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JOB SATISFACTION DURING COVID-19: INDUSTRY 5.0 AS A DRIVER OF SUSTAINABLE DEVELOPMENT AND GENDER EQUALITY

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Abstract. Employee job satisfaction is essential for organizations because it influences motivation as well as productivity, and consequently the overall performance of an organization. As the COVID-19 pandemic disrupted many work-related processes and practices, the Industry 5.0 framework formulated new approaches for a sustainable and resilient European industry. The aim of this study is to evaluate the effects of the pandemic on job satisfaction in terms of gender differences and firm size in the context of the Industry 5.0 paradigm. Job Satisfaction Surveys (JSS) from the year 2013 to 2021 were analyzed. Our results indicate that in the Czech Republic, overall job satisfaction did not decline during the pandemic, and women were slightly more satisfied than men. Moreover, overall job satisfaction was slightly higher in small firms. These are surprising results, given the negative impacts on employment reported by many countries. We explore the differences in government policies and programs enacted during the pandemic to assist employers and employees to mitigate the negative impacts of the pandemic. In general, Czech and EU policies appeared to be better in mitigating unemployment rates than US policies. The findings are valuable for crafting best practices for organizations and future policy and program planning for governments.

Keywords: job satisfaction survey (JSS), job satisfaction determinants, gender, working conditions, firm size, COVID-19.

JEL Classification: J16, J28, J33, J38, O52.

Introduction

The COVID-19 pandemic changed both working and employment conditions for the vast majority of people. At a global level, young people, mainly young women, continue to face greater employment deficits, especially in low- and middle-income countries (International Labour Organization [ILO], 2018, 2021). Business and organizations around the world were

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forced to adapt new technologies and explore new work modalities. The McKinsey Global survey indicates that executives believe that after almost two years into the COVID-19 pandemic, the economy is on track toward a recovery. Yet with the Delta, Omicron and new variants affecting so many parts of the world, worries over the pandemic's effects such as supply-chain disruptions and inflation persist (McKinsey, 2021b).

The viral nature of COVID-19 is and has been an additional hazard affecting the health and safety of employees. This reality required that organizations rapidly evaluate employee risk and work conditions. At an organizational level, the pandemic has been highly disruptive, complex and full of ambiguity for managers and leaders. Consequently, it is not surprising that frictions between employees and employers surfaced. The pandemic also elevated the status of employees to critical stakeholders. Given this new employee status, the continued focus on short-term financial outcomes of many businesses, instead of shifting their attention to better balance employee needs is no longer as acceptable as before (Collings et al., 2021).

Widespread lockdowns restricted social interaction that disproportionately impacted disadvantaged communities, especially women who were at the center of the care and response efforts to COVID-19. The majority of caregivers, whether in their homes or in communities, are women. In addition to the economic crisis, the pandemic exposed structural inequalities in healthcare, security and social protection (UN-Women, 2021; van Barneveld et al., 2020). Using gender-disaggregated data, it is estimated that due to COVID-19, the female job loss rates are approximately 1.8 times higher than male job loss rates globally. In other words, the female job loss rate is higher (5.7%) than the male job loss rate (3.1%) (McKinsey, 2021a).

On a more positive note, at the ten-year mark of the introduction of the technology-driven Industry 4.0, the European Commission announced Industry 5.0 in the second half of 2021. Industry 5.0, also known as the Fifth Industrial Revolution, is value-driven and complements the existing Industry 4.0 paradigm by stressing the importance of research and innovation as drivers for the transition to a human centered, sustainable, and resilient European industry. In this paradigm, the focus is shifted from shareholder to stakeholder value. By making the wellbeing of the industrial worker the center of the production process, the value of new technologies is assessed in terms of whether they provide prosperity beyond jobs and growth (Breque et al., 2021; Xu et al., 2021). The main elements of Industry 5.0 are intelligent devices, intelligent systems, and intelligent automation. It is expected that these elements will completely merge with the physical world to work together with human intelligence to achieve higher efficiency, flawless production, customizable manufacturing and to minimize waste, which would lead us a step closer to sustainable development (Nahavandi, 2019).

Given these circumstances, the aim of this study is to examine the levels of job satisfaction during the pandemic in the context of the Industry 5.0 paradigm as a driver of sustainable development and gender equality. In addition, the study attempts to discern how firm size impacted job satisfaction determinants during the pandemic.

The rest of the paper is organized as follows. The Theoretical Background section provides a brief description of related and relevant literature and research. The Research and Objective and Methodology section introduces and describes our dataset and the empirical methodology. The Results and Hypotheses Verification section describes the analysis carried out. The Discussion and Interpretation of Results provides a brief analysis of our findings. Finally, the Conclusion provides additional insights and future research recommendations.

