes occurred within the demographic structures: (very young age group - 15-24 years, young age group - 25-39 years, young-to-mature age group - 40-49 years, mature age group - 50-59 years and mature and old age group - 60-64 years), over a longer period of time (2000-2022). An analysis by the main occupational groups, as according to the International Standard Classification of Occupations (ISCO) (except for defense - managers, professionals, technicians and associated professionals, clerical support workers, service and sales workers, skilled agricultural, forestry and fishery workers, craft and related trades workers, plant and machine operators and assemblers, elementary occupations) and the same age groups is also provided. All data were accessed from the Eurostat data base.

4. Results interpretation

Our analysis reveals that, the number of working age employees in the EU27 has increased over the past two decades, on average, by 0.82 percentage points, with significant differences among the Member States, ranging from a decline on average by 0.27 percentage points in Latvia to an increase on average by almost 3 percentage points in Malta (Figure 1).

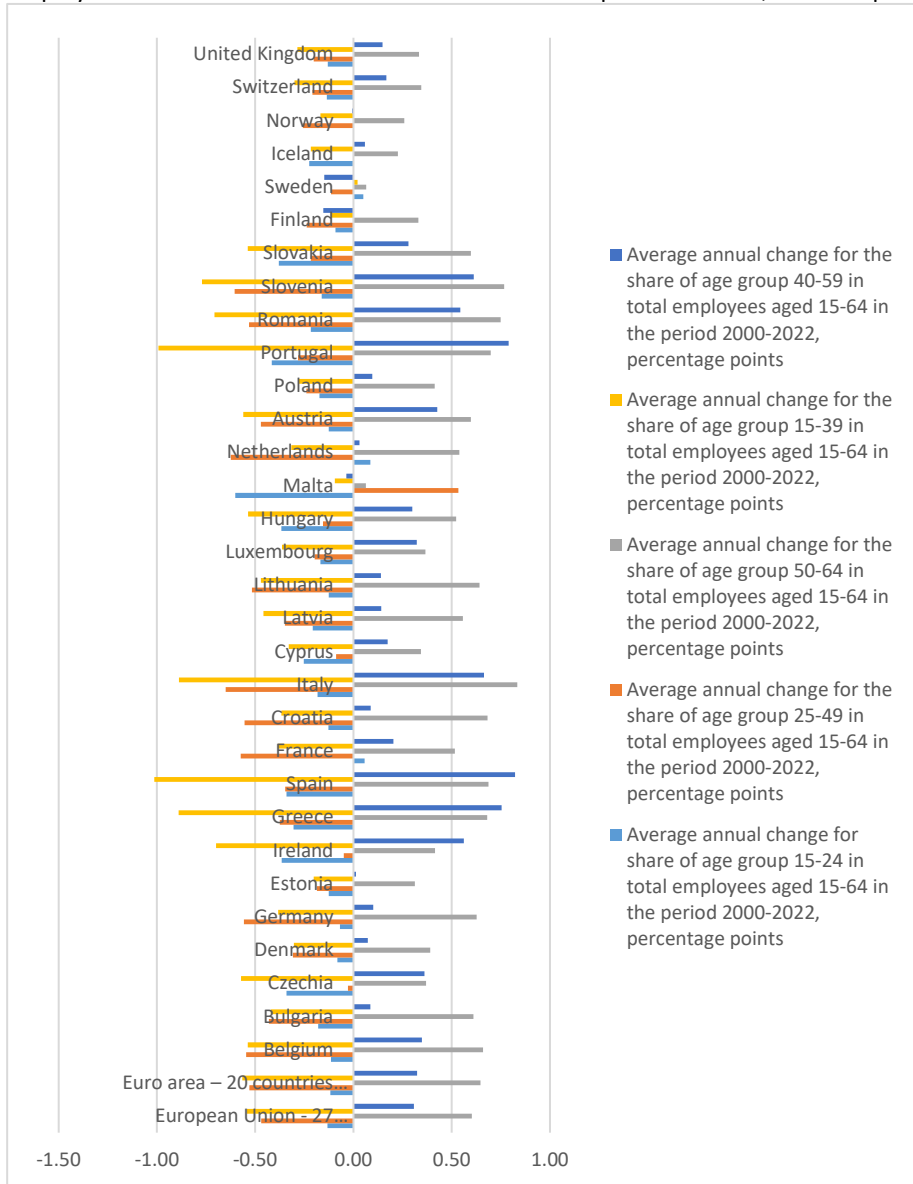
Figure 1 Average annual changes in the number of working age employees in the EU27 Member States and other European countries, total and by age groups, over the period 2000-2022



Source: Authors computations, based on Eurostat data (table LFSA_EEGAIS).

