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Education, Skills and the Intensity of Labour Demand: A Comparative Study of EU Countries

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Abstract:

Purpose: *The labour market plays a key role as one of the strategic elements of the modern economy. Its appearance and functioning are changing under the influence of increasing globalisation, and its importance is mainly due to the presence of human capital. The main objective of this study was to analyse the intensity of labour demand in selected countries.*
Design/Methodology/Approach: *The availability and comparability of statistical data made it possible to calculate an indicator of labour demand intensity according to the educational level of employees according to the ISCED classification and their level of qualification according to the ISCO-08 classification. The research covered 24 of the 27 EU countries.*
Findings: *The components of the ISCO-08 classification for tertiary education were characterised by higher variability. The intensity of labour demand in the group of people with tertiary education was characterised by an upward trend. The results obtained allow us to conclude that the labour market for tertiary graduates was characterised by a higher intensity of labour demand irrespective of the level of the ISCO-08 classification of occupations. Those with secondary education were more exposed to negative fluctuations in the labour market.*
Practical Implications: *The research carried out allows for a better understanding and analysis of the labour market situation, in particular the relationship between labour demand and the qualifications and skills that employees possess.*
Originality/Value: *The article contributes to the development of knowledge on the functioning of the contemporary labour market, which is undergoing a continuous process of transformation under the influence of globalisation and the development of advanced technology. It explains the relationship between one's education and qualifications and the intensity of labour demand in selected European Union countries.*

Keywords: *Labour market, demand of labour, globalization, level of education, ISCO classification.*
JEL classification: *J23.*
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1. Introduction

Modern economies are characterised by a complex system that enables both public institutions and private entities to function efficiently and effectively. One of the strategic elements of this system is the labour market, the key significance of which results, amongst other things, from the presence of human capital as the main component in market exchange. In addition to this, the labour market directly affects the financial situation of households, businesses and governments (Chen, 2023).

It functions in symbiosis with other markets, such as the capital market, the product market, the services market and the real estate market. It is a space in which transactions can be made, including processes of selling and buying services in the form of work. As in other markets, it also includes buyers and sellers who make exchanges (Miciuła, Rogowska, and Wojtaszek, 2021).

The labour market allows jobseekers to be matched with people offering those jobs, thus creating jobs. Workers who supply their labour are capable of carrying out specific tasks, offering their skills and time in exchange, while employers create demand for labour, thus making it possible to use the skills of employees to achieve their economic goals. In exchange, they offer pay and other benefits (The State of Labor Market Competition, 2022).

The idea of the labour market is inextricably linked with the idea of labour itself, which in the classical sense is one of the factors of production alongside land and capital. Work is a key factor in making it possible to ensure an appropriate level of individual well-being, and in achieving self-fulfilment (Ray, 2022).

By creating employment opportunities and offering specific remuneration, employers seek to ensure that employees demonstrate conscientiousness and an appropriate level of quality in the performance of their duties while adopting the desired set of behaviours. In offering their skills and acquired experience, jobseekers expect appropriate conditions of employment in exchange (Kozek, 2014).

The Future of Jobs Report, drawn up in 2023, identified the most important indicators in assessing the skills of employees during the recruitment process. For employers, work experience was the most important factor. The second-most frequently cited criterion was assessment of the candidate's skills, while the completion of a university degree ranked third (Future of Jobs Report, 2023).

Together with economic development and the growing level of technological advancement of modern economies, employers are increasingly interested in acquiring workers with the highest qualifications. This also results, among other things, from the way in which their knowledge, skills and creativity affect the organisation’s innovation and competitive advantage (Sobocka-Szczapa, 2021).

Demand for specific employee skills varied according to different branches of industry and sectors.

However, there is a group of the most important skills required during the recruitment process such as, soft skills, knowledge of foreign languages, basic computer software skills, educational qualifications and experience (Baran, 2020). Employers are also looking for people who demonstrate a capacity to adapt quickly to a dynamically changing working environment. In addition to this, communication skills, punctuality and problem solving are also important (Fajaryati *et al.*, 2020).