1. Theoretical background

Even though job satisfaction has been extensively studied, and it is a ubiquitous topic in the workplace, there is no general agreement among scholars regarding what job satisfaction is. Researchers have approached the concept of job satisfaction from many different perspectives. As a consequence, there are various constructs about the meaning of job satisfaction. For example, one of the most commonly used research definitions of job satisfaction was given by Locke (1969, 1976), who described overall job satisfaction as a positive or pleasing emotional state that results from the appraisal of job experiences and achievements (Locke, 1969, 1976). On the other hand, Weiss et al. (1967) argued that job satisfaction of an individual is an attitude towards jobs which is based on feelings, beliefs and behaviors (Weiss et al., 1967).

More recent definitions of job satisfaction reflect the various degrees of emotional and psychological health involved. Brooke et al. (1988) posited that job satisfaction reflects the general attitude an individual has towards the job, which is based on the fulfillment of needs and wants, whereas Hirschfeld (2000) viewed job satisfaction as an expression of personal feelings about their jobs (Brooke et al., 1988; Hirschfeld, 2000). Finally, a simple but comprehensive definition was proposed by Spector (1997), who described job satisfaction as the extent to which people like their jobs (Spector, 1997).

The COVID-19 outbreak brought to light the vulnerabilities of some industries, which underscored the urgency for businesses and society to be more resilient. The adoption of digitalization and the use digital technologies that involve artificial-intelligence-based systems has accelerated (Smit et al., 2020). Therefore, the Industry 5.0 framework is bound to have an effect on job satisfaction. Only time will tell what kind of effect is observed However, the expectation is that it will largely be a positive one (Tiwari et al., 2022).

1.1. Determinants of job satisfaction

Job satisfaction is important for many reasons. One of them is that it plays a critical role in organizations. Research has shown that job satisfaction has a positive influence on the level of employee's productivity, motivation and commitment to the organization. Additionally, research indicates that higher levels of job satisfaction have a positive effect on organizational performance (Khoreva & Wechtler, 2018; Schneider et al., 2018). Therefore, the term job satisfaction has been operationalized and conceptualized as a global construct and also as a multifaceted construct. The level of job satisfaction has implications for the well-being and life satisfaction of employees (Judge & Hulin, 1993; Judge & Watanabe, 1993), whereas employers and managers often consider that job satisfaction is an important influence on employee behavior and also on organizational effectiveness (Spector, 1997).

Numerous studies have been conducted to understand the factors influencing job satisfaction. It has been determined that factors like achievement, recognition, advancement and growth, company policies, administration, supervision, compensation and working conditions contribute to job satisfaction (Stefko et al. 2016, 2017). Therefore, not surprisingly, various instruments to measure job satisfaction have been developed. For example, the goal of a global instrument such as the Job in General Scale (JIG) is to assess global job satisfaction

without reference to any specific facets (Ironson et al., 1989). Multidimensional instruments, such as the Job Diagnostic Survey (JDS) refer to a facet approach (Hackman & Oldham, 1975); and the Job Satisfaction Survey (JSS) examines global job satisfaction as well as its dimensions (Spector, 1985). Other instruments such as the Pay Satisfaction Questionnaire (PSQ) measure one specific dimension of job satisfaction (Heneman III & Schwab, 1985). The Job Descriptive Index (JDI) is commonly used for jobs in general. For a specific workforce, instruments such as the Emergency Physician Job Satisfaction Scale (EPJS) has been developed (Van Saane et al., 2003).

As mentioned above, the Job Satisfaction Survey (JSS) developed by Paul Spector is a multidimensional instrument that was originally developed for the social services sector. However, its use has expanded for other sectors (Spector, 1985). The JSS is one of the most frequently used job satisfaction instruments and it continues to be used as several recent validation studies corroborate this. Tsounis and Safaris (2018) found that the Greek version of the JSS is a valid and reliable tool for measuring job satisfaction in Greece (Tsounis & Sarafis, 2018). Along these lines, other recent studies about the psychometric features of the JSS as well as their validity and reliability were conducted in Iran (Gholami Fesharaki et al., 2012), Nigeria (Ogunkuade & Ojiji, 2018) and China (Xiu-yun et al., 2010). Finally, in a study reviewing the psychometric quality, reliability, and validity of twenty nine job satisfaction instruments, the JSS was one of the seven tools that met al. these criteria (Van Saane et al., 2003).