By age groups, however, the very young (15-24 years) and young (15-39 years) age groups revealed significant declines in many Member States, ranging from an average of nearly -4 pp. in Slovakia to -0.03 pp. in Austria in the case of the former group, and from an average of nearly -1.5 pp. in Portugal to -0.02 pp. in the Netherlands in the case of the latter. The increases varied between 1.75 pp. in Sweden to 0.03 in Switzerland in the case of the very young age group, and from over 2.8 pp. in Malta to only 0.02 pp. in France in the case of the young age group. The young-to-mature age group (25-49 years) revealed some average declines, ranging from -0.85 pp. in Latvia to -0.03 pp. in Finland, but mostly average increases, going from 3.8 pp. in Malta to only 0.04 pp. in Bulgaria.

Figure 2 Average annual changes in the shares of age groups in the total number of working age employees in the EU27 Member States and other European countries, over the period 2000-2022



Source: Authors computations, based on Eurostat data (table LFSA_EEGAIS).

However, the mature-and-old (50-64 years) and mature (40-59 years) age groups revealed only average increases over the analysed interval, ranging from almost 4.7 pp. in Romania to almost 1.3 pp. in Sweden in the first case, and from 3.7 pp. in Ireland to only 0.03 pp. in Latvia in the second case. Such dynamics point towards an ageing trend of the working age employees, which is even more visible when considering the period

average developments in the shares of the above-mentioned age groups in total number of working age employees (Figure 2). Population growth was one of the key components of the overall economic growth in the EU during the life of the post-war to recent generations, but employment growth in the EU in the future will be much harder to be achieved via the “help” of demographic factors in the first place (Torrejón Pérez et al., 2023).

With very few exceptions (most notable Sweden), the very young and young age groups experienced only average declines in their shares in the total number of working age employees, the highest being revealed by Portugal, Slovakia, Hungary, Ireland and Czechia in the case of the former group, and by Spain, Portugal, Greece and Italy in the case of the latter group. The young-to-mature age group saw also almost mostly average period declines in its shares in the total number of employees (except for Malta and Iceland), the highest being revealed by Italy, the Netherlands and Slovenia. Conversely, the mature age group revealed mostly average period increases in its shares in the total number of employees (the exceptions were Malta, Finland and Sweden), the highest in Spain, Portugal and Greece. Last but not least, the mature-and-old age group revealed only increases in its shares in the total number of employees in all countries in our sample, the highest in Italy, Slovenia, Romania and Portugal.

Over the same period, the overall direction of occupational change in the EU27 Member States reveal that employment growth was led by the professional and associate professional sectors, such as ICT, finance and, to a lesser extent, R&D, reflecting both some of the global megatrends at work also within the European economy (digitalization, sustainable development and green transition, demographic ageing), and also increasing emphasis on education, training and R&D (Table 1 - Cedefop, 2023).

Table 1 Employment change over the period 2011-2021 and share in total employment in 2021, by occupation, %

Occupation major group	Employment share 2021 (%)	Employment change 2011-2021 (%)
Professionals	22	+36
Technicians and associate professionals	16	+7
Service and sales workers	16	-1
Craft and related trades workers	12	-3
Clerical support workers	10	+7
Elementary occupations	9	-3
Plant and machine operators and assemblers	8	+2
Managers	5	-2
Skilled agricultural workers	3	-32

Source: Cedefop (2023).

