LABOUR SHORTAGE AND LABOUR RETENTION AS A POSSIBLE STRATEGY IN A DIFFICULT ECONOMIC SITUATION BASED ON EMPIRICAL DATA OF A TRANSITIONING ECONOMY

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Abstract

The article presents the Hungarian results of research conducted in Central and Eastern European (CEE) countries. The main objective of the study was to examine organizational responses to labour shortages and labour retention strategies based on organization size and ownership background. In the theoretical part, we present the general situation of the Hungarian labour market and then discuss the effects of COVID-19 and the Russo-Ukrainian War, followed by labour shortage and retention. Our research was based on a survey of 383 organizations in Central and Eastern European economies, during which four hypotheses were tested. The SPSS 27.0 software package was used to evaluate the results. In the findings, we confirmed that organizations of various ownership and size differ in the means they use to retain labour force and also in the factors that contribute to labour shortages in different positions. As an implication of management and economics, we found that size and ownership affect not only retention strategy as suggested by previous literature but also the factors that contribute to labour shortages in different positions.

Implications for Central European audience: A novel feature of the paper is that it takes into account the effects of organization size and ownership while analysing the consequences of the Russo-Ukrainian War for the first time. It is also the first Hungarian study to investigate the effect of the economic crisis due to the Russo-Ukrainian War on labour retention and

labour shortage by size and ownership of organizations. The findings would set a comparison for corporations in Central European countries too.

Introduction

The labour market in Hungary has been transformed significantly over the past few years, changing the way employees relate to employers. Two or three decades ago, life-long employment in one company or organization was still typical. Today, it is no longer the case.

One of the key issues in Hungary today is the dramatic increase in labour shortages, which have been influenced by a variety of factors, including emigration after the change of regimes, adverse demographic factors, the economic crisis and wage differentials within the European Union (Brixiova et al., 2009; Vojtovič et al., 2021). The 2008 economic crisis in the recent past already showed how dramatically the situation on the labour market can change (Jaros et al., 2014). Recently, three additional factors have been associated with the aforementioned causes: the global coronavirus pandemic, the opening and rebound of the economy and the difficult economic situation due to the current Russo-Ukrainian War (Karácsony & Pásztó, 2021; Hitka et al., 2021; Schiffer, 2023).

In the theoretical part of our paper, we first describe, among other things, the general situation of the Hungarian labour market and then discuss the effects of COVID-19 and the Russo-Ukrainian War. Next, we review some current tendencies on the labour market with the main factors that determine the management of labour shortages and the main strategic features of labour retention. We mention and present a number of other drivers following the three important influencing factors indicated earlier. However, we are convinced that many of the changes on the labour market had already taken place before the current difficult and critical economic situation (Cseh-Papp et al., 2018). In the introduction to the methodological part of our paper, we present two research questions (about ownership structure and organization size) against which we test four hypotheses for 383 organizations (companies and institutions) in Hungary.

Our empirical research presented in this paper was conducted in the framework of a V4 (Czech Republic, Poland, Hungary and Slovakia) project and a VEGA (Scientific Support Agency of the Ministry of Education, Science, Research and Sports of the Slovak Republic) project for two other Eastern European countries.

1 Theoretical Background and Hypotheses

1.1 Labour market situation in Hungary in 2020-2023

In 2020, the number of people employed in Hungary was 4,603,000 (15–74 years), 41,000 fewer than in the previous year (KSH, 2022). The reduction in employment was mainly due

to a decrease in the number of people in public work and in the number of people working abroad (Fazekas et al., 2020).

In 2021, the average number of people employed in accommodation and food services fell by about a quarter as a result of the pandemic, but there were also reductions in the number of people employed in hotels and restaurants, manufacturing, transport and storage (Grotte et al., 2021; Fauska et al., 2013).

The introduction of the home office option also significantly reduced the decline in employment. The share of employees working remotely or in a home office was over 20% in Budapest, 10% in Pest County and lower in the rest of the country, but higher than in 2020 everywhere (Illésy & Huszár, 2022). The number of teleworkers and home office workers remained high.

In 2022, the annual average unemployment rate was 3.6%, lower than in the same period of the previous year. Hungary's unemployment rate is thus the sixth highest among the member states and 2.5% below the EU average. The number of job vacancies continued to rise over the year, the largest number of them in manufacturing and administration.

The high inflation was partly driven by factors stemming from the Russian-Ukrainian conflict, which had a negative impact on energy prices, supply chains and procurement costs.

In April 2023, the number of employed persons reached 4,710,000. The number of unemployed increased to 190,000 compared to the previous year, bringing the unemployment rate to 3.9% (KSH, 2023).