1.2. The relationship between job satisfaction and gender

Regarding gender and job satisfaction, past research has found significant gender differences in subjective job satisfaction, which social scientists have tried to understand. The link between gender and job satisfaction has been especially intriguing due to the so-called gender paradox reported in some studies conducted mostly in Anglo-Saxon countries. These studies have found that despite the perception that women have worse jobs in terms of lower pay and benefits, less opportunities for career advancement and less desirable working conditions, they have reported higher levels of job satisfaction (de Galdeano, 2002; Kifle & Hailemariam Desta, 2012).

However, several other studies have not found significant gender differences in job satisfaction and argue that the gender paradox is predominantly an Anglo-Saxon phenomenon (Sousa-Poza & Sousa-Poza, 2000; Weber & Domazlicky, 2001). A more recent stream of studies argues that it is necessary to understand the various factors of job satisfaction for each gender separately, because the value or weight genders attribute to these factors vary. For example, women who grow up in environments where there is higher gender equality have expectations more aligned to those of their male counterparts (Bellou, 2010; Perugini & Vladisavljević, 2019). Furthermore, the COVID-19 pandemic has impacted gender in different ways. During the widespread lockdowns, women reported lower work productivity and job satisfaction than men (Feng & Savani, 2020).

1.3. The relationship between job satisfaction and firm size

Studies about how the size of a firm influences job satisfaction are relatively scarce. An empirical study from the 90s observed that the levels of job satisfaction were lower in larger firms in the United States. The lower job satisfaction was attributed to the inflexibility of the work environment in larger firms (Idson, 1990). A more recent study of Spanish firms also determined that employees in larger firms face worse environments and thus tend to have lower levels of job satisfaction (García-Serrano, 2011). Other studies have focused on different aspects of job satisfaction as they relate to firm size. For example, the management-employee relationships tend to be less satisfactory in large firms than in small firms, which in turn decreases the job satisfaction levels in large firms (Tansel & Gazîoğlu, 2013).

On the other hand, Lang and Johnson (1994) found that firm size, contrary to prevailing wisdom, only played a moderating role in determining the levels of job satisfaction. They further indicated that the question of whether job satisfaction is greater for larger or smaller firms is too simplistic and should be more elaborate (Lang & Johnson, 1994).

In the United States, the connection between firm size and employee benefits is significant. Larger size firms tend to offer more and often better employee benefits. Thus, employee benefit decisions are of utmost importance because of their impact on employee recruitment and retention. The ability to recruit and retain top talent is very relevant for remaining competitive in the labor market and for job satisfaction. Indirect compensation or benefits play a significant factor in the attraction and retention of employees (Dulebohn et al., 2009). Although the majority of workers in the United States receive paid leave, health insurance, and retirement benefits from their employers, there are significant differences in terms of the incidence and characteristics of these benefits that vary considerably by industry and firm size. Smaller businesses and service-oriented industries generally offer fewer benefits than larger firms and goods-producing industries, but the extent of benefit coverage varies widely within industrial and firm size groupings (Burke & Morton, 1990).

2. Research objective and methodology

The aims of the study are outlined in this section. The research questions and hypotheses are formulated; and the methodology and the job satisfaction questionnaire (JSS) are described in detail.

2.1. Goal formulation, determination of research questions and sample characteristics

The aim of this study is to examine the levels of job satisfaction during the pandemic in terms of the impact on gender and firm size. The new Industry 5.0 framework provides the context for the analysis. Thus, the following research questions are posited:

RQ1 – How has COVID-19 impacted the level of job satisfaction in the Czech Republic?
RQ2 – How has COVID-19 impacted the level of job satisfaction of each gender?
RQ3 – How does firm size impact job satisfaction determinants during the COVID-19 pandemic?

In connection with the first research question (RQ1), the main research hypotheses are defined as follows:

$H_0$1: The level of job satisfaction decreased as a result of the COVID-19 pandemic between 2019 and 2021.

$H_1$1: The level of job satisfaction did not decrease as a result of the COVID-19 pandemic between 2019 and 2021.

In connection with the second research question (RQ2), the main research hypotheses are defined as follows:

$H_0$2: The level of job satisfaction for females decreased as a result of the COVID-19 pandemic between the years 2019 and 2021.

$H_1$2: The level of job satisfaction for females did not decrease as a result of the COVID-19 pandemic between 2019 and 2021.

In connection with the third research question (RQ3), the main research hypotheses are defined as follows:

$H_0$3: The level of job satisfaction increased in small firms between the years 2019 and 2021.

