Job Insecurity Across Various Occupation in Czech Republic

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Abstract

Job security for most working population is crucial in ensuring living standards. The main goal of this article is to find out, based on the analysis of employment, unemployment, vacancies, and wages in various job categories in the Czech Republic between 2015 and 2022, which job groups are most prone to job insecurity and job loss. Data from the Information System on Average Earnings (ISPV) and MLSA portal were used to analyse the structure of job seekers and job vacancies and to establish employment and wages. Data were processed using descriptive statistical methods. An evaluation of the variance was performed among the selected variables. A t-test was used to measure differences in job security between the observed employment categories. The results show that higher-skilled worker requirements characterize the best job classes regarding job security and wages. On the other hand, the unstable job categories with high unemployment rates and low wage rates were support and unqualified jobs and service and sales jobs. A final important finding is that firms are creating jobs with low educational requirements, which may indicate stagnation in future job innovation.

Introduction

Job security is gaining importance in the current pandemic situation. Reuters (2022) mentions the difficulty in returning to the pre-COVID-19 starting position, where jobs are falling globally. The Institute for the Future of Work (IFOW, 2020) points to the economic consequences of a pandemic. Instability has mainly affected the lower one-fifth of employees most prone to job loss. IFOW also points to a reduction in job security, which stems from the atypical working arrangements that exist in the market and do not guarantee the number of hours worked or the level of earnings that would ensure the necessary income of employees. The theoretical construct of job quality (Bonneuil, 2017) goes hand in hand with precarious employment. It is mostly examined mainly from the point of view of the difference in impacts on individual groups according to gender and age.

Most of the current workforce competes for stable and quality employment, but some groups are less likely to reach such a position. The employment problem also occurs among young workers (Yeung, 2020) who move from school to work. This is a reality mainly due to structural changes in supply and demand in the labour market, where job seekers must have a certain level of practical and theoretical knowledge. However, the problem of job instability may also be related to changes in workforce relocation. The 2020 Report (MPSV, 2021) states that the number of employees in the primary sector has declined and reached 2.6% of total employment. Employment in the secondary sector also declined, and the decline was due to the abandonment of more workers from industry, where the manufacturing industry was specifically affected. Other industries have experienced similar growth as in the construction sector. The COVID-19 pandemic hit workers in the tertiary sector the most, with the highest declines in employment in the "transport and storage" and "accommodation, catering, and hospitality" sectors, followed by

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other sectors "wholesale and retail," "motor vehicle repairs" and "cultural, entertainment and recreation activities."

While most studies focus on the issue of obtaining safe employment for vulnerable groups in the labour market, this paper focuses on the qualification requirements of the demand side of the labour market and its mismatch with the labour supply side. Differences in unemployment within individual job categories are examined according to the CZ-ISCO classification and further analyses differences in job vacancies, wages, and employment in the CZ-ISCO categories.

The article is structured into five chapters. The first chapter is an introduction to the current state of the labour market in the Czech Republic in terms of job security, the second chapter presents the theoretical basis for the labour market issues, the third chapter describes the methodological procedure for dealing with the obtained data, the fourth chapter contains the results of statistical data processing, and the fifth chapter contains comments on the obtained results. The overall summary of the paper is presented in the conclusion of the paper.

Literature Review

The labour market is the place where employers and employees meet and through which people are placed in certain jobs, businesses, sectors, or regions. (Václavíková, Kolibová, Kubicová, 2009, p.23) The same regularities apply to equilibrium and disequilibrium states in the labor market as in all other markets. When analysing the labour market, we need to consider a specific characteristic that distinguishes it from other markets: the object of exchange is embodied in the human being (Kaufman at Hotchkiss, 2000). According to Vlček (2016, p.555), the labour market is asymmetric, unlike other markets, because persons offering labour as a factor of production have less choice than firms demanding labour.

The topic of quality employment has already been addressed in several studies, which focused on enriching the literature on the characteristics of quality employment and the effects of underemployment on employees and the company. Most of the literature has focused on vulnerable labour market groups that do not have access to quality employment. Still, it remains unclear how job categories and characteristics affect job instability and possible job losses.

Stability of Work: A Review of the Evidence

A shortage of productive jobs challenges Europe, and market segmentation continues to grow. Job shortages have created open unemployment in Europe's transition economies. European countries in transition economies are characterized by social support from the state. Therefore, unlike in the Commonwealth of Independent States, employees here are not inclined to stay employed. The transformation of the economy in the form of large-scale structural changes causes considerable pressure on workers, their incomes, and labor markets (Bah & Brada, 2014).

However, it has been shown that jobs that workers hold only because of adverse social conditions are often characterized by low productivity, obsolete, and occur in the informal sector. The high employment ratio in low-productivity jobs does not represent a favorable labor market performance. Instead, it is a delayed restructuring of enterprises, long-term unsustainable jobs in firms that are not competitive, and the development of the informal sector (Rutkowski, 2006). The results in terms of employment or eventual unemployment are sometimes unambiguous. At some stage in their development, employers in a transition economy have to reduce employment by laying off excess labor in the short term and increase productivity by taking this measure. Short-term reductions in the employment of the redundancy workforce are desirable, but layoffs associated with cyclical factories then need to introduce countercyclical monetary and fiscal policies. For European countries in the process of labor market transition, there has been a shift of workers between sectors and firms and a labor market configuration where high employment and low wages have shifted to lower employment. Still, at the same time, labor productivity and wages have increased (Bah & Brada, 2014). The case of Hungary, in its transition from socialism to a market economy, also shows job destruction on a large scale. It can be seen that despite investments coming into the country from abroad, only the skilled workforce is experiencing positive effects. On the contrary, workers with lower skills suffer long-term unemployment (Vusal, 2022).