1.2 Impact of the pandemic and war on the labour market

In 2020, the outbreak of COVID-19 caused a more serious labour market catastrophe than the global financial crisis of 2008. To counteract the negative consequences of the economic crisis on employment during the pandemic, all EU member states formulated job protection policies. Although job retention programmes have the same objective, there are major differences in the institutional setup and functional theory of each programme (Müller et al., 2022; Verick et al., 2022).

While the labour market of the developed nations recovered quickly from the COVID-19 pandemic, we are now facing labour shortages all around the world. This picture is mostly influenced by cyclical considerations, as workers are more prone to switch jobs in the hope of finding better employment during times of tight labour markets (Causa et al., 2022; Ando et al., 2022; Navickas et al., 2022). According to Astorquiza Bustos et al. (2022), the most influential structural changes were obvious among young people and in the art sector.

After the pandemic, we soon had to face another shock in the economy. With Russia's war against Ukraine, global economic conditions changed suddenly. With the outbreak of the war, production declined by around 1% via the energy intensity channel while turnover increased, reflecting sales from stock. Businesses protect employment through temporary jobs with 10% more applications (Hutter & Weber, 2022).

1.3 Current labour market trends

Teleworking or home office work still accounted for 7.2% of the employed, 0.9 percentage points lower than in the previous year and 5.3 percentage points lower than two years earlier. Another important change is connected to technology. The Industry 4.0 phenomenon, which is currently accelerating the digitization of the industry, is responsible for many changes in the skill set of the labour force, including greater productivity and connectedness (Androniceanu et al., 2020; Habánik et al., 2021; Veszprémi Sirotková & Orfánusová, 2021). Labour market developments are influenced by a number of factors, which are also affected by the constantly changing technological, social and economic environment (Árva, 2023; Jafir & Ahmed, 2023; Smerek & Vetráková, 2020).

There has been a long-standing debate about whether robotization, new digitization technologies and recently artificial intelligence (AI) are creating significant or completely new demands on employees (Eftimov & Kitanovikj, 2023). Several authors estimate that hundreds of millions of people could lose their jobs in both physical and mental occupations as a result (Susskind & Susskind, 2015; Hess & Ludwig, 2017). Other authors, in turn, believe that new technologies will not only destroy jobs but could create millions of jobs (Harari, 2018), positively influencing employment and productivity in the long run (Şahin, 2020).

If we look at the labour market in developed countries over the last two hundred years, we can observe many similar trends. To date, the US agricultural employment share is 1.3%, industry 12.8% and services 80%, respectively (US Bureau of Labor Statistics, 2023). Similar trends are apparent in the European Union, including domestic labour market statistics: agriculture (3.8%), industry (16%) and services (80.2%) (Karácsony & Pásztó, 2021).

Concerning the trends nowadays, it is worth mentioning the effect of migration. Intercontinental migration is expected to continue in the CEE region, driven by demographic and economic catalysts. All companies, governmental decisionmakers and society must constantly and continuously prepare for the integration of the newly arriving workforce (Bite et al., 2020; Oliinyk et al., 2022).

1.4 Labour shortage and labour retention

In addition to the aforementioned industrial distribution, it is worth examining how different organizational characteristics, such as size or form of ownership, among others, affect employment, including labour shortages and labour retention.

Recent research into skill gaps and structural labour shortages has analysed how the relationship between structural labour shortages and the business cycle fluctuates based on how policies might help manage structural labour shortages (Brunello & Wruuck, 2021).

To maintain smooth operations and the costs of staff turnover, organizations are increasingly focusing on retention management (Dajnoki & Héder, 2017). Retention management focuses on eliminating or reducing voluntary, dysfunctional departures (Kozák, 2022). It refers to a targeted set of measures designed and implemented to keep all employees or a group of current employees employed for as long as possible (Kozák & Dajnoki, 2019). Retention strategies are characterized at the macro level by skill shortages, recruitment methods, internships, scholarship programmes, education, training (Kőmüves et al., 2022; Zaharia et al., 2022; Samoliuk et al., 2021), as well as organizational characteristics such as

organization size, ownership, scope of activities, pay and rewards (Bakker et al., 2004), organizational support (Hu et al., 2013; Urikova et al., 2013), organizational culture and business strategies (Kozák, 2022) and individual factors such as perceptions of career, growth, learning or development opportunities (Mauno et al., 2007; Boyd et al., 2011; Inoue et al., 2012; Dzuro et al., 2022).