The main purpose of this work is to analyse the intensity of labour demand in selected European countries depending on the level of education of employees according to the ISCED classification (Eurostat, 2023b) and also on the level of their qualifications according to the ISCO-08 classification (Eurostat, 2024d). The studies conducted attempted to verify the following research hypothesis: that the changes that have occurred on the labour market in recent years are reducing demand from businesses for employees with higher education.

2. Literature Review

The labour market as part of the economic system of the state is a reflection of the economic, social and political processes ongoing within it. The main mechanism of its functioning is the dynamics of demand for and supply of labour (Lazarova *et al.*, 2022). The supply side is represented by persons seeking work. The demand side is shaped by employers which create a need for suitably qualified employees.

It is worth emphasising that demand for labour is a type of derived demand. Its size depends largely on the demand for goods and services on the consumer goods market, and businesses determine the size of the need for labour taking the size of the demand for these goods or services into account (Majewska and Samol, 2016). Both supply and demand are determined by many variables. The most important of these include, globalisation, technological progress and demographic change (OECD, 2019; Pociovalisteanu and Thalassinos, 2009).

One way of measuring the size of demand for labour is to determine the number of jobs being created. This measure allows demand to be visualised in the form of the number of persons employed, but it does not take the criterion of time into account. A more precise method is to determine the number of hours worked, which is the sum of the products of the number of employees and the time worked by them (Kryńska and Kwiatkowski, 2013).

Determinants of demand for labour may change due to certain factors, in particular economic, social and political factors. One of the main stimuli defining demand for labour today is the changing nature of tasks on the labour market (Acemoglu and Resrepo, 2019). Dynamic economic conditions and widespread digitalisation are

helping to bring about changes in market structures. New industries and professions are growing in significance. New roles such as data analysts, AI and machine learning specialists, robotics engineers and digital transformation specialists are becoming increasingly important. At the same time, there are occupations that are at risk of being replaced in the next few years. This risk encompasses, among others, occupations related to office work, in particular data entry, administrative duties, and tasks performed by assembly and factory workers (Charles, Xia, and Coutts, 2022).

New technologies have an ambiguous impact on demand on the labour market. They are associated with both positive and negative effects. This impact has many aspects, including in particular the creation of new jobs, or the transformation of existing ones, changing the requirements for a given job or the skills necessary to perform specific tasks. The negative impact is associated above all with the elimination of specific tasks, which may be performed by machines instead (Guznajeva *et al.*, 2022).

Employees in both highly-skilled and low-skilled jobs are subject to the impact of technological changes. It is however worth noting that the impact of automation will be most visible in occupations requiring the lowest level of qualifications. These are above all jobs involving routine tasks (Chemlal and Benomar, 2024).

The diversity of new technologies also results in them having different impacts on the labour market. Solutions in robotics and automation are designed more to substitute human labour than to complement it, while data-intensive technologies are consistently more complementary to tasks performed by humans (Savona *et al.*, 2022).

It is also worth adding that the development of AI and information technology systems is resulting in a growing threat of a lack of jobs for highly-qualified workers too. New technologies affect non-routine tasks, differentiating them from previous waves of automation which had an impact on repetitive tasks.

However, the development of AI is largely complementary to human labour, making it more productive. The benefits are felt most by more educated and more experienced individuals, who are able to adapt better to changing conditions on the labour market, such as newly created occupations, and are able to employ their human capital to work with new technologies (Fossen and Sorgner, 2019).

3. Research Method

Intensity of labour demand can be measured by the number of hours worked by the employee. This results from the fact that if employers report a high demand for labour, but cannot find suitable employees, they to extend the working hours of those in employment. It should be emphasised that Eurostat publishes data on the number of hours worked per week by citizens of a given country, but this cannot be

taken as a good indicator of intensity of labour demand as the number of such hours is regulated by national and EU law (Eurostat, 2023a).

It is however worth noting that Eurostat publishes the total hours worked in a given economy, which gives a more accurate picture of the phenomenon of intensity of labour demand (Eurostat, 2024b). In addition, Eurostat also publishes data on the number of persons employed (Eurostat, 2024c) and the number of weekly hours worked by employees (Eurostat, 2024a). Being able to obtain the above data makes it possible to develop of an indicator of the intensity of labour demand. This indicator is called "Intensity of Labour Demand" (ILD), the formula for which is presented below:

$$ILD = P * H * D$$

where:
P – number of people employed in a given economy,
H – average number of hours worked by employee per day,
D – number of working days in the year.

