

EMPLOYABILITY OF UNIVERSITY GRADUATES IN EUROPE AND THE CZECH REPUBLIC

Hana Trávníčková

Abstract

University graduation and better job prospects are still considered one of the main motives for attending university. College graduates usually have more demanding jobs or higher social prestige than their non-graduate counterparts. This article focuses on the development of university graduates in selected European countries in time, in a context of competency utilisation and unemployment of tertiary-educated young individuals of the selected countries. Using secondary data analysis from CEDEFOP and EUROSTAT, findings represent the latest data outcome in Europe, focusing on the Czech Republic as a leader in skill matching according to the European skill index. Unemployment of young university graduates between 2002 and 2023 indicates its trend in the European Union (EU) and in selected countries and detects some research gaps. The findings are complemented by a pilot survey among university students, which investigated statistical-based relationships connected to tertiary educated individuals in the Czech Republic. The paper is part of the author's research activities and presents further possible research directions.

Key words: high institution, labour market, competency, skill matching

JEL Code: M51, J64, I23

Introduction

The changes triggered by artificial intelligence, robotics and automation are reflected in companies' requirements for new employees (European Centre for the Development of Vocational Training, 2024; Murrar et al., 2022) and require new employees' skills (Schultheiss et al., 2023). Universities also adapt to this trend to increase the employability and competencies of their graduates (Coffey et al., 2021).

On the other hand, any university diploma do not guarantee employment of graduates. To increase their chance of getting a job, young people need to obtain work experience, and gain other professional certifications or otherwise develop their skills in line with labour market demands (Murrar et al., 2022). However, the learning experience of university students is also

important and significantly influences gaining employment (Zhao et al., 2023). The quality of university teaching often positively influences interest in pursuing a university degree (Fini et al., 2018). Utilising graduates' skills, and knowledge positively influences better graduate employability (Schultheiss et al., 2023).

1 University graduate profile in Europe related to their unemployment

A study of 165 university students in a German university investigated graduates' actual job preferences. Pay level, location, and attractiveness of the job task were important to university-educated applicants. The respondents also mentioned other aspects, such as the company's corporate responsibility, which could influence graduates' job acceptance (Hoppe et al., 2022).

Firstly, it is necessary to understand the development of the share of tertiary graduates in Europe over time or the skill matching in European countries. Another data analysis provides an overview of graduates' chances of finding work after successfully completing their tertiary studies, which is illustrated by the unemployment rate of young tertiary graduates between the ages of 25 and 34.

Based on a literature review of the latest Web of Science articles, and secondary and primary data analysis, this article brings an introduction to the present employability of European university graduates with main research questions:

- What share of university graduates is in selected European countries?
- What skill matching is indicated in these countries?
- What unemployment is developed in the EU and selected European countries over time?
- Is there any statistically relationships between different reasons why study at university?

Next subchapters represents some answers to these research questions followed by discussion.

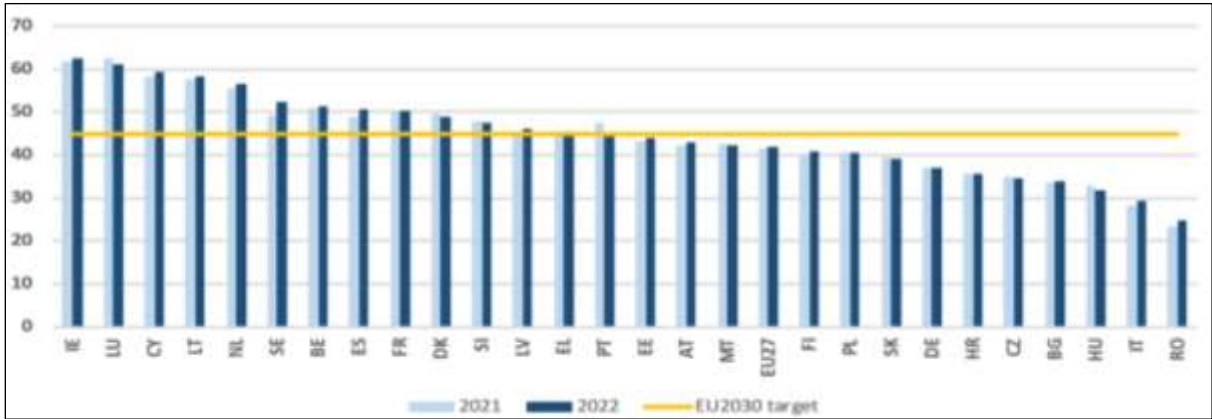
1.1 Share of tertiary graduates in the European Union