According to (Arranz et al., 2019), there is growing pressure for higher skill levels in Europe, which may threaten job creation for young, inexperienced workers. Lower-skilled workers are associated with low-paid and less secure jobs (Maurin & Postel-Vinay, 2005). Moreover, the COVID-19 pandemic has negatively affected vulnerable groups regarding job insecurity (Stantcheva, 2022).

The sharp increase in the wage gap, a rise in low-wage jobs, the growing polarization of working conditions within regional labor markets, and the growth of the informal sector are all aspects that promote labor market segmentation in transition economies (Rutkowski, 2006). Although there are claims that wage inequalities are the primary source of inequality among workers, a study (Maurin & Postel-Vinay, 2005) shows that inequality varies across EU countries. For example, a country's institutional arrangements may put young workers at risk, as there is a tendency in these countries to favor the quality of work of older workers over that of younger workers (Arranz et al., 2019). On the other hand, a study (Scicchitano et al., 2020) mentions the importance of targeting social

policies for at-risk workers. The authors stress the need for a well-connected labor market and educational institutions. Another critical aspect that has a negative impact on groups at risk is the current pandemic. The pandemic has caused many professions to switch to working from home, but this has only been the case in some sectors and regions.

In some cases, the pandemic negatively affected women who performed unpaid work at home due to the loss of paid hours (Stantcheva, 2022). Another study (Cetrulo et al., 2022) points to a non-negligible part of the labor market that, by its nature, does not meet the requirements of working from home and prevents workers from securing a working income. Moreover, job insecurity has also manifested in some countries due to legal loopholes that do not guarantee social protection in job retention.

Fields (2009) argues that labor market models which present the labor market as undifferentiated do not reflect reality and suggest that jobs differ in quality and are thus divided into so-called segments or sectors. Pailhé (2003), the study of labor market transformation in Central European countries, argues that segmentation was triggered by the growth of a small but dynamic private sector, creating new internal labor markets that increased the risk of less skilled workers in their existing jobs and facing new uncertainties. More recent literature on the transformation of labor markets in post-socialist countries in Central Europe shows that market segmentation leads to the emergence of in-work poverty, particularly in large urban labor markets, and that the secondary market is characterized by marginal and precarious work (Smith et al., 2008). Segmentation is a determinant of the growth of labor market insecurity (Pailhé, 2003). There are preconditions for the emergence of labor market segments, which are related to the required qualifications of individuals and the limited supply of attractive jobs (Fields, 2009).

The current literature deals with the issue of quality employment, and researchers are looking for characteristics of good work. Few studies have explored the issue of quality of work, where one aspect was the stability of work, which offers employees more secure prospects for the future. Some studies measured job instability by type of contract, specifically indefinite-term contract (Castro Núñez, 2020), or focused on the temporary hiring of agency workers (Hirsch, 2016). Early works in this area focused primarily on differences in education and pointed to lower unemployment and lower employment volatility among more educated workers (Cairó, 2018). Employment stability has also been examined in people with disabilities, where other low-skilled problems also enter and consequently reduce the likelihood of obtaining longer-term employment contracts (Castro Núñez, 2020). The mismatch between employers' demand, labour supply, and asymmetric information also contributes to inefficient labour market functioning (Dohnalová, 2016)

The Problem of Equilibrium in the Czech Labour Market

The problem of the Czech labour market is the difference between the supply and demand in the labour market. The supply side consists mainly of human capital, which has a higher education and expects a higher income from work. However, employers want to hire less qualified people due to the persistence of the traditional type of production and because new digital devices and technologies are not included in production. Although investments in new technologies from more advanced economies could help strengthen the company's competitiveness, Czech companies still prefer traditional proven practices, and there is no effort to accelerate investment (Mikeska, 2020). There are conflicting requirements for job seekers. Employers want to employ capable workers and prefer to focus on recruiting experienced workers with established procedures. The study (Šafránková, 2019) states that there are conflicting requirements from employers who would like to attract qualified and motivated people and consider them to be the most important resource and wealth of the organization. The problem manifests itself, especially in recruiting university graduates, where the employer does not find an intersection between the professional quality of the student, his experience, social behaviour, professional motivation, and the requirements of the job offered. Employers are often motivated to hire experienced skilled workers rather than university graduates.

Methods

Research Objective

This study's main aim is to determine which groups within the CZ-ISCO classification are most susceptible to job insecurity and loss. To ensure the goal, it is necessary to reveal differences in wages, employment, number of unemployed people, and vacancies based on CZ-ISCO categories. We focus mainly on job characteristics and requirements derived from the CZ-ISCO category.

The following research questions have been developed to meet the aim of this paper:

RQ1: Is there a difference in the share of employment representation according to the CZ-ISCO category on the Czech labour market?

RQ2: Is there a difference in the share of unemployed across the CZ-ISCO categories in the Czech labour market?

RQ3: Is there a difference in the share of vacancies across the CZ-ISCO categories in the Czech labour market?

RQ4: Are there differences in wages between the CZ-ISCO categories in the Czech labour market?