In the next phase of the analysis, an estimated indicator of ILD for all countries of the European Union for the years 2010-2023 was calculated and these results were compared with official Eurostat data on the total number of hours worked in the given economies in specific years.

The ILD indicator had an average measurement error of 12% for the whole sample, enabling further work to be done to increase its accuracy. In the next version of the indicator, it was assumed that to obtain results less subject to error it is necessary to subtract the average percentage rate of absence of people employed[5]. The formula for the new indicator (ILD2) is presented below:

$$ILD2 = (P*H*D) - ((P*H*D)*A)$$

where:
P – number of people employed in a given economy,
H – average number of hours worked by employee per day,
D – number of working days in the year,
A – average percentage rate of absence from work in a given year.

Thanks to this addition, the ILD2 measurement indicator was subject to a lower level of average error, which for ILD2 was around 5%, and the value of the mode of the error was around 3% and occurred 36 times in 228 observations.

[5]*https://ec.europa.eu/eurostat/databrowser/view/lfsi_abt_q__custom_12045607/default/table?lang=en*

Once in possession of the tools to measure intensity of labour demand, this indicator was modified once again. The variable P signifying the number of people employed in a given economy was replaced by the variable PEC, made up of people with the specified level of education according to the ISCED classification and working in occupations according to the ISCO-08 classification[6]. On this basis, a new indicator (ILD3) was obtained, providing a picture of intensity of labour demand dependent on the level of education and the classification of occupations of those employed:

$$ILD3 = (P*H*D) - ((P*H*D)*A)$$

where:
P (PEC = P*H*D) – number of people employed in a given economy according to level of education (ISCED) and classification of occupations (ISCO-08),
H – average number of hours worked by employee per day,
D – number of working days in the year,
A – average percentage rate of absence from work in a given year.

To be able to visualise ILD3 indicators better on graphs for individual countries, increases in ILD3 were calculated relative to a constant base ($d_{t/1}$), namely the value of ILD3 for 2010 (y_1). Calculations were made using the following formula:

$$d_{t/1} = \left(\left(\frac{y_t - y_1}{y_1} \right) * 100 \right) + 1$$

4. Results of Research

Thanks to the availability and comparability of statistical data, it was possible to calculate the indicator of intensity of labour demand according to secondary education and classification of occupations of people employed (ILD3) for the years 2010-2023, in 24 out of 27 countries of the European Union excluding Luxembourg, Slovakia and Greece.

It is worth emphasising that one element necessary for calculation of the indicator was the availability of all its required components (see research method). Moreover, the ILD3 indicator was calculated for the ISCO-08 classification of occupations for its 9 levels, excluding the Armed Forces Occupations component due to the lack of data in the publicly available Eurostat database.

A similar situation occurred with calculations of the ILD3 indicator for the level of higher education. In this case, the Armed Forces Occupations component of the ISCO-08 classification was also excluded from the study. Due to the availability of

[6]*https://ec.europa.eu/eurostat/databrowser/view/LFSA_EGISED/default/table?lang=en*

statistical data, the ILD3 indicator was calculated for the years 2010-2023 and for 24 out of 27 countries of the EU excluding Luxembourg, Slovakia and Greece.

For the ILD3 indicators obtained for the years 2010-2023, their coefficients of variation were calculated for the groups of higher and secondary education, and, in Table 1, it was marked in grey where the variation of the calculated indicator was higher for the given country and level of education and for the specific component according to the ISCO classification.