Considering the occupational groups, some notable occupation and/or age group trends may be revealed³. Thus, from among the occupation groups that revealed the highest positive employment change, the professionals revealed average period increases for all the age groups considered in all the analyzed countries, with very few exceptions (Hungary, Slovakia and Finland in the case of the very young age group). However, the dynamics of period average shares in total working employees of the respective occupation group were a very mixed picture, both as regards the Member States and the age groups. The very young age group fared better than the young age group, while the latter's results were pretty consistent across the Member States and other countries with those of the young-to-mature age group, pointing towards both still increased attractiveness of such jobs and/or job entries to younger (and better educated) employees and towards coupling with likely career development paths. However, also in the case of this occupation group, average period increases in the shares of the mature age groups in total employees were also found in most of the analyzed countries, except for Estonia, Cyprus, Luxembourg, Malta, Romania and Sweden. All the analyzed countries reveal quite specific distributions across the age groups for this particular occupation group.

The occupation group of technicians and associated professionals reveal a mixed picture across the analyzed countries as regards the annual average changes in the very young and young age groups (the best performers being France, the Netherlands, Sweden and Norway, and the least ones Slovakia, Czechia and Portugal in the case of the very young age group, while in that of the young age group the best performers were Cyprus, Luxembourg, Ireland and Iceland and the least ones Portugal, Italy and Latvia). All the countries in our sample revealed only annual average increases for the mature and mature-and-old age groups. Consequently, the very young, young and, especially, young-to-mature age groups reveal mostly average period declines in their shares in total employees, with differences in magnitude across the analyzed countries. Consequently, the mature and old age group show only average period increases in their shares in total working age employees of the occupation group in all the analyzed countries, while the mature age group also reveal mostly increases in its shares in all the countries, except for Bulgaria, Croatia, Lithuania, Poland, Finland, Sweden, Iceland and Norway.

An interesting case is that of the occupation group of managers, which reveal mostly annual average increases across all the analyzed age groups, with few group-specific exceptions, while the decline in the average period shares of the young and young-to-mature age groups in total occupation group employees is visible in most of the countries in the sample, except for some more recent members of the EU (Estonia, Hungary, Malta, Poland, Romania, Slovakia, Bulgaria, to which adds up Portugal), which are probably undergoing processes of establishing and consolidating updated management systems that require younger and higher-skilled personnel. However, a

³ For the sake of brevity, these results were not presented in the paper and are available upon request.

trend of increased shares of the mature and mature-to-old age groups in total employees across the analyzed countries is also present, but of a lesser magnitude than in the case of other occupation groups.

While experiencing mostly annual average increases overall and across the age groups, the occupation group of sales and sales workers also reveal a quite clear ageing trend, with increased average period shares for the mature and mature and old age groups and declining average period shares for the very young, young and young-to-mature age groups in most of the analyzed countries. A situation not very far from the above-mentioned one is that of the occupation group of skilled agricultural, forestry and fishery workers, but with more declining annual average dynamics across the analyzed countries and a somehow similar trend of ageing. A notable exception is Romania, which reveals increased average period shares for the young and mature-to-young age groups, coupled with declining period shares for the mature and mature-and-old age groups, revealing perhaps some of the changes towards upgrading the production systems of the agricultural sector that occurred especially after the country's accession to the EU.

The crafts and related trades workers occupation group reveals a clear trend of declining annual average dynamics across all the countries in the sample and almost all the age groups, except for the mature and old age group, also coupled with a visible ageing trend revealed by the increases in the average period shares of the mature and mature-and-old age groups in total working age employees of the occupation group. The most visible ageing trend may be found in Romania, Slovenia, Portugal and Slovakia.

Another group with increased national variability in the overall and younger age groups annual average dynamics is that of plant and machine operators and assemblers. However, the ageing trend is also quite visible, both in what regards the annual average dynamics of the mature and mature and old age groups and their period shares increases for the respective age groups. Romania is again one of the "ageing champions" of this occupation group, though even in the ageing trend the national specific is quite high among the analyzed countries. Counter wise example of this group might be Sweden, with slightly increasing share of the very young age group and quite low declining share of the young age group, despite negative annual average dynamics overall and for all the age groups.

Finally, the elementary occupations group reveals mostly positive annual average overall dynamics across the countries in the sample, but also a slightly polarization trend towards the edges of the age distribution: more positive than negative annual average dynamics for the very young age group and mostly positive dynamics for the mature and mature and old age groups across the analyzed countries. They are accompanied by visible increases in the mature and old age group period shares in total employees of the occupation group in almost all the countries, but also by the same polarization trend of different magnitudes in countries such as Ireland, France, the Netherlands, Austria, Slovenia, Finland, Sweden, and the UK.