Based on the literature review, we formulate the following research questions:

RQ1: Do organizations differ in the means they use to retain their workforce based on their ownership and size?

RQ2: Do organizations differ in the factors that contribute to labour shortages in different positions based on their ownership and size?

The following hypotheses related to the research questions are tested:

H1: Organizations of various sizes differ in the means they use to retain their workforce.

H2: Organizations of various sizes differ in the factors that contribute to the development of labour shortage in different positions.

H3: Organizations of various forms of ownership differ in the means they use to retain the labour force.

H4: Organizations of various forms of ownership differ in the factors that contribute to the development of labour shortage in different positions.

2   Research Methodology

2.1 Research design

The research is part of an international survey of the V4 countries (Czech Republic, Poland, Hungary, Slovakia). In the present study, we analyse only national data, which were collected in the autumn of 2022 by completing an online questionnaire using a snowball sampling method. The questionnaire contained 24 questions, some of which were multiple-choice, others were on a 1–5 point Likert scale and there were also some explanatory questions. The items of the questionnaire can be grouped into four categories: (1) questions about the characteristics of the organization, e.g., annual turnover and number of employees; (2) questions about strategies for retaining staff and means of dealing with labour shortage; (3) questions about the potential benefits of using robotization; and (4) questions about the respondents' demographic information, e.g., gender and age.

The SPSS 27.0 software package was used to evaluate the results.

2.2 Population and sampling

During the data collection, 383 domestic organizations completed the questionnaires. The distribution of organizations by industry is shown in Table 1. Not all the respondents answered all the questions, so the "missing" row in the table shows the number of such respondents. The table shows that most organizations (15.9%) were active in trade, while the fewest were active in telecommunications (0.8%).

Table 1 | Breakdown of organizations by industry (n = 383)

Sector	Number	Percentage
Manufacturing	60	15.7%
Trade	61	15.9%
FMCG	5	1.3%
Finance	22	5.7%
Information technology	18	4.7%
Telecommunications	3	0.8%
Logistics	12	3.1%
Energy	9	2.3%
Agriculture, forestry and fishing	14	3.7%
Services	95	24.8%
Public administration	24	6.3%
Other	53	13.8%
Missing	7	1.8%
Total	383	100%

Source: Authors

Table 2 shows the breakdown of organizations by the form of ownership. Most organizations (50.4%) have a domestic private owner. Almost a quarter of the organizations (24.8%) are foreign-owned. Only 3.4% of organizations are of mixed ownership.

Table 2 | Breakdown of organizations by form of ownership (n= 383)

Sector	Number	Percentage
Domestic private	193	50.4%
Domestic public	72	18.8%
Foreign	95	24.8%
Mixed	13	3.4%
Missing	10	2.6%
Total	383	100%

Source: Authors

Table 3 shows the organizations by the distribution of turnover. Most (20.1%) have an annual turnover between 300,001 and 3,000,000 EUR. Besides, 13.6% of the organizations have an annual turnover of 300,000,000 EUR or more.

Table 3 | Breakdown of organizations by turnover (n= 383)

Sector	Number	Percentage
Below 30,000 EUR	48	12.5%
Between 30,001 and 300,000 EUR	70	18.3%
Between 300,001 and 3,000,000 EUR	77	20.1%
Between 3,000,001 and 30,000,000 EUR	67	17.5%
Between 30,000,001 and 300,000,000 EUR	44	11.5%
Above 300,000,000 EUR	52	13.6%
Missing	25	6.5%
Total	383	100%

Source: Authors

3 Results and Discussion

Based on the responses, 153 (39.9%) organizations were affected by COVID-19 in terms of labour retention, while 194 (50.7%) were not (36 (9.4%) did not answer this question). Based on the responses, 75 (19.6%) organizations were affected by the Russo-Ukrainian War in terms of labour retention, while 272 (71%) were not (36 (9.4%) did not answer this question). The responses show that 202 (52.7%) organizations were affected by labour shortages last year, while 146 (38.1%) were not affected (35 (9.1%) did not answer this question). In this paper, we present only results where $p \leq 0.05$.

In the following paragraphs, we present the results of the LSD test using ANOVA and post hoc procedures.

Based on the ANOVA test, by ownership, there is a significant difference in the extent to which the labour drain of competitors contributes to the labour shortage of higher education graduates ($F(3) = 3.209$, $p = 0.24$). Based on the post hoc test, there is a significant difference between domestic private and domestic public-owned organizations ($p = 0.005$) and between domestic private and foreign-owned ($p = 0.050$).