Tertiary (also university) *graduates* are those who completed tertiary education that belongs to levels 5 to 8 of the International Standard Classification of Education (ISCED) include Level 5 for Short-cycle tertiary education, Level 6 for Bachelor or equivalent level, Level 7 for Master or equivalent level, Level 8 for Doctor or equivalent level (Eurostat, 2024a).

According to the Council Resolution on The European Education Area (2023), one of the priorities of the EU is to increase the share of tertiary graduates in line with requirements of the EU's labour market. The EU's original target of at least 40 % of 25-34-year-olds with a tertiary formal education was exceeded in 2020 to 45 % by 2030 (CEDEFOP, 2024b).

Figure 1 shows that some countries have already exceeded the 45 % target in 2022, such as Ireland, Luxemburg, Cyprus, Lithuania and Netherlands. On the other hand, Romania, Italy, Hungary, Bulgaria or the Czech Republic (Czechia) were under the EU target of 45 % in 2022.

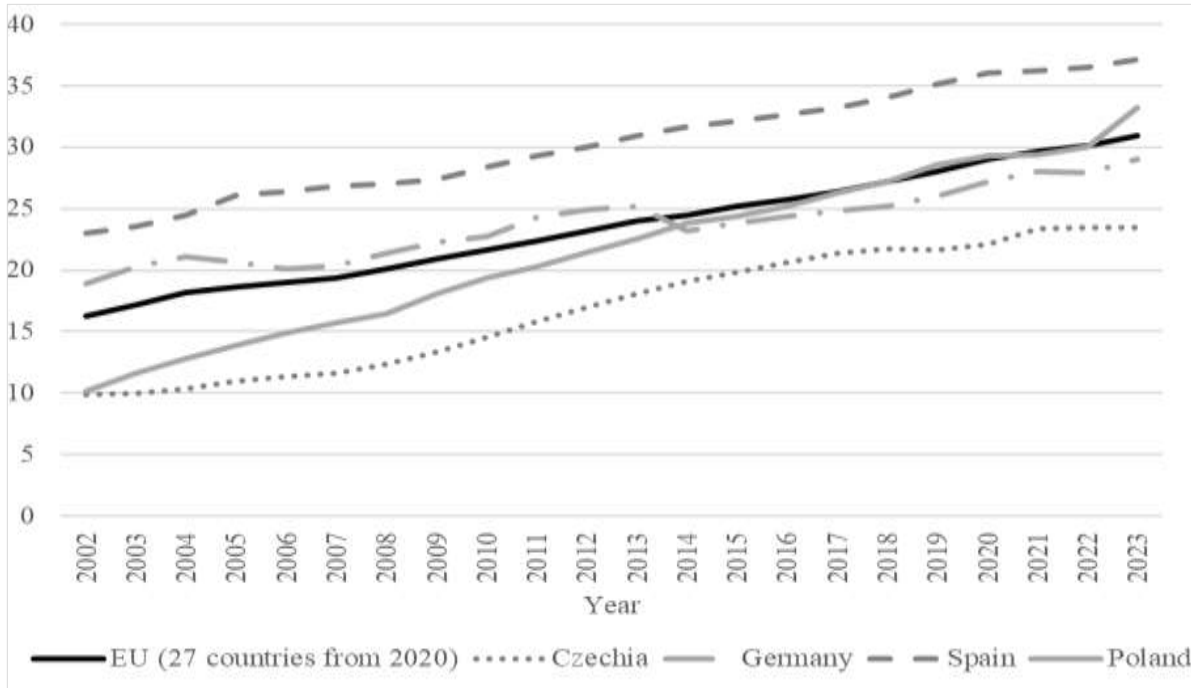
Fig. 1: Share of 25–34-year-olds graduated from tertiary level education (ISCED 5-8), between 2021 and 2022, related to EU target in 2030, in %



Source: CEDEFOP (2024b)

As Figure 2 shows, the number of tertiary graduates in the EU has averagely increased over time (Eurostat, 2024). However, this trend is not the same in all European countries.