5. Conclusions

The different patterns that were revealed in the relationship between demographic and occupational change across the EU27 Member States and other European countries point out the important role of the country specific factors, a result in line with other studies (Mariscal-de-Gante et al., 2023). The EU27 member States have already adopted and implemented a series of measures directed at alleviating the potentially negative effects of demographic ageing on their national labor markets, in line with the broader EU policies and with their national particularities. Under these circumstances, further research is needed to better understand the Member States' positional and policy approach differences in the link between the occupational change and the demographic change.

Nevertheless, keeping older workers at work has been a hot issue of the EU employment policies even since the 2000 Lisbon agenda, to some extent being also a point of interest of most national policies. Thus, the EU policies set two quantitative targets to be achieved by 2010, known as the Stockholm and Barcelona targets: to achieve an employment rate of 50% for workers aged 55-64 (the Stockholm target) and to raise the average labor market exit age of the over-50s by five years (the Barcelona target). However, only some member States managed to achieve these. Later, the 2012 European Year of Active Ageing and Intergenerational Solidarity campaign made the active ageing in employment one of the three pillars of its program targets, emphasizing the importance of "improvement of working conditions and their adaptation to the health status and needs of older workers, updating their skills by providing better access to lifelong learning and the review of tax and benefit systems to ensure that there are effective incentives for working longer" (Vendramin and Valenduc, 2012). In 2020, addressing the challenges of population ageing was reinforced as a political priority at the EU level: the Green Paper on ageing seeks to develop new labor policy approaches in this regard, jointly with the twin green and digital transitions (Mariscal-de-Gante et al., 2023).

Some possible responses to address the current and projected overall labor and/or occupational/professional shortages (Alpass and Mortimer, 2007) deal with broader demographic, educational and socio-economic policies encouraging increases in the fertility rates, with overall European and/or national specific immigration policies to attract skilled (especially young) people to the EU and EU Member States labor markets, with specific industry and labor market policies to attract younger people to fill in certain occupational positions, and especially with the EU and national policies to retain older workers and to create and develop more "age-friendly jobs" (see, for instance, Acemoglu et al., 2022). Each one has its minuses and pluses regarding urgency, timely enforcement, broad social acceptance, economic and social costs and so forth.

Providing and promoting specific employment opportunities for an ageing workforce requires, however, novel approaches at multiple levels: company, region, sector, Member States and the EU. During the current programming period (2021-2027), the

European Pillar of Social Rights provides a framework destined to help the Member States to adapt to the new challenges while promoting fairness and solidarity between generations, emphasizing the right to a working environment adapted to a worker's professional needs, their health and work-life balance enabling a prolonged participation in the labor market. Also, the 2017 European Social Partners' Autonomous Agreement on Active Ageing and Inter-generational Approach commits to making it easier for older people to actively participate and stay longer in the labor market (Eiffe et al., 2024).

However, in the current dynamic, fluid, competitive and increasingly volatile global environment, where maybe the only constants are change and insecurity, EU, national, regional, and sectoral policies are required to address in a timely manner the emerging and future labor market and skill needs. There is even increased urgency when (and where) the national and/or local and/or sectoral labor markets must deal with supply limitations induced mainly by the increasingly visible demographic challenge of ageing. In this respect, the mere reaction to change of the policy-makers might be not enough, anticipation and especially innovation being required in order to shape an adequate advancement path towards a more digital, sustainable and less risky future (Cedefop, 2023).

Acknowledgement

The paper presents intermediate results of the 2023 research theme: Current and prospective economic and social transitions – Impacts on businesses (Tranziții economice și sociale curente și de perspectivă- impactul asupra mediului de afaceri), coordinator Marioara Iordan, Institute for Economic Forecasting, "Costin C. Kiritescu" National Institute of Economic Research, 2023, manuscript. The paper was presented at la The 10th International Conference – ESPERA 2023 dedicated to the 50th Anniversary of the National Institute the for Economic Research "Costin C. Kiritescu", Europe in the New World Economy. Emerging Research Topics, Methodologies and Techniques in Approaching Future Economic Challenges, 23th - 24th November 2023, Bucharest, Romania, <http://www.ince.ro/ESPERA/espera.html>.

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