$H_1$3: The level of job satisfaction did not increase in small firms as a result of the COVID-19 pandemic between 2019 and 2021.

2.2. The job satisfaction survey (JSS)

For this study, the Czech version of the Job Satisfaction Survey (JSS) was used (Spector, 1985, 1997). The parallel translation method was used to translate the original English version of the JSS. This means that two translators independently translated the JSS and the discrepancies were resolved after (Franěk et al., 2014). The JSS consists of 36 questions. The overall job satisfaction level is represented by the following determinants: Pay, Promotion, Supervision, Fringe Benefits, Contingent Rewards, Operating Conditions, Co-workers, Nature of Work, and Communication. Survey respondents determine the extent of their agreement for each item on a six-point Likert scale ranging from strongly disagree (1) to strongly agree (6). In addition, the survey captures participant demographic data such as the gender, age, the level of education of respondents, and the organization's size based on the number of employees (e.g. Small: up to 50 employees, Medium: up to 250 employees, and Large: more than 250 employees). The survey has been conducted every two years (during the months of January and February) since 2013. The most recent survey was carried out in January–February of the year 2021, therefore we now have five distinct survey data points for 2013, 2015, 2017. 2019 and 2021. The 2021 survey was conducted in the middle of the COVID-19 pandemic.

2.3. Sample characteristics

Although the online deployment and collection of a survey may pose some limitations (Pudlo & Gavurová, 2013), during the pandemic it was practically the only way to collect data. The survey data was collected through the collaboration of university distance learning students between January and February of each year sampled. For the year 2021, 1,343 completed

surveys were obtained. However, nine surveys were rejected for further processing due to various errors or due to the survey's incompleteness. Therefore, a total of 1,334 surveys were processed. Table 1 shows the basic characteristics of the respondents for each year the survey was conducted. In general, over the years more women than men have completed the questionnaire. The majority of respondents have completed secondary school, and work either in small or large organizations. Given that the respondents are of different ages and work in various types of organizations the assumption is that there is no systematic bias in the sample. Statistical analysis was performed using the software Statistica 8.

Table 1. Sample characteristics of the job satisfaction surveys conducted since 2013 (source: own processing)

Year of the survey					
	2013	2015	2017	2019	2021
Number of respondents					
Total	1,950	1,547	1,574	1,350	1,343
Not used	174	77	98	79	9
Used	1,776	1,470	1,476	1,271	1,334
Gender					
Men	757	619	675	548	602
Woman	1,019	851	801	723	732
Education					
Elementary educational level	22	11	5	20	30
Skilled worker	172	94	122	126	151
Secondary school	754	717	665	536	519
Higher professional school	113	96	84	80	77
Undergraduate (distance) learning	570	422	461	416	381
University degree education	145	130	139	93	176
Size of the company					
Small (up to 50 employees)	641	490	511	458	529
Medium (up to 250 employees)	531	410	384	338	319
Large (more than 250 employees)	604	570	581	475	486

3. Results and hypotheses verification

3.1. The overall level of job satisfaction

Table 2 shows the main results of the surveys carried out. It can be seen from the time series that the overall satisfaction has been slightly increasing since 2013. Additionally, survey respondents are most satisfied with the following job satisfaction determinants: coworkers, the nature of work, supervision and communication. The average value of these determinants is above four, which is the highest as compared to the other determinants. On the other hand,

survey respondents are least satisfied with the determinants for promotion, pay and fringe benefits.

In the last survey from 2021, which was basically carried out during the COVID-19 pandemic, the increase in the total job satisfaction as compared to the previous period, increased significantly. More precisely, it increased by 0.11 (from 3.80 to 3.91). Other determinants also increased. For example, satisfaction with Operating Conditions increased by 0.24, Communication increased by 0.17, and Pay increased by 0.14. In contrast, satisfaction decreased only for Promotion by 0.07.

Table 2. Job Satisfaction level since 2013 (T – overall job satisfaction, M – males, F – females) (source: own processing)