The following hypotheses were established to find solutions to the research questions:

H1: The distribution of MEDWAGE PUB is the same across categories of CZ-ISCO

H2: The distribution of MEDWAGE PVT is the same across categories of CZ-ISCO

H3: The distribution of TOT. N is the same across categories of CZ-ISCO

H4: The distribution of TOT N. W. is the same across the categories of CZ-ISCO

H5: The distribution of TOT N.M. is the same across categories of CZ- ISCO

H6: The distribution of EMPVAC is the same across categories of CZ-ISCO

H7: The distribution of PVT sec is the same across categories of ISCO

H8: The distribution of PUB SEC is the same across categories of ISCO

Data

To analyze the researched problem, we exploit secondary data on the structure of job seekers from the Ministry of Labour and Social Affairs portal (2022) from 2015 to 2022 (n=7). In addition, we use data from the Average Earnings Information System (2021), where we have information on wages in the private and public sectors across the Czech International Standard Classification of Occupations (CZ-ISCO) (n=9) groups for 2015 to 2022. These were the years when most European countries achieved economic growth until the onset of the Covid -19 pandemic, which significantly affected the economic growth of all countries. The development of unemployed job seekers is monitored based on the CZ-ISCO classification, which classifies individual jobs according to the similarity of workers' qualifications, based on which they perform their tasks and duties in employment. The classification has been used since 2011 by the Czech Statistical Office to monitor employment groups and has been established following the International Standard ISCO-08. The classification does not focus on workers but on the qualifications required to perform the tasks, ranging from the most demanding occupations (class 1) to the least complex occupations (class 9). Individual classes represent specific categories of job positions; the representation is as follows 1; Legislators and Executives, 2; Specialists, 3; Technical and professional staff 4; Officials, 5; Service and sales workers, 6; Skilled workers in agriculture, forestry, and fishing, 7; Craftsmen and Repairers, 8; Machinery and equipment operators, fitters, and 9; Auxiliary and unqualified workers. There is also category 0, staff in the armed forces, but it is not relevant for this study.

Table 1. Classification CZ-ISCO groups Source: adapted according to esfcr 2018.

CZ-ISCO category	Education				The main scope of work
	Tertiary	Secondary	Primary	Non	
Class 1					Non-manual
Class 2					Non-manual
Class 3					Non-manual
Class 4,5,					Non-manual
Class 5,6,7,8					Manual
Class 9					Manual

To identify unstable occupations that may be risky concerning unemployment, we focus on the structure of job seekers from 2015 to January 1, 2022.

Act No. 435/2004 Coll defines a job seeker., On employment, as amended, includes all persons who apply to the Labour Office of the Czech Republic for inclusion in the job seekers register after meeting the legal conditions. For this work, it is essential that the job seeker cannot be in an employment relationship, run a business, be a student, and must be eligible for work. The job seeker has the right to job placement and increased mediation care if he/she needs it, unemployment benefits, and occupational rehabilitation if he/she has a disability.

The data were processed using descriptive statistical methods. An independent sample T-test was conducted to study and gauge any disparity among the different ISCO categories. A variance assessment was conducted among the chosen variables to comprehend the net changes in patterns across the 9 ISCO categories based on 8 years.

Results

The result of using the Kruskal-Wallis's test method to verify the hypotheses is shown in Table 2. Since ISCO categories are expressed as nominal values (class 1 through class 9), the issue of non-normal distribution did not emerge. The non-parametric examination of the different variables used were a. median wage of public and private sector workers, b. the total number of registered individuals across each ISCO category, c. the total number of

women in the categories, d. total number of men in the categories e. total empty vacancies and, f. total number of workers in the private and public sector

Table 2. Independent sample t-test.

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of MEDWAGE PUB is the same across categories of CZ-ISCO	Independent Samples Kruskal- Wallis Test	.000	Reject the null hypothesis
2	The distribution of MEDWAGE PVT is the same across categories of CZ-ISCO	Independent Samples Kruskal- Wallis Test	.000	Reject the null hypothesis
3	The distribution of TOT. N is the same across categories of CZ-ISCO	Independent Samples Kruskal- Wallis Test	.000	Reject the null hypothesis
4	The distribution of TOT N. W. is the same across categories of CZ-ISCO	Independent Samples Kruskal- Wallis Test	.000	Reject the null hypothesis
5	The distribution of TOT N.M. is the same across categories of CZ- ISCO	Independent Samples Kruskal- Wallis Test	.000	Reject the null hypothesis
6	The distribution of EMPVAC is the same across categories of CZ-ISCO	Independent Samples Kruskal- Wallis Test	.000	Reject the null hypothesis
7	The distribution of PVT sec is the same across categories of ISCO	Independent Samples Kruskal- Wallis Test	.000	Reject the null hypothesis
8	The distribution of PUB SEC is the same across categories of ISCO	Independent Samples Kruskal- Wallis Test	.000	Reject the null hypothesis

Source: Author's Processing from SPSS ver. 25

The results shown in the table show that the variables set in the individual hypotheses have significantly different mean distributions. This is a positive signal to further test the dataset.

Among the variables given below in table 3, the unit of analyses for this study that were retained are median wages for the public and private sector (MEDWAGE PUB and MEDWAGE PVT), total registered individuals (TOT. N), total registered women (TOT.N. W) and total empty vacancies (EMPVAC).

Table 3. Descriptive Statistics.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
TOT. N	72	2992.0	146664.0	37142.819	32907.5305	1.276	1.357
TOT N.M	72	1392.0	78003.0	18858.278	17722.9729	1.397	1.736
EMPVAC	72	475.0	118820.0	26168.986	31161.9536	1.600	1.591
EMPVAC	72	.59	34.62	11.0943	9.92299	.709	-.683
PVT SEC	63	3018.0	641077.0	291141.762	208687.4028	.229	-1.222
MEDWAGE PVT	63	14493.0	69240.0	30488.349	12642.9013	1.328	1.335
PUB SEC	63	1580.0	213863.0	68356.714	72756.7767	.953	-.699
MEDWAGE PUB	63	12636.0	64175.0	30333.286	11106.1363	1.163	1.554
Valid N (listwise)	63						

Source: Author's processing from SPSS

Table 3 provides descriptive statistics. In Table 3, the nonnormality of the data is not an issue, and the levels of kurtosis and skewness are not at extremes to raise any corrective concern.