Based on the ANOVA test, by ownership, there is a significant difference in the extent to which the labour drain of competitors contributes to the labour shortage of administrative workers ($F(3) = 3.192$, $p = 0.24$). Based on the post hoc test, there is a significant difference between domestic private and domestic public-owned organizations ($p = 0.002$).

Based on the ANOVA test, by ownership, there is a significant difference in the extent to which too low wages contribute to the labour shortage of higher education graduates ($F(3) = 7.297$, $p = 0.001$). Based on the post hoc test, there is a significant difference between domestic private and domestic public-owned organizations ($p = 0.001$) and between domestic public-owned and foreign-owned ($p = 0.001$) organizations.

Based on the ANOVA test, by ownership, there is a significant difference in the extent to which too low wages contribute to the labour shortage of administrative workers ($F(3) = 3.295$,

p = 0.021). Based on the post hoc test, there is a significant difference between domestic private and domestic public organizations (p = 0.003).

Based on the ANOVA test, by ownership, there is a significant difference in the contribution of poor working conditions to the labour shortage of higher education graduates ($F(3) = 8.770$, p = 0.001). The post hoc test indicates significant differences between domestic private and domestic public (p = 0.001), domestic public and foreign (p = 0.001) and domestic public and mixed (p = 0.020).

Based on the ANOVA test, by ownership, there is a significant difference in the contribution of poor working conditions to the labour shortage of salespersons ($F(3) = 2.698$, p = 0.048). Based on the post hoc test, there is a significant difference between domestic private and domestic public (p = 0.013) and domestic public and foreign-owned (p = 0.016) organizations.

Based on the ANOVA test, by ownership, there is a significant difference in the contribution of poor working conditions to the labour shortage of administrative workers ($F(3) = 4.707$, p = 0.003). Based on the post hoc test, there is a significant difference between domestic private and domestic public (p = 0.001) and domestic public and foreign-owned (p = 0.007) organizations.

Based on the ANOVA test, by ownership, there is a significant difference in the contribution of lack of transport infrastructure to the labour shortage of salespersons ($F(3) = 3.038$, p = 0.031). Based on the post hoc test, there is a significant difference between domestic private and foreign-owned (p = 0.042), domestic public and foreign-owned (p = 0.019) and domestic public and mixed-owned (p = 0.045) organizations. The mean scores are presented in Table 4.

Based on the ANOVA test, by ownership, there is a significant difference in the importance of personal development opportunities for retaining employees ($F(3) = 3.265$, p = 0.022). Based on the post hoc test, there is a significant difference between domestic private and foreign-owned (p = 0.007) and domestic public and foreign-owned (p = 0.006) organizations.

Based on the ANOVA test, by ownership, there is a significant difference in the importance of feedback for retention ($F(3) = 4.512$, p = 0.004). Based on the post hoc test, there is a significant difference between domestic private and foreign-owned (p = 0.001) and domestic public and foreign-owned (p = 0.003) organizations.

Based on the ANOVA test, by ownership, there is a significant difference in the importance of a predictable career path for retaining employees ($F(3) = 2.699$, p = 0.048). Based on the post hoc test, there is a significant difference between domestic private and domestic public-owned organizations (p = 0.024) and domestic private and foreign-owned organizations (p = 0.038). The mean scores are presented in Table 5.

Table 4 | Assessment of factors contributing to labour shortages by ownership background

Effects of competitors' labour drain on labour shortage of higher education graduates			
Domestic private	**Domestic public**	**Foreign-owned**	**Mixed**
m = 3.1	m = 3.8	m = 3.5	m = 3.2
SD = 1.4	SD = 1.4	SD = 1.4	SD = 1.5

Effects of competitors' labour drain on labour shortage of administrative workers			
Domestic private	**Domestic public**	**Foreign-owned**	**Mixed**
m = 2.6	m = 3.3	m = 2.9	m = 2.7
SD = 1.3	SD = 1.2	SD = 1.3	SD = 1.6

Contribution of low wages of higher education graduates to labour shortage			
Domestic private	**Domestic public**	**Foreign-owned**	**Mixed**
m = 3.1	m = 4.1	m = 3.2	m = 4.0
SD = 1.5	SD = 1.1	SD = 1.2	SD = 1.4

Contribution of low wages of administrative workers to labour shortage			
Domestic private	**Domestic public**	**Foreign-owned**	**Mixed**
m = 2.9	m = 3.5	m = 3.1	m = 3.6
SD = 1.2	SD = 1.2	SD = 1.2	SD = 1.7