	2013			2015			2017			2019			2021		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Pay	3.36	3.05	3.18	3.44	3.21	3.31	3.51	3.26	3.38	3.50	3.39	3.44	3.68	3.51	3.59
Promotion	3.16	2.82	2.96	3.17	2.95	3.04	3.22	2.99	3.10	3.28	3.08	3.17	3.19	3.03	3.10
Supervision	4.26	4.24	4.25	4.26	4.29	4.27	4.26	4.28	4.27	4.17	4.36	4.28	4.29	4.47	4.39
Fringe Benefits	3.50	3.35	3.42	3.54	3.44	3.48	3.57	3.48	3.52	3.56	3.47	3.51	3.63	3.59	3.61
Contingent Rewards	3.56	3.37	3.45	3.62	3.47	3.53	3.67	3.49	3.57	3.59	3.56	3.57	3.73	3.69	3.70
Operating Conditions	3.39	3.31	3.35	3.25	3.27	3.26	3.30	3.21	3.25	3.34	3.33	3.33	3.62	3.52	3.57
Co-workers	4.42	4.48	4.45	4.35	4.34	4.35	4.38	4.45	4.42	4.24	4.48	4.38	4.33	4.59	4.47
Nature of Work	4.33	4.31	4.32	4.29	4.24	4.26	4.26	4.22	4.24	4.33	4.36	4.35	4.38	4.47	4.43
Communication	4.14	4.25	4.20	4.07	4.07	4.07	4.14	4.09	4.11	4.05	4.21	4.14	4.25	4.36	4.31
Overall Job Satisfaction	3.79	3.69	3.73	3.78	3.70	3.73	3.81	3.72	3.76	3.79	3.80	3.80	3.90	3.91	3.91

Figure 1 displays more clearly the overall job satisfaction trends since 2013 for males and females. As can be observed, the overall job satisfaction level for both genders has been steadily increasing since 2013. The level has somewhat fluctuated more for males than for females. For both genders, there is a notable increase in job satisfaction since 2019. For females the job satisfaction level shows an increasing job satisfaction trend, with a more significant increase starting in 2017. Additionally, the average job satisfaction scores have been slightly higher for females than for males in 2019 and 2021. Up until the year 2017, the overall job satisfaction had always been higher for males.

In order to test whether there were statistically significant gender differences in the evaluation of the average job satisfaction from 2019 to 2021, the Independent Sample T-test and P values were used. As shown in Table 3 these values are used to compare the evaluations by women and the evaluations by men.

Using the Independent Samples T-test, it was determined that there is a significant difference between the overall satisfaction of all participating respondents between 2019 and 2021. Table 3 shows the results of the statistical analysis to confirm that the overall job satisfaction increased for both men and women. In other words, a significant difference before and during the COVID-19 pandemic was found. As Figure 1 shows, there is a positive change in the overall satisfaction.

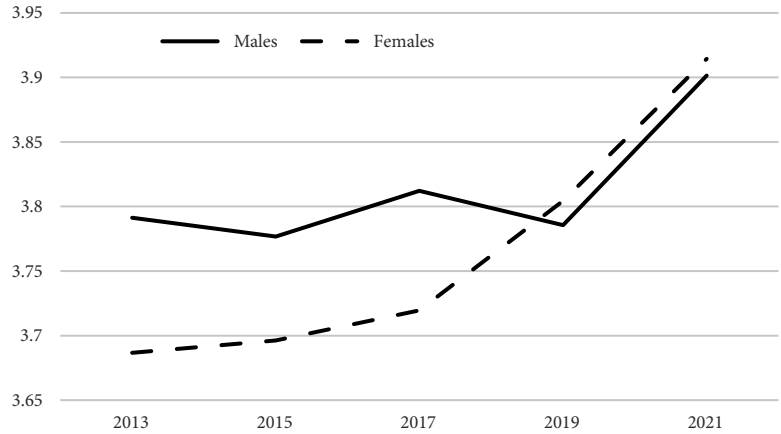

Figure 1. Average job satisfaction for males and females from 2013 to 2021 (source: own processing)

The null hypothesis is therefore refuted, and the alternative hypothesis $H_1 1$ holds: The level of job satisfaction did not decrease as a result of the COVID-19 pandemic between 2019 and 2021.

Table 3. T-test and P values for overall job satisfaction level and for both genders (source: own processing)

Average job satisfaction	t-test for Equality of Means						
	T	df	Significance	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
2019 x 2021	–3.901	2,603	<0.001	–0.112	0.029	–0.169	–0.559
2019 x 2021 M	–2.619	1,148	0.009	–0.116	0.044	–0.203	–0.029
2019 x 2021 W	–2.904	1,453	0.004	–0.110	0.038	–0.184	–0.036

3.2. The overall level of job satisfaction for each gender

Furthermore, Figures 2 and 3 show the scores of each job satisfaction determinant based on the respondents' gender. These figures show that the individual determinants of job satisfaction for women and men mirror the job satisfaction determinants for the combined sample. Both women and men are most satisfied with the following determinants: Coworkers, the Nature of Work, Supervision and Communication. The value of these determinants is also always higher than four. On the other hand, both genders are least satisfied with the job satisfaction determinants for Promotion, Pay and Fringe Benefits. Nevertheless, Figure 1 showed there is increased satisfaction with these individual determinants over time. Moreover, between 2019 and 2021, it is observed that for both women and men there was a slightly higher increase in satisfaction with the determinants of Pay and Operating Conditions than in previous periods.