Variance range among median gross monthly salary in public and private sector

Figure 1 (for the public sector and b for the private sector) shows that large variances exist across the nine ISCO categories with the median gross monthly salary in the public and private sectors, respectively. The most prominent variance can be observed between the median wages in the categories Class 9 CZ-ISCO and Class 1 CZ-ISCO. Class 6 CZ-ISCO category too experiences a high variance between the median wages of public and private sector employees.

Descriptive Statistics

	Median gross monthly Salary public sector								
	TYP1 CZ-ISCO	TYP2 CZ-ISCO	TYP3 CZ-ISCO	TYP4 CZ-ISCO	TYP5 CZ-ISCO	TYP6 CZ-ISCO	TYP7 CZ-ISCO	TYP8 CZ-ISCO	TYP9 CZ-ISCO
Valid	7	7	7	7	7	7	7	7	7
Missing	1	1	1	1	1	1	1	1	1
Mean	53365.143	36041.714	35170.143	29177.286	25975.286	23167.714	25451.143	27911.286	16739.857
Std. Deviation	8753.385	6394.939	5604.188	4065.991	5774.412	3807.591	3627.635	4300.749	3403.768
Variance	7.662e +7	4.090e +7	3.141e +7	1.653e +7	3.334e +7	1.450e +7	1.316e +7	1.850e +7	1.159e +7

(a)

Descriptive Statistics

	Median of gross monthly wages private sector								
	TYP1 CZ-ISCO	TYP2 CZ-ISCO	TYP3 CZ-ISCO	TYP4 CZ-ISCO	TYP5 CZ-ISCO	TYP6 CZ-ISCO	TYP7 CZ-ISCO	TYP8 CZ-ISCO	TYP9 CZ-ISCO
Valid	7	7	7	7	7	7	7	7	7
Missing	1	1	1	1	1	1	1	1	1
Mean	55932.714	44878.286	33049.143	25188.857	19540.571	23145.143	27596.714	26622.571	18441.143
Std. Deviation	10149.238	5991.128	4158.497	2985.087	3671.027	2934.087	3532.535	3256.036	2206.834
Variance	1.030e +8	3.589e +7	1.729e +7	8.911e +6	1.348e +7	8.609e +6	1.248e +7	1.060e +7	4.870e +6

(b)

Fig 1. Inter-Variable Variance Assessment of median salary
Source: own processing from JASP 0.012

Variance range among the total number of unemployed job seekers

Figure 2 displays the variance range among the total number of individuals registered (TOT. N). The highest observed variance exists in Class 9 CZ-ISCO, which may imply the seasonality effect on the particular CZ-ISCO category. This means that no geometric and arithmetic changes can be observed in the structure of unemployment in the country.

According to the report with the variance variables of total unemployment (Figure 2), it was possible to determine that total unemployment remains smooth concerning each ISCO-CZ category. This means that no geometric and arithmetic changes can be observed in the structure of unemployment in the country.

Descriptive Statistics

	TOT. N								
	TYP1 CZ-ISCO	TYP2 CZ-ISCO	TYP3 CZ-ISCO	TYP4 CZ-ISCO	TYP5 CZ-ISCO	TYP6 CZ-ISCO	TYP7 CZ-ISCO	TYP8 CZ-ISCO	TYP9 CZ-ISCO
Valid	8	8	8	8	8	8	8	8	8
Missing	0	0	0	0	0	0	0	0	0
Mean	4139.875	15932.875	22645.125	38742.25	69167	4525.125	46096.625	34642.625	98393.875
Std. Deviation	871.901	4902.08	8035.128	13272.158	23404.327	1661.208	22258.334	10254.398	28119.708
Variance	760212.125	2.403e +7	6.456e +7	1.762e +8	5.478e +8	2.760e +6	4.954e +8	1.052e +8	7.907e +8

Fig 2. Inter-Variable Variance Assessment of unemployment
Source: own processing from JASP 0.12

Boxplot below (Figure 3) provides a graphical representation of the variance of CZ-ISCO unemployment shares described herewith.
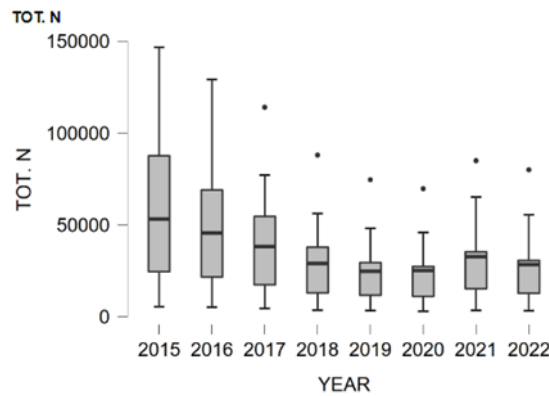
Fig. 3. Box Plots of Variance of unemployment
Source: Authors' process from JASP 0.12

Variance range among the vacancies

Figures 4 and 5 below show that 2016 saw the most considerable shift in the variance of vacancies. There appears to have been a structural change in 2018 as well. The job classifications and measurements are based on a study by the Economic Commission for Latin America and the Caribbean, Ramoni Perazzi et al. (2018). The procedure for grafting the variance between years to examine the structure of vacancies is based on a study by Dung (2016). The use of year dispersion to examine the dynamics of job vacancies between different economies was inspired by Lopes's review on unemployment elasticity (2022).