Table 1. *Coefficients of variation of calculated indicators of intensity of labour demand (ILD3) for the years 2010-2023 in individual countries according to level of education and the ISCO classification*

Country	Education	ISCO 1	ISCO 2	ISCO 3	ISCO 4	ISCO 5	ISCO 6	ISCO 7	ISCO 8	ISCO 9
Austria	1	0.26	0.29	0.17	0.19	0.08	0.13	0.07	0.07	0.12
	2	0.26	0.24	0.33	0.41	0.37	0.24	0.22	0.41	0.38
Belgium	1	0.18	0.16	0.12	0.12	0.13	0.13	0.12	0.12	0.14
	2	0.17	0.21	0.21	0.20	0.23	0.28	0.29	0.28	0.25
Bulgaria	1	0.24	0.15	0.15	0.18	0.13	0.15	0.14	0.15	0.16
	2	0.14	0.19	0.20	0.15	0.17	0.21	0.17	0.17	0.21
Croatia	1	0.31	0.27	0.26	0.22	0.27	0.13	0.28	0.29	0.37
	2	0.37	0.36	0.31	0.37	0.41	0.41	0.47	0.43	0.45
Cyprus	1	0.30	0.36	0.22	0.26	0.25	0.40	0.31	0.37	0.25
	2	0.31	0.33	0.32	0.30	0.31	0.57	0.37	0.52	0.22
Czechia	1	0.16	0.29	0.16	0.15	0.18	0.15	0.14	0.16	0.22
	2	0.22	0.34	0.14	0.32	0.37	0.23	0.39	0.47	0.48
Denmark	1	0.43	0.07	0.05	0.13	0.05	0.14	0.09	0.08	0.12
	2	0.15	0.12	0.26	0.10	0.16	0.60	0.17	0.20	0.27
Estonia	1	0.22	0.31	0.41	0.40	0.26	0.13	0.23	0.20	0.25
	2	0.24	0.42	0.32	0.25	0.28	0.32	0.35	0.23	0.36
Finland	1	0.92	0.17	0.09	0.09	0.06	0.10	0.06	0.06	0.10
	2	0.41	0.12	0.07	0.09	0.10	0.08	0.08	0.15	0.14
France	1	0.19	0.10	0.10	0.11	0.11	0.08	0.12	0.11	0.12
	2	0.16	0.24	0.13	0.16	0.20	0.23	0.39	0.22	0.21
Germany	1	0.15	0.20	0.16	0.13	0.15	0.13	0.16	0.12	0.14
	2	0.13	0.14	0.16	0.20	0.14	0.09	0.25	0.20	0.15
Hungary	1	0.28	0.62	0.41	0.42	0.41	0.43	0.40	0.43	0.42
	2	0.42	0.55	0.58	0.62	0.53	0.57	0.58	0.51	0.46
Ireland	1	0.33	0.34	0.35	0.25	0.29	0.25	0.32	0.33	0.33
	2	0.35	0.36	0.41	0.39	0.33	0.34	0.36	0.49	0.32

Italy	1	0.31	0.27	0.20	0.18	0.21	0.21	0.18	0.21	0.21
	2	0.19	0.24	0.26	0.27	0.29	0.38	0.27	0.28	0.19
Latvia	1	0.11	0.22	0.15	0.12	0.14	0.17	0.17	0.16	0.17
	2	0.26	0.26	0.30	0.17	0.28	0.26	0.35	0.40	0.37
Lithuania	1	0.15	0.48	0.18	0.16	0.11	0.21	0.12	0.12	0.23
	2	0.15	0.22	0.19	0.40	0.26	0.26	0.35	0.33	0.40
Malta	1	1.09	1.14	1.04	1.03	1.07	0.86	1.14	1.19	1.29
	2	1.14	1.12	1.01	1.10	1.28	0.86	1.27	1.10	0.95
Netherlands	1	0.38	0.20	0.12	0.08	0.09	0.15	0.06	0.10	0.08
	2	0.11	0.20	0.17	0.13	0.18	0.26	0.22	0.29	0.18
Poland	1	0.13	0.13	0.18	0.13	0.14	0.13	0.16	0.16	0.14
	2	0.20	0.24	0.30	0.24	0.21	0.30	0.36	0.36	0.25
Portugal	1	0.19	0.43	0.28	0.32	0.37	0.23	0.44	0.43	0.21
	2	0.35	0.36	0.30	0.42	0.44	0.18	0.54	0.36	0.35
Romania	1	0.39	0.44	0.40	0.36	0.44	0.46	0.38	0.43	0.33
	2	0.39	0.41	0.44	0.53	0.44	0.36	0.46	0.46	0.36
Slovenia	1	0.34	0.18	0.20	0.19	0.14	0.17	0.20	0.23	0.31
	2	0.26	0.26	0.30	0.42	0.40	0.33	0.45	0.48	0.40
Spain	1	0.31	0.31	0.22	0.22	0.27	0.28	0.29	0.31	0.26
	2	0.26	0.31	0.33	0.33	0.31	0.30	0.26	0.34	0.29
Sweden	1	0.04	0.11	0.06	0.08	0.06	0.07	0.05	0.12	0.14
	2	0.21	0.19	0.17	0.19	0.12	0.29	0.17	0.08	0.15