Contribution of poor working conditions for higher education graduates to labour shortage			
Domestic private	**Domestic public**	**Foreign-owned**	**Mixed**
m = 1.7	m = 2.6	m = 1.6	m = 1.4
SD = 1.1	SD = 1.3	SD = 1.0	SD = 0.5

Contribution of poor working conditions for salespersons to labour shortage			
Domestic private	**Domestic public**	**Foreign-owned**	**Mixed**
m = 2.4	m = 2.1	m = 1.9	m = 2.7
SD = 1.4	SD = 1.4	SD = 1.	SD = 1.4

Contribution of poor working conditions for administrative workers to labour shortage			
Domestic private	**Domestic public**	**Foreign-owned**	**Mixed**
m = 1.6	m = 2.4	m = 1.7	m = 1.6
SD = 1.0	SD = 1.4	SD = 1.2	SD = 0.8

Contribution of lack of transport infrastructure for salespersons to labour shortage			
Domestic private	**Domestic public**	**Foreign-owned**	**Mixed**
m = 1.8	m = 2.0	m = 1.4	m = 1.0
SD = 1.1	SD = 1.3	SD = 0.8	SD = 0.0

Notes: m = mean score, SD = standard deviation

Source: Authors

Table 5 | Assessment of retention factors by ownership background

Personal development opportunities

Domestic private	Domestic public	Foreign-owned	Mixed
m = 3.7	m = 3.6	m = 4.1	m = 4.0
SD = 1.0	SD = 1.0	SD = 0.7	SD = 1.2

Feedback

Domestic private	Domestic public	Foreign-owned	Mixed
m = 3.6	m = 3.6	m = 4.1	m = 4.0
SD = 1.0	SD = 1.0	SD = 0.8	SD = 1.1

Predictable career path

Domestic private	Domestic public	Foreign-owned	Mixed
m = 3.5	m = 3.8	m = 3.8	m = 3.9
SD = 1.0	SD = 1.0	SD = 0.8	SD = 1.1

Source: Authors

We now look at the impact of organization size. The ANOVA test indicates that by organization size, there is a significant difference in the extent of the labour drain effect of competitors on the labour shortage of higher education graduates ($F_{(7)}$ = 2.911, p = 0.006). The post hoc test indicates a significant difference between organizations with 2–9 and 251-500 (p = 0.020), 2–9 and more than 1000 (p = 0.002), 10–50 and 251-500 (p = 0.021) and 10–50 and more than 1000 (p = 0.001) employees.

The ANOVA test indicates that by organization size, there is a significant difference in the extent to which the labour drain of competitors contributes to the labour shortage of salespeople ($F_{(7)}$ = 2.073, p = 0.048). Based on the post hoc test, there is a significant difference between organizations with 10–50 and 251–500 (p = 0.027), 10–50 and over 1,000 (p = 0.027), 51–100 and 251–500 (p = 0.008) and 51–100 and over 1000 (p = 0.008) employees.

The ANOVA test indicates that by organization size, there is a significant difference in the extent to which the labour drain of competitors contributes to the labour shortage of administrative workers ($F_{(7)}$ = 2.080, p = 0.046). Based on the post hoc test, there is a significant difference between organizations with 2-9 and more than 1,000 employees (p = 0.007), 10–50 and more than 1,000 employees (p = 0.001) and 51–100 and more than 1,000 employees (p = 0.039).

The ANOVA test indicates that by organization size, there is a significant difference in the extent to which problems in the education system contribute to the labour shortage of manual workers ($F_{(7)}$ = 2.848, p = 0.008). Based on the post hoc test, there is a significant difference between organizations with 2-9 and 101–250 (p = 0.004), 10–50 and 101–250 (p = 0.001), 51–100 and 101–250 (p = 0.011), 101–250 and 251–500 (p = 0.001), 101–250 and 501–1000 (p = 0.001) and 101–250 and more than 1,000 (p = 0.002) employees.

By organization size, the ANOVA test revealed a significant difference in the extent to which poor working conditions contribute to the labour shortage of manual workers ($F(7) = 2.134$, $p = 0.042$). Based on the post hoc test, there is a significant difference between organizations with 2-9 and 101–250 ($p = 0.027$), 2-9 and more than 1,000 ($p = 0.022$), 10–50 and more than 1,000 ($p = 0.039$), 101–250 and 501–1,000 ($p = 0.029$) and 501–1,000 and more than 1,000 ($p = 0.026$) employees.