Fig. 2: Share of population with successfully complemented tertiary education to all population 15 to 64 years old in selected countries, between 2002 to 2023, in %



Source: own processing based on Eurostat (2024)

As Figure 2 illustrates, the increase in the proportion of graduates in Czechia from 2017 is rather minimal, accounting for 23.5% of the country's total population aged 15 to 65 in 2023, the same as in 2022. In contrast, the average of the 27 EU countries (EU average) is 30.9% in 2023, with an increase of 0.8% compared to 2022 with a relatively symmetrical increase over 20 years. For example, in Germany, the proportion of successful tertiary graduates was 29% in 2023, with an increase of 1.1% compared to 2022. However, looking at the long-term trend, it is also evident that in some years the number of tertiary graduates in Germany declined. Contrary, Poland had in 2023 the EU-largest increase compared to 2022 with 3.2%. Spain that long-termly struggles with a relatively high unemployment rate of graduates (Eurostat, 2024b), shows an increase of 0.6% compared to 2022 and is above the EU average for a long time.

However, it is important to examine how gained skills are utilised in selected countries and how they are applied in practice, as next subchapter analyses.

1.2 Utilisation of skills in Europe

The European Skills Index (ESI), measured by Cedefop, shows how skills are used in practice in the EU member states (European Centre for the Development of Vocational Training, 2024). In the case of tertiary education, the ESI illustrates, for example, overqualification, proportion of low-wage workers with completed tertiary qualifications, or the mismatch between the job and the qualification obtained. These parameters are tracked under the Skill matching category of ESI, shown in Figure 3 for European countries in 2024.

Fig. 3: Skill matching in Europe on a scale of 0 to 100, where 100 is the maximum, in 2024



Source: CEDEFOP (2024a)

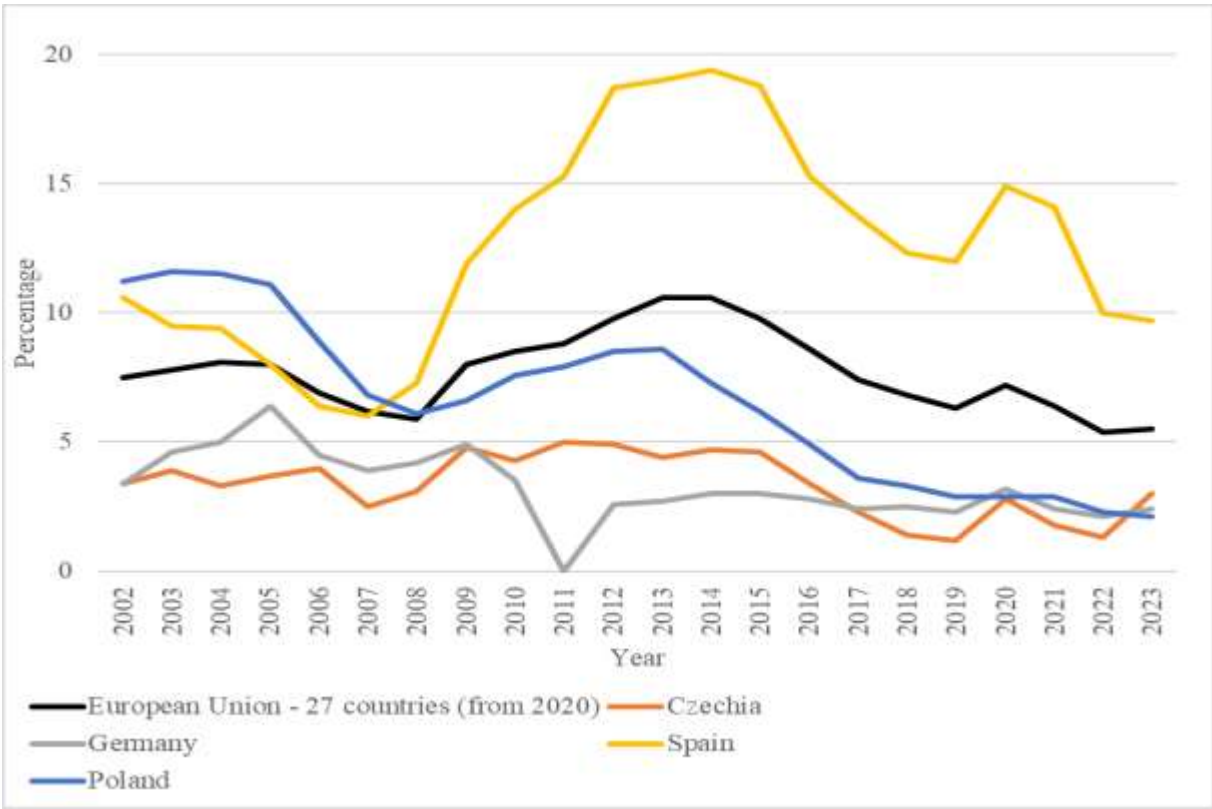
Skills matching represents the degree of successful utilisation of skills and the extent to which skills are effectively matched in the country’s labour market. Within the Skill Matching category of ESI, the Czech Republic performs best among the countries surveyed in 2024 (CEDEFOP, 2024a), also Hungary, Poland, Malta, and Romania demonstrated strong skills matching based on ESI in 2024. In contrast, Spain, Greece, the UK, Cyprus, Italy, and Ireland