Notes: *The numbers 1 and 2 in the education column specify the level of secondary education and higher education, respectively.*
Components of the ISCO classification are marked with alphanumeric symbols from ISCO1 to ISCO9 as follows: ISCO1 – Managers, ISCO2 – Professionals, ISCO3 – Technicians and associate professionals, ISCO4 – Clerical support workers, ISCO5 – Service and sales workers, ISCO6 – Skilled agricultural, forestry and fishery workers, ISCO7 – Craft and related trades workers, ISCO8 – Plant and machine operators and assemblers, ISCO9 – Elementary occupations
Source: *Own elaboration from 2024.*

The analysis presented in Table 1 above showed that the components of the ISCO-08 classification for higher education were characterised by higher variation. At the same time, this does not mean that intensity of labour demand in those groups (marked with number 2 in the table) was characterised by negative traits. This is why, for each country and each of the ILD3 indicators obtained, indicators were calculated relative to a constant basis, allowing trends in the phenomenon of intensity of labour demand in individual countries to be presented as well on graphs.

Based on the obtained increases relative to a constant basis for the ILD3 indicator, trends in the individual variables of the ISCO-08 classification were calculated using

the linear regression method and, in the clear majority of countries in group 2 – higher education, intensity of labour demand for the ISCO9 – Elementary occupations component was found to have increased. One exception in this respect was Bulgaria, for which a downward trend was observed for the ISCO9 variable examined.

At the same time, it is worth noting that in many of the countries studied in group 2 (higher education), there was also an increase in other components according to the ISCO classification. Therefore, a table was created which shows changes in trends in individual variables, in which a plus (+) sign marks an upward trend, and a minus (-) trend marks a downward trend (Table 2).

Table 2. *Trends in intensity of labour demand (ILD3) for the years 2010-2023 in individual countries according to higher level of education (group 2) and the ISCO-08 classification*

	ISCO1	**ISCO2**	**ISCO3**	**ISCO4**	**ISCO5**	**ISCO6**	**ISCO7**	**ISCO8**	**ISCO9**
Austria	+	+	+	+	+	+	+	+	+
Belgium	+	+	+	+	+	+	+	+	+
Bulgaria	+	+	+	+	+	+	+	+	-
Croatia	+	+	+	+	+	+	+	+	+
Cyprus	+	+	+	+	+	+	+	+	+
Czechia	+	+	+	+	+	+	+	+	+
Denmark	+	+	-	+	+	-	+	+	+
Estonia	+	+	+	+	+	+	+	+	+
Finland	-	+	+	-	+	+	+	+	+
France	+	+	+	+	+	+	+	+	+
Germany	+	+	-	+	+	+	+	+	+
Hungary	+	+	+	+	+	+	+	+	+
Ireland	+	+	+	+	+	+	+	+	+
Italy	+	+	+	+	+	+	+	+	+
Latvia	+	+	+	+	+	+	+	+	+
Lithuania	+	+	+	+	+	+	+	+	+
Malta	+	+	+	+	+	+	+	+	+
Netherlands	-	+	+	+	+	+	+	+	+
Poland	+	+	+	+	+	+	+	+	+
Portugal	+	+	+	+	+	+	+	+	+
Romania	+	+	+	+	+	-	+	+	+
Slovenia	-	+	+	+	+	+	+	+	+
Spain	+	+	+	+	+	+	+	+	+
Sweden	+	+	+	+	+	+	+	+	+