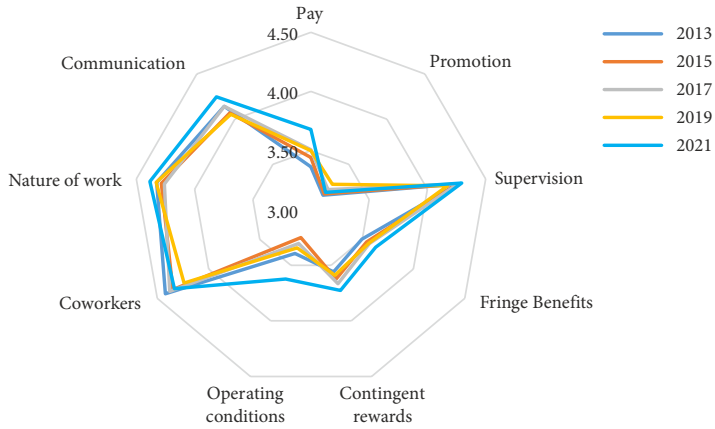

Figure 2. Average job satisfaction for males from 2013 to 2021 (source: own processing)

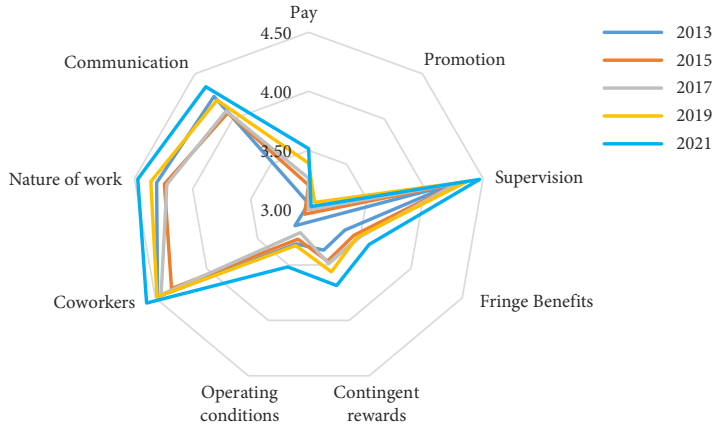

Figure 3. Average job satisfaction for females from 2013 to 2021 (source: own processing)

The null hypothesis is therefore refuted, and the alternative hypothesis $H_1 2$ holds: The level of job satisfaction for females did not decrease as a result of the COVID-19 pandemic between 2019 and 2021.

3.3. The overall level of job satisfaction in small firms

However, when comparing job satisfaction determinants by gender for a small firm size, the overall job satisfaction is higher for males than for females. In terms of individual determinants, females are slightly more satisfied than males in terms of Supervision, Coworkers, Nature of Work and Communication. In terms of Pay, Promotion, Fringe Benefits, Contingent Rewards and Operating Conditions, females are less satisfied than males.

As shown in Table 4, there is a statistically significant difference in the level of job satisfaction for small firms between 2019–2021 (sig. 0.000). Therefore, we accept the null hypothesis $H_0 3$: The level of job satisfaction increased in small firms between 2019 and 2021.

Table 4. T-test and P values for Total Satisfaction by firm size from 2019 to 2021 (source: own processing)

Total Satisfaction 2019x2021	t-test for Equality of Means						
	t	df	Significance	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
up to 50	–3.534	985	0.000	–0.175	0.050	–0.272	–0.078
51 – to 250	–0.081	655	0.379	–0.047	0.053	–0.151	0.058
250 and more	–1.763	959	0.078	–0.082	0.047	–0.173	0.009

As we can see in Figure 4, the overall level of satisfaction for all firm sizes also increased between 2019 and 2021. However, the largest observed increase is in small size companies with up to 50 employees, while the smallest increase in the overall level of satisfaction is observed for large companies.