ranked the lowest regarding skills matching. However, it's important to consider the unemployment rate of tertiary graduates, as discussed in the next section.

1.3 Unemployment Rate of University Graduates in Europe

The European Statistical Office (Eurostat) has long tracked various parameters related to formal education graduates. Figure 4 shows a basic overview of unemployment among tertiary graduates in the European Union and selected European countries.

Fig. 4: Unemployment of tertiary graduates in the EU and selected countries, between 2002 and 2023, in %



Source: own processing based on EUROSTAT (2024)

Figure 4 represents the turbulence of each selected country. The Czech Republic has the highest Skill Matching in ESI, but tertiary graduates' unemployment increased in 2023. However, the COVID-19 pandemic negatively affected most of the selected countries between 2019 and 2020; Poland succeeded in reducing the unemployment rate in the long term.

2 Pilot survey among tertiary undergraduates in the Czech Republic 2024

In 2024, the second-year full-time students at the Faculty of Economics, Technical University of Liberec, Czech Republic, discussed the main reasons why they wanted to complete a formal tertiary education. The three most cited reasons were that gaining additional competencies, social prestige, or a better job by studying at the university.

During a pilot survey using the CAWI method, 84 respondents anonymously answered these three main reasons on a Likert scale from one to five, where one means strongly agree and five means strongly disagree. The data obtained was first checked for response variability and missing responses and then checked to see if they really matched the question statement.

As part of the data cleaning, one correction was made to the age where the respondent inserted a letter to the numbers. Afterwards, the statistical software IBM SPSS process the data. The mean age of the respondents was 22.33 years, with a standard deviation of 1.563, skewness of 3.29991 and kurtosis of 7.187. Spearman's Rho coefficient for non-parametric tests was used to find a statistically significant relationship between the variables at a 5% significance level. The advantage of Spearman's Rho coefficient is that it is not for the normal distribution of data or is not affected by the linearity of the relationship between the two variables (Rabušic et al., 2019). Table 1 summarises the values obtained by IBM SPSS software.