Notes: *Upward trends are marked in green with a plus (+) sign, downward trends are marked in red with a minus (-) sign.*
Components of the ISCO classification are marked with alphanumeric symbols from ISCO1 to ISCO9 as follows: ISCO1 – Managers, ISCO2 – Professionals, ISCO3 – Technicians and associate professionals, ISCO4 – Clerical support workers, ISCO5 – Service and sales workers, ISCO6 – Skilled agricultural, forestry and fishery workers, ISCO7 – Craft and related trades workers, ISCO8 – Plant and machine operators and assemblers, ISCO9 – Elementary occupations
Source: *Own elaboration from 2024.*

A similar table showing intensity of demand was created for group 1 – secondary education. It shows trends, which were observed during the study period in that group of countries (Table 3).

Table 3. *Trends in intensity of labour demand (ILD3) for the years 2010-2023 in individual countries according to secondary level of education (group 1) and the ISCO-08 classification*

	ISCO1	ISCO2	ISCO3	ISCO4	ISCO5	ISCO6	ISCO7	ISCO8	ISCO9
Austria	-	+	-	-	+	-	-	+	-
Belgium	-	+	+	+	+	-	+	+	+
Bulgaria	-	+	-	-	+	-	-	+	-
Croatia	+	+	+	+	+	-	+	+	+
Cyprus	-	+	+	+	+	+	+	+	+
Czechia	+	+	+	+	+	+	+	+	+
Denmark	-	-	+	-	-	-	-	+	+
Estonia	+	+	+	+	+	+	+	+	+
Finland	-	+	+	-	+	-	-	+	+
France	-	+	-	-	+	+	+	+	+
Germany	-	+	+	-	-	-	-	-	-
Hungary	+	+	+	+	+	+	+	+	+
Ireland	+	+	+	+	+	+	+	+	+
Italy	-	+	-	-	+	+	+	+	+
Latvia	+	+	+	+	+	+	+	+	+
Lithuania	+	+	-	-	+	-	+	+	+
Malta	+	+	+	+	+	+	+	+	+
Netherlands	-	+	+	+	+	-	-	+	+
Poland	+	+	+	+	+	-	+	+	-
Portugal	+	+	+	+	+	+	+	+	+
Romania	+	+	-	+	+	-	+	+	+
Slovenia	-	+	-	-	+	-	+	+	+
Spain	-	+	+	+	+	+	+	+	+

Sweden	+	+	+	-	-	-	-	-	-

Notes: *Upward trends are marked in green with a plus (+) sign, downward trends are marked in red with a minus (-) sign.*
Components of the ISCO classification are marked with alphanumeric symbols from ISCO1 to ISCO9 as follows: ISCO1 – Managers, ISCO2 – Professionals, ISCO3 – Technicians and associate professionals, ISCO4 – Clerical support workers, ISCO5 – Service and sales workers, ISCO6 – Skilled agricultural, forestry and fishery workers, ISCO7 – Craft and related trades workers, ISCO8 – Plant and machine operators and assemblers, ISCO9 – Elementary occupations.
Source: *Own elaboration from 2024.*

As already shown (Table 1), countries in group 1 according to secondary level education were characterised by lower variation in intensity of labour demand for most variables of the ISCO-08 classification. However, an analysis of trends for increases in the ILD3 indicator showed that in that group downward trends were found much more frequently (observed as many as 59 times). By comparison in group 2 according to higher level of education, downward trends were observed for individual components of the ISCO-08 classification in only 9 cases.

5. Discussion

The labour market is above all shaped by processes of globalisation, which bring both benefits and threats. The modern global economy, which is characterised by the free flow of factors of production, including human capital, is having a big impact on both supply of labour and demand for it (Radulović and Kostić, 2020). The lifting of restrictions on the crossing of borders, of which is the Schengen zone is one example, has allowed the free migration of people. The unrestricted flow of human capital has an impact on the labour market both in the home country of migrants and in their destination country (Krause *et al.*, 2014).

There are many aspects to this impact, including on the rate of unemployment or the level of income. The state often uses migration policy to compensate for shortages on the labour market, which are caused by the cyclical nature of the economy or unfavourable demographic changes (Gogoi, 2023).