Descriptive Statistics								
	EMPVAC							
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Valid	9	9	9	9	9	9	9	9
Missing	0	0	0	0	0	0	0	0
Mean	6917.444	11916.44	15010.78	25598.11	36783.67	37896.89	36154.11	39074.44
Std. Deviation	4786.21	8758.714	11899.95	23736.44	39090.02	41283.84	38928.43	41216.82
Variance	2.291e +7	7.672e +7	1.416e +8	5.634e +8	1.528e +9	1.704e +9	1.515e +9	1.699e +9

Fig. 4. Inter-Variable Variance Assessment of vacancies
Source: own processing from JASP 0.12
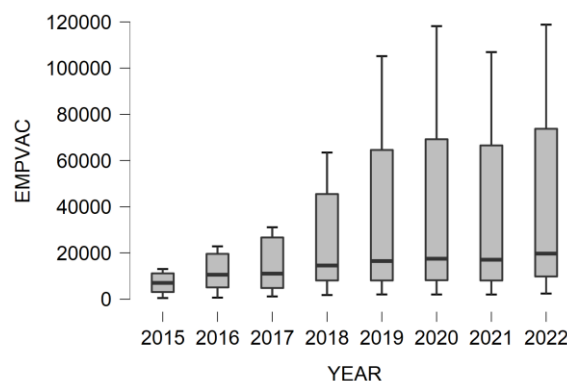

Fig. 5. Box Plots of Variance of vacancies
Source: Authors' process from JASP 0.12

Variance range among the employment

From Figure 6, it may be ascertained that the variance of employment in class 8 CZ-ISCO was the highest compared to other CZ-ISCO classes.

	TOTAL Employment								
	TYP 1 CZ-ISCO	TYP 2 CZ-ISCO	TYP 3 CZ-ISCO	TYP 4 CZ-ISCO	TYP 5 CZ-ISCO	TYP 6 CZ-ISCO	TYP 7 CZ-ISCO	TYP 8 CZ-ISCO	TYP 9 CZ-ISCO
Valid	7	7	7	7	7	7	7	7	7
Missing	0	0	0	0	0	0	0	0	0
Mean	156763.2	551519.7	795675.4	306501.1	467582.9	30272.29	479514.7	604060.4	229831.4
Std. Deviation	14423.85	19649.63	17736.24	10035.38	19193.99	1796.936	33773.29	27487.76	11383.47
Variance	2.080e +8	3.861e +8	3.146e +8	1.007e +8	3.684e +8	3.229e +6	1.141e +9	7.556e +8	1.296e +8

Fig. 6. Inter-variable variance assessment of employment
Source: own processing from JASP 0.12

Discussion

The paper examined the current scenario of key labour market indicators in the Czech Republic, such as employment, unemployment, vacancies, and median wages across 9 ISCO-CZ groups over the last eight years. The following findings can be formulated for all four research questions based on the analysis.

RQ1: The difference in the share of employment representation by the CZ-ISCO category in the Czech labour market

Figure 7 (ISPV, 2021) shows the evolution of employment across the CZ-ISCO classifications in the Czech labour market between 2015 and 2021. The highest share of employment was in the category of Technical and professional workers (class 3), followed by Machinery and equipment operators, fitters (Class 8), and Specialists (Class 2). As of 2018, Craftsmen and Repairers (Class 7) show the same results as Service and sales workers (Class 5). Employment trends across all CZ-ISCO classes show little change. More than a one percent change in employment occurred for specialists (Class 2), where there was an increase, while there was a decrease for craftsmen and repairers (Class 7).

Table 6 shows the overall employment situation in the Czech Republic. The most considerable variance is shown by CZ-ISCO class 8 (Machinery and equipment operators, fitters) compared to the other CZ-ISCO classes.
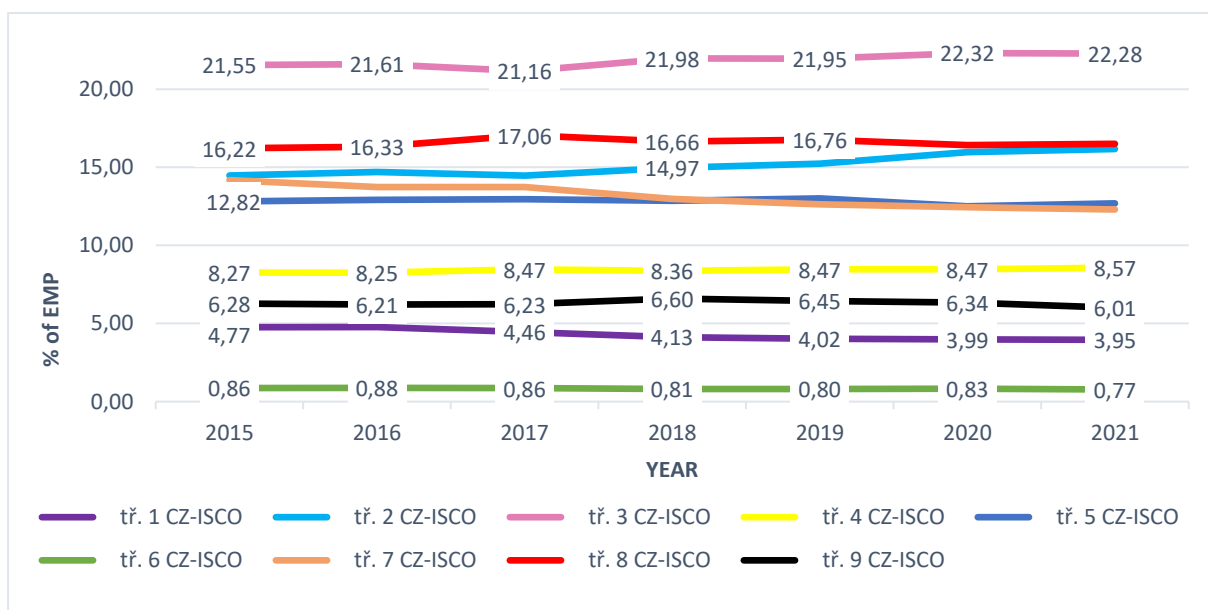