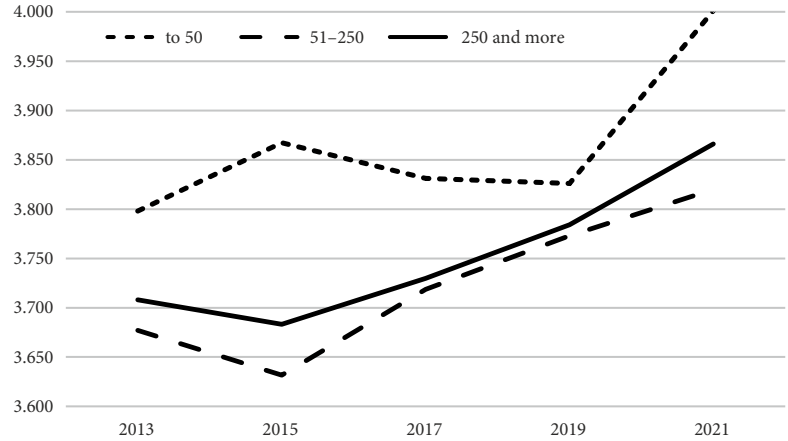

Figure 4. Average Total Satisfaction based on firm size (source: own processing)

4. Discussion and interpretation of results

Studies about the impact of COVID-19 or job satisfaction at this time are still sparse. However, there is evidence that the pandemic gave rise to a gender gap in perceived work productivity and job satisfaction, especially for U.S. workers. In general, COVID-19 had a larger impact on industries with high proportions of female employment. Furthermore, school and childcare closings increased the burden of caregiving responsibilities for women more than for men (Alon et al., 2020; ILO, 2021). In the U.S., mothers reduced their working hours more than fathers, while in Germany and Singapore women were more likely than men to transition to unemployment (Collins et al., 2021; Reichelt et al., 2021). Moreover, several studies show that after the outbreak, women were less satisfied with their job than men (Feng

& Savani, 2020), that the pandemic had a larger negative impact on working mothers (Alon et al., 2020), and that women have had more work disruption than men due to increased childcare duty and other responsibilities (Carli, 2020).

Despite the pandemic, the 2021 Czech JSS in this study indicates that the overall job satisfaction did not decrease and that it is slightly higher for females than for males. Previous studies indicated that higher levels of job satisfaction in the Czech Republic occurred in supportive organizational cultures (Sokolová et al., 2016; Zubr & Sokolová, 2021; Zubr et al., 2016). However, in terms of Pay, Promotion, Fringe Benefits, Contingent Rewards and Operating Conditions, females are still less satisfied than males. The results also indicate, that overall job satisfaction was slightly higher in small firms with up to 50 employees. We believe that not only the Industry 5.0 context, but also the different government responses and initiatives help understand the results. These aspects are further explained below.

4.1. The impact of COVID-19 on the implementation of the Industry 5.0 concept

As discussed earlier, digitalization and automation were accelerated during the pandemic. In addition, the fact that employees began to be considered as critical stakeholders aligns well with one of the Industry 5.0 premises of employee wellbeing as a path to sustainable development. In other words, job satisfaction is an important factor in the determination of sustainability (Bureš & Rácz, 2017). The issue of sustainability and gender can be assessed in terms of the contributions of men and women to sustainability, and the impacts of sustainability on men and women. Many government responses to the pandemic, perhaps inadvertently, opened the door for more sustainable practices and had to some extent a gender equalizing effect. The real question for the future is how these pandemic responses will affect the implementation of the Industry 5.0 concept in practice.

4.2. COVID-19 employment related government responses

Governments throughout the world developed a range of measures, including containment and closure, but also health system policy changes, and economic policies in order to respond to the pandemic. Containment and closure policies were designed to limit the spread of COVID-19. Health system policies tried to increase alertness regarding the virus and better equip health systems. In general, the goal of pandemic economic policies was to alleviate economic hardships for individuals (Hale et al., 2020; Koch & Park, 2022). Similarly, many organizational responses included a variety of measures to mitigate the effects of the pandemic. The differences in government and organizational responses to the pandemic most likely explain the observed results of this study.

In the United States, the unemployment rate was subject to wide swings with a sharp increase followed by a quick recovery, whereas in Europe the unemployment rate adjustments were more subtle (Gros & Ounnas, 2021). Most of the studies so far also indicate that in the United States less educated workers, racial minorities and women seemed to be affected more seriously by the adverse economic effects of the pandemic (Alon et al., 2020; Gezici & Ozay, 2020; Montenovo et al., 2020; Reichelt et al., 2021).

On the other hand, the unemployment rate in 2020 in the Czech Republic remained at 3.51%, which was one of the lowest unemployment rates of EU countries. The Czech government pandemic programs and packages were targeted. For example, the Antivirus Employment Support Program, was specifically designed to help companies protect jobs and compensate employers for a significant portion of labor costs when their economic activity was threatened by the spread of COVID-19 (Government of the Czech Republic, 2021). The compensation for employees in this situation in the Czech Republic and other EU countries was subsidized at 80 percent of regular wages (Costa Dias et al., 2020).