Both the level of education and acquired skills have an important impact on the nature of migration on the labour market. Immigration of highly qualified and highly skilled people becomes a positive aspect for the functioning of the host country's market. However, it has negative effects on the economy of the home country, leading to an outflow of highly qualified workers (Přívara *et al.*, 2023).

Demand for highly qualified labour is determined by various factors, chiefly by economic development and technological progress, and by the development of artificial intelligence in particular. As already described in the theoretical part of this article, this impact has both positive and negative effects.

However, it is worth underlining that worker with higher qualifications and involved in performing non-routine tasks are able to draw greater benefits from automation and the introduction of artificial intelligence. New tools such as Chat GPT are providing the opportunity to improve productivity and efficiency in selected positions (Pater *et al.*, 2024).

From OECD reports (OECD, 2023) concerning education, it can be concluded that demand for labour of people with higher education remains strong. The relationship can thus be seen between the level of education and participation in the labour market.

These conclusions result above all from an analysis of rates of employment, unemployment and economic inactivity. Each of the aforementioned rates show people with higher education to be in a better position on the market. It is worth emphasising that the impact of level of education on labour demand will differ between specific occupations. Applying knowledge acquired during years of study will be of key significance in occupations in the fields of medicine or engineering, for example. However, in the case of many jobs, this relationship will be an indirect one (Lauder and Mayhew, 2020).

On the one hand, demand for highly educated workers thus remains strong, yet, on the other hand, there is often a mismatch on the labour market between demand for specific skills and their supply. Certain people enrol in higher education for studies in areas for which there is little market demand. This may result in difficulties finding work and lead to them taking jobs requiring lower qualifications.

Moreover, apart from the type of education completed, the quality of the qualification obtained is also importance on the labour market. This is often tied to the university or institution of higher education from which the degree is obtained (Biagi et al., 2020). It is also worth adding that some employers draw attention to the unsatisfactory skills acquired by graduates during the study cycle.

There is thus a further problem of the education system not being adapted to market expectations. There are increasingly clear mismatches between qualifications acquired and those expected by future employers leading to a situation where it is difficult for highly educated people to find work (Ghodsi, 2024).

6. Conclusions

Modern economies are undergoing constant transformation, resulting in changes on labour markets. This is reflected above all in the structure of labour demand and supply. The formulated indicator of Intensity of Labour Demand (ILD) made it possible to analyse changes in demand for labour depending on level of education (ISCED) and taking the classification of occupations (ISCO-08) into account.

Accomplishing this main goal in turn made it possible to characterise the main market trends based on an analysis of data from 24 countries of the European Union. Components of the ISCO-08 classification for higher education were characterised by higher variation. There was found to be an upward trend in intensity of labour demand in the group of people with higher education.

The strongest trend was visible in occupations such as: ISCO2 – Professionals, ISCO5 – Service and Sales Workers, ISCO7 – Craft and Related Trades Workers, and ISCO8 – Plant and Machine Operators, and Assemblers. In this group of occupations, the upward trend was visible in each of the 24 economies studied. In addition to this, in occupations not requiring a high level of qualifications (ISCO9 – Elementary Occupations), it can be noted there was also an increase in labour demand for people with higher education.

The results obtained support the finding that labour market for people who have completed higher education was characterised by greater intensity of labour demand independently of the level on the ISCO-08 classification of occupations. People with secondary education were more susceptible to negative fluctuations in the labour market. There was more frequently a downward trend in intensity of labour demand in this group. In 59 out of 216 cases, demand for labour among this group of people was on the decrease.

Moreover, downward trends and cases in which no clear direction of trend was observed accounted for around 27% of trends identified in the group. By comparison, for the group of people with higher education, negative trends accounted for only 4% of the trends identified for that population. Acquired skills and ease of adaptation to the changing market situation and nature of the work performed make it easier for people with higher education to find employment.

At the same time, employing such people makes a company's production processes more efficient. The results obtained provide grounds to reject the adopted hypothesis that the changes that have occurred on the labour market in recent years are reducing demand from businesses for employees with higher education. As can be seen from the results, downward trends in intensity of labour demand were only observed in 4% of cases in that group of people, with all other cases being characterised by an increase in demand for the labour of those people.

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