The ANOVA test indicates a significant difference in the extent to which the lack of transport infrastructure contributes to the labour shortage of salespeople by organization size ($F(7) = 2.087$, $p = 0.048$). The post hoc test indicates significant differences between organizations with 2–9 and 10–50 ($p = 0.021$), 10–50 and 51–100 ($p = 0.004$), 10-50 and 251–500 ($p = 0.029$) and 51–100 and 501–1,000 ($p = 0.019$) employees.

The ANOVA test revealed a significant difference in the extent to which difficulties reconciling work and private life contribute to the labour shortage of higher education graduates by organization size ($F(7) = 2.256$, $p = 0.031$). The post hoc test indicates a significant difference between organizations with 2–9 and 51–100 ($p = 0.018$), 2–9 and 101–250 ($p = 0.040$), 51–100 and 501–1,000 ($p = 0.040$), 51–100 and more than 1,000 ($p = 0.006$) and 101–250 and more than 1,000 ($p = 0.018$) employees.

The ANOVA test indicates a significant difference in the extent to which difficulties reconciling work and private life contribute to the shortage of salespersons by organization size ($F(7) = 2.162$, $p = 0.040$). The post hoc test indicates a significant difference between organizations with 1 and 10–50 ($p = 0.014$), 1 and 51 and 100 ($p = 0.025$), 1 and 101–250 ($p = 0.42$), 2–9 and 10–50 ($p = 0.025$), 10–50 and more than 1,000 ($p = 0.006$) and 51–100 and more than 1,000 ($p = 0.038$) employees.

The ANOVA test indicates a significant difference in the extent to which difficulties reconciling work and private life contribute to the labour shortage of administrative workers ($F(7) = 2.272$, $p = 0.030$) by organization size. The post hoc test indicates significant differences between 1 and 10–50 ($p = 0.010$), 1 and 51–100 ($p = 0.006$), 1 and 101–250 ($p = 0.004$), 1 and 251–500 ($p = 0.017$), 1 and 501–1,000 ($p = 0.039$), 2–9 and 51–100 ($p = 0.042$), 2–9 and 101–250 ($p = 0.028$) and 101–250 and more than 1,000 ($p = 0.040$). The mean scores are presented in Table 6.

Table 6 | Assessment of factors contributing to labour shortage by organization size

Contribution of labour drain of competitors to labour shortage of higher education graduates							
0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 3.5	m = 3.0	m = 3.1	m = 3.0	m = 3.3	m = 3.9	m = 3.3	m = 4.0
SD = 1.7	SD = 1.4	SD = 1.5	SD = 1.3	SD = 1.4	SD = 1.4	SD = 1.2	SD = 1.2
Contribution of labour drain of competitors to labour shortage of salespersons							
0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 2.0	m = 2.9	m = 2.6	m = 2.3	m = 3.1	m = 3.5	m = 2.7	m = 3.3
SD = 1.0	SD = 1.4	SD = 1.4	SD = 1.4	SD = 1.3	SD = 1.5	SD = 1.4	SD = 1.2
Contribution of labour drain of competitors to labour shortage of administrative workers							
0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 2.6	m = 2.6	m = 2.5	m = 2.7	m = 3.0	m = 2.9	m = 3.0	m = 3.3
SD = 1.5	SD = 1.4	SD = 1.4	SD = 1.3	SD = 1.4	SD = 1.3	SD = 1.1	SD = 1.2
Contribution of problems of education system to labour shortage of manual workers							
0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 2.6	m = 2.6	m = 2.3	m = 2.6	m = 3.9	m = 2.1	m = 2.2	m = 2.6
SD = 1.5	SD = 1.5	SD = 1.6	SD = 1.5	SD = 1.5	SD = 1.1	SD = 1.3	SD = 1.5
Contribution of poor working conditions to labour shortage of manual workers							
0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 3.6	m = 2.0	m = 2.1	m = 2.5	m = 3.0	m = 2.8	m = 2.0	m = 2.8
SD = 2.3	SD = 1.2	SD = 1.3	SD = 1.2	SD = 1.6	SD = 1.6	SD = 1.1	SD = 1.4
Contribution of lack of transport infrastructure to labour shortage of salespeople							
0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 2.2	m = 2.0	m = 1.3	m = 2.3	m = 1.5	m = 2.0	m = 1.4	m = 1.8
SD =0.9	SD = 1.2	SD =0.7	SD = 1.1	SD = 1.3	SD = 1.1	SD =0.8	SD = 1.1
Contribution of difficulties reconciling work and life to labour shortage of higher education graduates							
0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 3.5	m = 2.9	m = 2.3	m = 2.0	m = 2.0	m = 2.6	m = 2.8	m = 3.0
SD = 1.9	SD = 1.3	SD = 1.4	SD = 1.1	SD = 1.1	SD = 1.5	SD = 1.5	SD = 1.4
Contribution of difficulties reconciling work and life to labour shortage of salespersons							
0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 3.7	m = 2.7	m = 2	m = 2.0	m = 2.1	m = 2.4	m = 2.6	m = 2.8
SD =0.9	SD = 1.3	SD = 1.2	SD = 1.3	SD = 1.1	SD = 1.4	SD = 1.4	SD = 1.3
Contribution of difficulties reconciling work and life to labour shortage of administrative workers							
0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 4.0	m = 2.7	m = 2.2	m = 2.0	m = 1.9	m = 2.2	m = 2.5	m = 2.6
SD =0.8	SD = 1.2	SD = 1.2	SD = 1.1	SD = 1.1	SD = 1.2	SD = 1.5	SD = 1.3