In addition, short-time work or short-time compensation which functioned as a subsidy for temporary reductions in the number of hours worked allowed employers to reduce their employees' hours instead of laying them off. In most EU countries, employees received from the government a subsidy proportional to the reduction in hours (Bennedsen et al., 2020; Giupponi & Landais, 2020). In contrast, few American workers were put on short-time arrangements, and the hours lost were almost exclusively because of firings or layoffs. Furthermore, in the United States, many organizations provided limited access to sick pay and health insurance despite employees facing increased workloads and COVID-19 risks (Corkery & Mahashwari, 2020). In sum, these differences in government responses to the pandemic help explain the higher levels of job satisfaction observed in our sample.

4.3. COVID-19 small business related programs

Our results also indicated that the overall job satisfaction was slightly higher in small size business of up to 50 employees. The Czech Antivirus Employment Support Program had a special provision for companies with up to 50 employees for an additional waiver of social security contributions for several months (Government of the Czech Republic, 2021). This, in addition to the increased job satisfaction trends in small businesses described in the literature review may explain the study's result.

On the other hand, in the United States the Paycheck Protection Program (PPP) loans provided financial support to small businesses, however, the program had small impacts on employment rates. In addition, a 50 percent payroll tax reduction for affected firms that do not carry out layoffs and delayed corporate tax filings was also put in place (Chetty et al., 2020).

It would be interesting to see if the observed trends of increased overall job satisfaction in the Czech Republic will continue in subsequent years. The COVID-19 pandemic is not over, and even though the world is slowly learning how to live with it, the unconventional recession that stemmed from health and economic mitigating measures continues to challenge economies worldwide. Unprecedented inflation rates are increasing the cost of living but wages are not keeping up. A future study of job satisfaction under inflationary circumstances would be useful to refine the understanding of how specific determinants affect job satisfaction. It would also be interesting to extend this study to other Central and Eastern European countries such as Poland, Slovakia and Hungary. Policies in these countries are usually more aligned with Czech policies, and slightly differ from other EU member countries.

Conclusions

The COVID-19 pandemic has profoundly impacted the workplace. In low- and middle-income countries, young people, and especially young women, continue to face greater employment deficits than in high-income countries. For example, in Europe the Industry 5.0 framework anticipates increased industry sustainability and employee wellbeing, which ultimately suggests increased gender equality.

In this study, we aimed to extend the knowledge about the impact of COVID-19 on job satisfaction. More specifically, we wanted to address potential gender differences. Based on the JSS, job satisfaction among Czech employees has steadily been increasing since 2013. Furthermore, the job satisfaction level increased even more during the pandemic. Previous studies indicated that higher levels of job satisfaction in the Czech Republic occurred in supportive organizational cultures. Therefore, this is a surprising result, given the pandemic disruptions and the negative impacts on employment reported by many countries.

The main contribution of this study is the examination of the level of job satisfaction during a pandemic in the context of the Industry 5.0 paradigm. Our results indicate that overall job satisfaction did not diminish during the pandemic. This can be attributed to some government pandemic responses and organizational practices that acted as a driving force for sustainable development and gender equality. In general, Czech and EU policies appeared to be better in mitigating unemployment rates than U.S. policies. Therefore, our findings are valuable for crafting best practices for organizations, future policy and program planning for governments.

Finally, this study has some limitations. The first one is that our sample is comprised of respondents from the Czech Republic only. However, since the Czech Republic has a relatively homogenous socio-economic composition and the country is classified as a middle to high income country, the results can be considered as representative of economically developed nations. Another limitation is that the survey did not capture employees with lower levels of education, thus this segment was underrepresented in our sample. The online deployment and collection of the survey may also pose a certain limitation. However, the ability to deploy the survey online during the pandemic turned into an advantage as respondents did not have to deal with any physical constraints imposed by pandemic restrictions. Like in previous surveys, respondents employed in various areas of the private, public, and governmental sectors were able to participate. Despite these limitations, we are convinced that our data provide results that expand the knowledge of job satisfaction.

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Author contributions

All authors conceived the idea and focus of the study. M. Sokolová, H. Mohelská and V. Zubr designed and collected the survey data. M. Sokolová and V. Zubr took the lead in analyzing the data and D. Frutos-Bencze in writing the manuscript. All authors discussed the results, provided critical feedback, helped shape the research, and contributed to the final manuscript.

Disclosure statement

The authors have no conflicts of interest to declare.

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