Tab. 1: Correlation of the responses about the reasons for studying at university

			Competencies	Social prestige	Better job
Spearman's rho	Competencies	Correlation Coefficient	1,000	,428**	,210
		Sig. (2-tailed)	.	<,001	,056
		N	84	84	84
	Social prestige	Correlation Coefficient	,428**	1,000	,255*
		Sig. (2-tailed)	<,001	.	,019
		N	84	84	84
	Better job	Correlation Coefficient	,210	,255*	1,000
		Sig. (2-tailed)	,056	,019	.
		N	84	84	84

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Source: own pilot questionnaire, processed by IBM SPSS

The following hypotheses were stated with results:

- (a) H0: "I will gain competencies by studying at university" and "I will gain more social prestige by graduation" have no statistically dependent relationship. H1: non H0
Correlation coefficient: 0.428, P Sig. (2-tailed) is less than 1% significance level
H0: not rejected

- (b) H0: "I will get a better job after graduation at university" and "I will get more social prestige by graduation" have no statistically dependent relationship. H1: non H0
Correlation coefficient: 0.255, Sig. (2-tailed) is less than 5% significance level
H0: not rejected
- (c) H0: "I will gain competencies by studying at university" and "I will get a better job after graduation at university" have no statistically dependent relationship. H1: non H0
Correlation coefficient: 0.21, Sig. (2-tailed) is greater than the significance level of 5%
H0: rejected

Based on the above findings, it can be assumed that in this pilot study, a statistically significant relationship can be assumed at the 5% significance level between the statement "I will gain competencies by studying at university" and "I will get a better job after graduation at university." However, the findings should be taken as indicative within the pilot survey and should be further investigated.

3 Results

This article relates to university graduates development in Europe and some selected EU countries connected with their employability. The author combines findings about young tertiary graduate unemployment, share of university graduates in the EU and selected countries and their skill matching in the index ESI complemented by author's pilot survey findings.

The results are influenced by several limitations: Results are based on several scientific articles from the Web of Science database, two datasets of the Eurostat and Cedefop, which covers most European countries, and a small pilot survey limited to one group of graduates at one university. Figure 2 shows that although the share of tertiary graduates has been averagely increasing in Europe, the unemployment of tertiary graduated varies across European countries presented in Figure 3. According to EU target by 2030 there should be 45% of 25-34-years olds with successfully completed tertiary education in Europe.

As mentioned in the literature, universities should increase the competencies of graduates (Coffey et al., 2021), which is also supported by the Council Resolution on The European Education Area (2023). The utilisation of competencies related mainly to tertiary education in a given country is tracked by the Skill matching in ESI, where Czechia is the top ranked country in 2024, contrary to Spain with the lowest Skill matching in 2024.

However, if the trend of unemployment is analysed there are quite different outcomes. Graduate unemployment in Czechia increased by 3 % in 2023, so it is on similar level as in

2020 which was negatively affected by Covid pandemic, contrary to Spain unemployment decrease by one third from 2020.

Moreover, the share of tertiary young graduates in Czechia or in Germany almost stagnated in last years despite of relatively low long-term graduate unemployment that is more than 20 years below EU average, contrary to Spain or Poland. Poland with a high Skill Matching index, reports an increase in young graduate share and a decrease in their unemployment in the last year (CEDEFOP, 2024a).

The mentioned data findings was complemented by an author's pilot survey among Czech university students. Its results indicated that there was a statistically significant relationship between gaining more competencies and getting better employment at a significant level of 5 %. These findings could be aligned with the long-term trend of the low unemployment of university graduates or with the high utilisation of skills in Czechia.

However, the results are limited and need definitely be further explored and the author will further specify the research gaps in doctoral studies.

Conclusion

The employability of university graduates in an era of technological changes is an important area in the EU (Council Resolution on The European Education Area, 2023). The EU aims to achieve a 45% share of young tertiary graduates by 2030. Almost half of the EU countries have already exceeded this target by 2022.

However, each European country shows a different trend, which is monitored by CEDEFOP and Eurostat. The Czech Republic, for example, indexes the best use of skills in Europe in the ESI. On the other hand, the share of Czech tertiary graduates has almost stagnated in recent years, despite the low unemployment of graduates in the Czech Republic. Moreover, the unemployment of young Czech graduates has increased in recent years, which may have negatively affected their employability. The findings open new research gaps about reasons and improving of present and future employability tertiary graduates in Europe, especially in the Czech Republic.

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Contact

Hana Trávníčková

Technical University of Liberec

Studentská 1402/2, 461 17 Liberec

hana.travnickova@tul.cz