Source: Authors

The ANOVA test indicates that by organization size, there is a significant difference in the importance of personal development opportunities for retention ($F(7) = 2.932$, $p = 0.005$). In the post hoc test, there is a significant difference between organizations with 2-9 and more than 1,000 employees ($p = 0.010$), 10–50 and 101–250 ($p = 0.008$), 10–50 and more than 1,000 ($p = 0.001$) and 51–100 and more than 1,000 ($p = 0.028$).

The ANOVA test indicates that by organization size, there is a significant difference in the importance of feedback for labour retention ($F(7) = 2.624$, $p = 0.012$). In the post hoc test, there is a significant difference between organizations with 2–9 and 101–250 ($p = 0.004$), 2–9 and 251–500 ($p = 0.031$), 2–9 and more than 1,000 ($p = 0.001$), 10–50 and 101–250 ($p = 0.021$) and 10–50 and more than 1,000 ($p = 0.005$) employees.

The ANOVA test revealed a significant difference in the importance of a predictable career path for labour retention ($F(7) = 4.340$, $p = 0.001$) by organization size. Using the post hoc test, the difference is significant for 1 and 251–500 ($p = 0.043$), 1 and more than 1,000 ($p = 0.039$), 2–9 and 101–250 ($p = 0.011$), 2–9 and 251–500 ($p = 0.001$), 2–9 and more than 1,000 ($p = 0, 001$), between 10–50 and 101–250 ($p = 0.012$), between 10–50 and 251–500 ($p = 0.001$), between 10–50 and more than 100 ($p = 0.001$) and between 51–100 and more than 1,000 ($p = 0.033$). The mean scores are presented in Table 7.

Table 7 | Assessment of retention factors by organization size

Personal development opportunities

0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 3.8 SD =0.7	m = 3.7 SD = 1.1	m = 3.5 SD = 1.1	m = 3.7 SD = 1.0	m = 4.1 SD =0.9	m = 3.9 SD =0.8	m = 3.9 SD = 1.0	m = 4.2 SD =0.6

Feedback

0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 3.8 SD =0.7	m = 3.4 SD = 1.1	m = 3.6 SD = 1.0	m = 3.7 SD = 1.0	m = 4.1 SD =0.8	m = 3.9 SD =0.7	m = 3.8 SD = 1.1	m = 4.1 SD =0.7

Predictable career path

0–1	2–9	10–50	51–100	101–250	251–500	501–1,000	above 1,000
m = 3.1 SD = 1.1	m = 3.3 SD = 1.1	m = 3.3 SD = 1.0	m = 3.6 SD = 1.0	m = 3.9 SD =0.9	m = 4.0 SD =0.8	m = 3.7 SD = 1.0	m = 4.0 SD =0.7

Source: Authors

Conclusions

In this study, we investigated organizational responses to labour shortage and labour retention strategies based on ownership background and organization size. There is a labour shortage all around the world (Causa et al., 2022), which affects the whole Central and Eastern European labour market. Bite et al. (2020) expected a rise in intercontinental workforce migration into this region. According to KSH (2023), the unemployment rate in Hungary reached 3.9% in April 2023. The transformation of the labour market has recently been accelerated not only by the COVID-19 crisis but also by the fact that many jobs will be transformed or eliminated in the future due to economic, technological and social changes (Árva, 2023), as artificial intelligence may replace human resources in many jobs (Susskind & Susskind, 2015). In our opinion, taking these facts into account, it is worthwhile to investigate the retention capabilities of organizations and the emergence of labour shortages in different positions, as well as to present good practices.

The following answers to the research questions are provided.

RA1: Organizations of various ownership and size differ in the means they use to retain the labour force.