Fig. 7. Development of employment according to the CZ-ISCO
Source: own processing data ISPV

RQ2: Share of unemployed across CZ-ISCO categories in the Czech labour market

Figure 8 shows the share of the unemployed by the CZ-ISCO group for the years 2015 to 2021. The group with the largest share of unemployed workers was the group within the support and unskilled workers (Class 9)). The second largest representation was Service and sales workers in Class 5. Over the years under review, a declining trend in employment can be observed in Class 7, i.e., Craftsmen and repairers. Almost identical levels of

unemployment have been reported since 2020 for Craftsmen and Repairers (Class 7), Technical and Professional Staff (Class 3), Machine and Plant Operators, and Assemblers (Class 8). Stagnant levels of unemployment can be observed in Legislators and Executives (Class 1) and Skilled workers in agriculture, forestry, and fishing (Class 6). More than a one percent increase in unemployment since 2020 has been seen in Service and sales workers class 5; conversely, a decline has been seen in Auxiliary and unskilled workers (Class 9).

According to the intervariable-variance report of total unemployment (Figure 6), it was possibly determined that total unemployment remains smooth against each ISCO-CZ category.
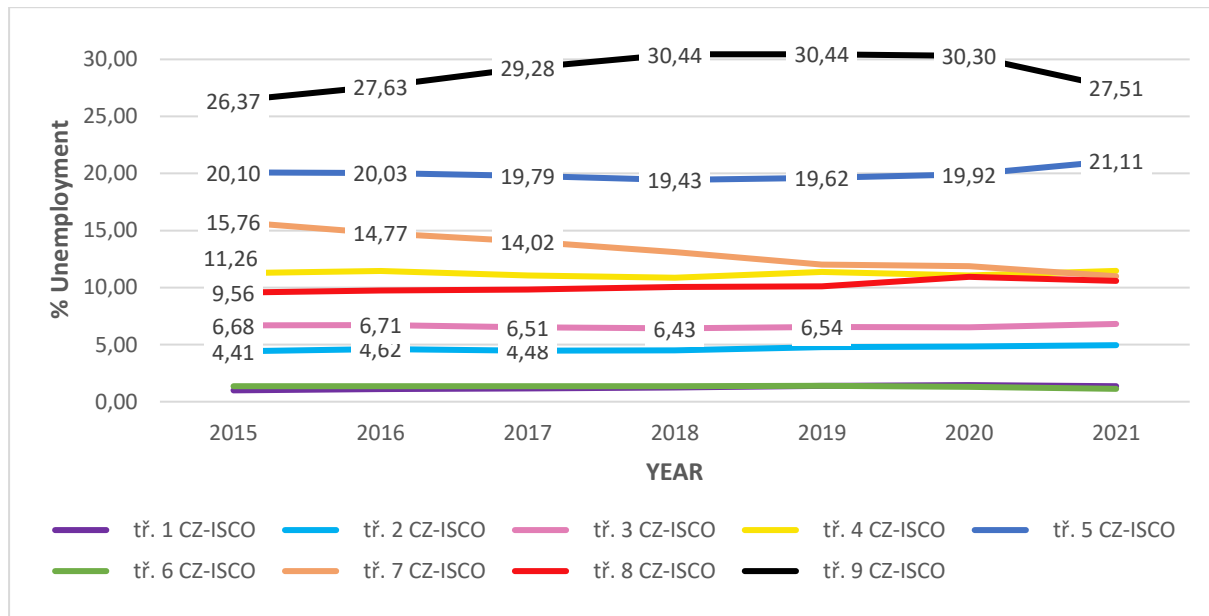
Fig. 8. Development of unemployed job seekers CZ-ISCO
Source: own processing data MPSV

RQ3: Share of vacancies across CZ-ISCO categories on the Czech labour market

Figure 9 shows that job vacancies varied to different degrees across CZ-ISCO categories between 2015 and 2021. The largest percentage increase in job openings was recorded in Class 8, i.e., Machine and Equipment Operators and Assemblers. In 2018, employers started creating jobs for Auxiliary and Unskilled Workers (Class 9), and since then, it has been the second largest group of positions offered. Slight increases in jobs were recorded over the period under review among Artisans and Repairers (Class 7), Machine and Equipment Operators, Assemblers (Class 8), and Auxiliary and Unskilled Workers (Class 9). Conversely, a decline in job offers was recorded among Legislators and Executives (Class 1) and Skilled workers in agriculture, forestry, and fishing (Class 6).