RA2: Organizations of various ownership and size differ in the factors that contribute to labour shortages in different positions.

The answers to the research questions confirm the conclusions of Bakker et al. (2004), who argued that organizational characteristics, e.g., size and ownership background, influence retention strategies. We can add to the conclusions of Bakker et al. (2004) that size and ownership affect not only retention strategy but also the factors that contribute to labour shortages in different positions.

All of these were confirmed in the hypothesis testing, where all four hypotheses were accepted.

The verification of Hypothesis 1 suggests that organizations of various sizes differ in the means they use to retain their employees. There are significant differences in the factors of personal development opportunities, feedback and predictable career paths. Larger organizations use these means much more often than smaller ones. When examining the variance values, it can be seen that organizations with more than 1,000 employees have the lowest variance, i.e., they have the most consistent views on the means to be used in retaining staff.

The verification of Hypothesis 2 suggests that organizations of various sizes differ in the factors that contribute to labour shortage in different positions. In the case of manual workers, educational problems do not tend to contribute to labour shortage. The exception to this is organizations with 101–250 employees, where problems with the education system are a problem for manual workers. We assume that this may be due to the fact that the other organizations are able to train manual workers on the job, thereby remedying the shortcomings of the education system. Work-life balance is only a feature of organizations with one person. In our opinion, this is because, in one-person organizations, most people work from home, thus mixing work and private life, which makes it difficult to separate work from private life.

According to H3, organizations of various ownership forms differ in the means they use to retain their workforce. Significant differences were obtained for the same factors as when we examined organizations by size. This may be because these are the key factors in which organizations differ by both size and ownership. Feedback and opportunities for personal development are most prevalent in foreign-owned organizations, while predictable career paths are more common in mixed-ownership organizations.

According to H4, organizations of various ownership forms differ in the factors that contribute to labour shortages in different positions. For those with higher education, domestic publicly-owned organizations are most affected by the draining effect of competition. In our view, this may be related to the fact that wages in the public sector are generally lower than in the private sector. This is supported by the fact that, in our study, higher education graduates in public sector organizations are the ones who consider that low wages are the main contributor to increasing labour shortage. Higher education graduates in public sector institutions are also the ones who perceive poor working conditions affect labour shortage most negatively, i.e., they entirely agree that poor working conditions contribute to labour shortage.

In line with our research, a great number of other researchers have investigated the relationship between organizations of various forms of ownership and of various sizes and the retention of workforce as well as labour shortages in a Hungarian context during the pandemic (e.g., Gelencsér et al., 2020; Grotte et al., 2021; Kőmüves et al., 2022). However, our study includes some novel features, as summarized below.

Firstly, Poór et al. (2023) investigated the effect of the economic crisis due to the current Russo-Ukrainian War on the labour shortage and labour retention in the agricultural sector. The present paper expands the scientific view of Poór et al. (2023) as the focus is placed on all sectors. As a result, it is the first Hungarian study that takes into account the effects of organization size and ownership while analysing the consequences of the Russo-Ukrainian War.

Secondly, previous Hungarian scholars have not investigated the effect of the economic crisis due to the current Russo-Ukrainian War on labour retention and labour shortages depending on the size and ownership of organizations.

Thirdly, we verified the results of Kőmüves et al. (2022) as organizations of various sizes differ in how they retain workforce, not only during the pandemic but also during the economic crisis due to the current Russo-Ukrainian War.

Fourthly, we also agree with Pató et al. (2022), according to whom the organizations of various forms of ownership differ in the factors that contribute to labour shortages in different positions.

Two methodological issues complicate our research. One of them is that our sample is not representative, so conclusions cannot be drawn for the whole population and can, therefore, only be considered valid for the sample. Another factor that limits the generality of the conclusions is that our questionnaire was not validated. Accordingly, the question is how accurately our questionnaire measured the factors intended to be examined by it.

However, in addition to the limitations described above, the first point to highlight is that our sample is in line with general trends in terms of industrial and ownership form distribution rates and trends. Secondly, it is also important to highlight that for most industries, we have been able to include key players (companies and institutions) in our research. The problem of validating our questionnaire is also alleviated by the fact that we also used a similar questionnaire in 2019 to investigate turnover, labour shortages and retention on the domestic labour market (Poór et al., 2019).

One possible path for future research is to extend the present study with a questionnaire validated on a nationally representative sample. Another possible future research direction is to extend the findings of the present paper by investigating and presenting labour market trends in the V4. This would also include an examination of the different ways in which organizations in different countries are trying to increase their labour retention capacity and the means by which they are trying to reduce the negative effects of labour shortages.

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