The dynamics of job vacancies in the Czech Republic are shown in Figure 4, which shows that 2016 experienced a period of high volatility among Czech job seekers.
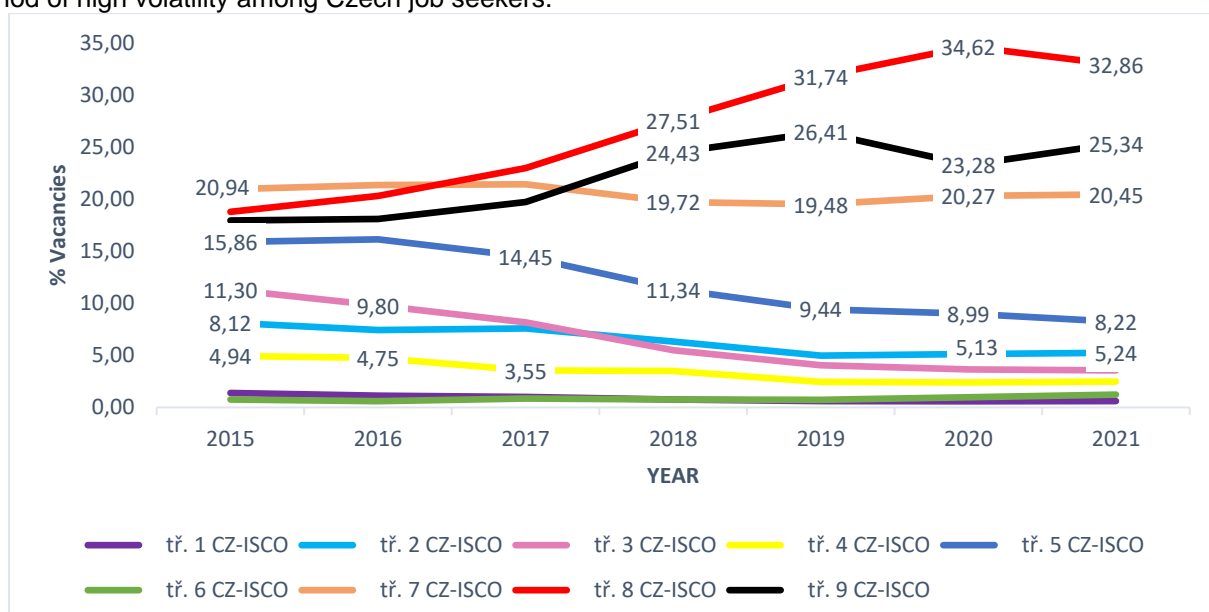

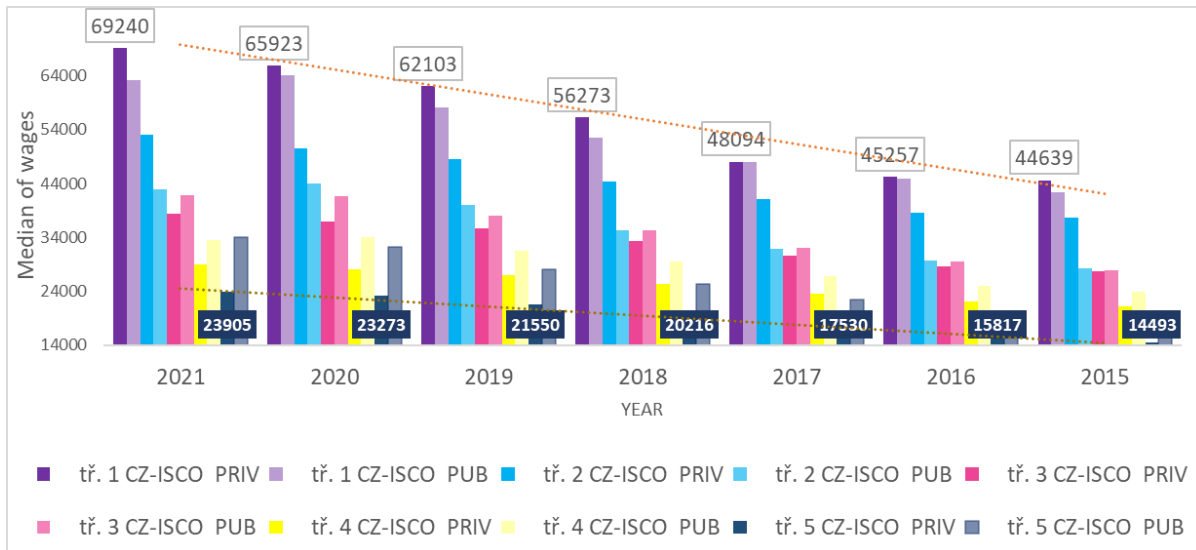**Fig. 9.** Development of vacancies according to the CZ-ISCO
Source: own processing data ISPV

### RQ 4: Wages across CZ-ISCO categories on the Czech labour market

Wage levels in the Czech Republic are known to be among the lowest in the EU. According to Figure 1, median wages between the private and public sectors were observed to be highly heterogeneous. Figure 1 shows that the most significant dispersion can be observed in median salaries between Auxiliary and Unskilled Workers (Class 9) and Legislators and Executives (Class 1) CZ-ISCO. Also, Skilled workers in agriculture, forestry, and fishing (Class 6) show large differences between the median salaries of public and private sector employees.

Figure 10 shows the wage levels by CZ-ISCO classification from 2015 to 2021, where each CZ-ISCO category is further divided into private and public sectors. Legislators and executives (Class 1) are among the highest-paying jobs. The second highest paying jobs are Specialists (Class 2) and Technical and Professional Staff (Class 3). Conversely, the lowest paying jobs are Support and Unskilled Labourers (Class 9) and Service and Sales (Class 5). The wage growth trend curve shows that the wage growth of the highest-paying jobs is much steeper than the growth of the lowest-paying CZ ISCO classes. The author (Madrick, 2010) discusses the excessive wage growth that can be explained by using new technologies in the performance of work activities. Jobs that are inherently designed for college-educated employers offer much more tremendous wage growth than in Auxiliary and Unskilled Workers (Class 9) or Service and Sales (Class 5).

Figures 10(a) and (b) show that for some CZ-ISC classes, there are differences in wage rates between the private and public sectors within a class. Significant differences in remuneration for work in favour of the private sector can be identified in the classes Legislators and Executives (Class 1), Professionals (Class 2), and Artisans and Repairers (Class 7) for all years under review. In the other CZ-ISCO classes, wage differences are observed favoring the public sector.

(a)
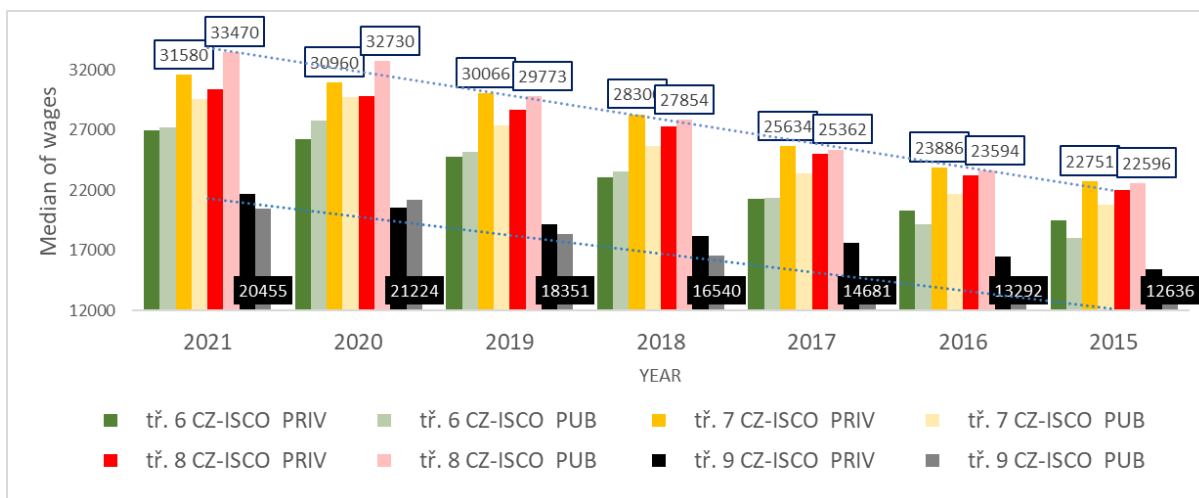
(b)

Fig. 10. Development of wages according to the CZ-ISCO
Source: own processing data ISPV

Conclusion

The aim of the paper was to find out which groups of jobs within the Czech International Standard Classification of Occupations (CZ-ISCO) are prone to job insecurity in terms of job loss or inadequate wages. The overall trend in job opportunities across all nine classes of the CZ-ISCO classification from 2015 to 2022 was also examined.

Based on the results of the analyses, it was found that in terms of the overall development of employment in the individual CZ-ISCO classification classes, the category Technical and professional workers (class 3) had the highest share of employment, followed by the category Machine and plant operators, assemblers (class 8) and Specialists (class 2). In all classes, employment trends did not differ much. Regarding unemployment trends for each class, it was found that the highest proportion of unemployed workers was recorded for support and unskilled workers in Class 9. Stagnant levels of unemployment were reported for Class 1 (Legislators and Executives) and Class 6 (Skilled workers in agriculture, forestry, and fishing). There was a slight increase in unemployment in Class 5 (Service and sales workers), and conversely, a decrease in unemployment was recorded for Auxiliary and unskilled workers (Class 9). The number of vacancies varied across CZ-ISCO classification classes between 2015 and 2021. The most significant percentage increase in jobs was recorded in class 8 (Machine and plant operators, assemblers). From 2018 onwards, new jobs for Auxiliary and Unskilled Workers (Class 9) began to appear in a more significant way, and since then, it has been the second largest group of positions offered.

Conversely, there has been a decline in jobs offered among Legislators and Executives (Class 1) and Skilled workers in agriculture, forestry, and fishing (Class 6). Regarding job performance pay, Legislators and Executives (Class 1) is the highest-paying class. Other well-paid jobs are Specialists (grade 2) and Technical and professional staff (grade 3). Conversely, the lowest-paid jobs are Auxiliary and Unskilled Workers (Class 9) and Service and Sales (Class 5).

In conclusion, it can be stated that the labour market in the monitored period showed uneven development trends between the individual CZ-ISCO classification classes. There was a mismatch between labour demand and labour supply for occupations with different educational requirements for their performance. Jobs with high academic requirements falling into the classes Legislators and executives (class 1), Professionals (class 2), and Technical and professional staff (class 3) are characterised by some job stability. This is a predominantly non-manual type of work. As a share of total unemployment, there are a minimum number of job seekers in these categories. In terms of pay, non-manual jobs appear to be among the highest paid, even with high intertemporal wage growth. When creating vacancies, the problem arises in representing these classes in the labour market. Currently, these attractive job offers are declining, and they are among the least represented in the Czech labour market.

On the contrary, Class 9 (Support and unskilled workers) and Class 5 (Service and sales workers) appear to be unstable and risky occupations in terms of unemployment. These classes have lower educational requirements, and the work can be characterised as predominantly manual. The high increase in the unemployment rate in Class 5 was due to the COVID-19 pandemic and the government measures that were issued in connection with it.

These two classes also showed the lowest wage rates and a slow growth trend. Skilled workers in agriculture, forestry, and fishing (Class 6) also showed low wage rates but were the most secure in terms of group representation among unemployed job seekers. According to Dosedel and Katrňák, (2017), the probability of obtaining a precarious job is then reduced by certain demographic characteristics, including higher educational attainment, age, the birth of offspring for men, and marriage for men. Insecurity in the labour market presents new challenges. Policy interventions must be effective and provide better financial prospects for vulnerable workers. According to research, workers with precarious working conditions may include, for example, temporary and agency workers (Laß & Wooden, 2020). For most workers, precarious work is unsustainable in the long term (Clarke et al., 2007).

Since this study examined employment stability across selected characteristics in each class of the CZ-ISCO classification, it is not without limitations. Firstly, this study focuses only on developments in the Czech labour market. Second, the findings and conclusions could be further tested on a broader scale for other characteristics such as type of employment contracts. Another line of research could be devoted to understanding wage policy according to the CZ-ISCO classification and investigating the existence of information asymmetries in the labour market.

Acknowledgement

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