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Article

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THE IMPACT OF TELEWORKING ON THE ROMANIANS EMPLOYEES' JOB SATISFACTION. AN EMPIRICAL EVIDENCE BASED ON MULTIPLE CORRESPONDENCE ANALYSIS (MCA) AND LOGISTIC REGRESSION

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Abstract

The way of working is evolving constantly, and in the last year, the changes have been major under the influence of the COVID-19 pandemic. Even before the pandemic, the work flexibility was encouraged and stimulated in Romania by the promotion of the telework law, becoming an important factor for both employees and employers. In this context, the main goal of this paper is to test if and to what extent teleworking, as an important source of workspace flexibility can impact the way in which Romanian employees self-evaluate their level of satisfaction. In order to reach our goal, the analysis is structured into three main stages. In the first stage an aggregated indicator entitled "employee workspace flexibility composite indicator" is proposed and constructed. This indicator constructed with the help of the MCA technique (multiple correspondence analysis), using the information collected with a national level representative survey for the population of Romanian employees, is further used in logistic models with the purpose of identifying the influence of the flexibility on satisfaction. In the third stage, the main differences between subgroups are identified. The main findings support the idea that flexibility is a significant factor contributing to the increase of satisfaction, and also differences depending on region, sector and form of company.

Keywords: telework, job satisfaction, employee study, composite index, multiple correspondence analysis, logistic regression analysis.

JEL Classification : C31, C38, C43, J24, J28, J81

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Introduction

The coronavirus crisis in 2020 has spawned a new lifestyle, safety becoming a priority. In order to protect ourselves and to support reducing the risks of contamination, changes have taken place in all areas, including in several work related aspects and aspects connected to wage benefits. In this context, teleworking has become a necessity for the safety of employees and employers.

According to Law 81/2018, teleworking is the form of work organization through which the employee, voluntarily, fulfills the specific duties of the position he holds, in another place than the one arranged by the employer, at least one day a month, using information and communications technology, if the profile of the activity allows it to be carried out remotely (National Institute for Administration, 2020).

According to a study conducted by Global Workplace Analytics (2020), remote work can conduct to a saving, on average, of \$ 11000/employee. Another research conducted by Airtasker showed that due to remote work an employee works with 1.4 days more, each month, and due to the time needed to get from home to an office an employee saves 408 extra hours and earns 17 days off each year. Since the outbreak of the sanitary crisis in early 2020, major progress has been made on the process of work digitalization and yet, Romania is the country where less than 20% of employees have made the transition to telework (Eurofound, 2020).

In order to support the employees in the fields affected by the COVID-19 crisis who worked remote during the state of emergency, the Government issued a series of pieces of legislation as, the Ordinance 132/2020. The Law 296/2020 (Deloitte, 2020) and the local authorities have also come to support the business environment using Kurzarbeit inspired models.

If before the sanitary crisis, the usual norm was to allow the employees to take a few days per month in which they can work from home, now the teleworking is seen as the new reality of the labor market. According to E&Y (2020) study, on the one hand about 80% of companies from Romania prepare all the processes to implement this policy on work from home and on the other hand, more than 60% of workers agree to work from home at least one day per week. Reveal Marketing Research indicated that for all employees working in the telecommuting system, only one of 10 would like to return to the office after the coronavirus pandemic ends (Reveal Marketing Research, 2020). Also, according to the confidex Q4 (Impetum Group, 2021) study on managers' confidence in the economy, companies recovered half of the losses caused by COVID-19, with 55% of companies working remote.

One of the most important implications of the health crisis in the labor market is the increase of unemployment rate, in July 2020 it reached the highest level from 2016 to today. According to data provided by the National Institute of Statistics in July 2020, 484,000 unemployed were registered, 10,000 more than the previous month and 33% more than the same month last year (Ziarul Financiar, 2020).

The objective of the paper is to contribute to the national level scientific literature which investigates the factors influencing the job satisfaction in general and wishes to test if and to what extent teleworking, as an important source of workspace flexibility can impact the way in which Romanian employees self-evaluates their level of satisfaction. For reaching

the objectives, the most relevant literature is identified, in the literature review section, the data and the econometric modeling methodology is presented and finally the approach closes with the presentation of the main findings. In the final part of the paper the focus is, on the implications of the results, on constructing some practical recommendations and on the conclusions of the research.

1. Literature review

Economic, technological and environmental changes have led to changes in job design, with flexibility becoming an important requirement since the 1990s (Hamblin, 1995). With the help of technology and mobile devices (Sewell and Taskin, 2015), employees can perform their duties without spatial and temporal constraints (Jeske and Axtell, 2014). This type of remote work is called “teleworking” (Debora and Carolyn, 2014; Marlies, et al., 2015). Teleworking became known in the 1970s, when Jack Niles created a communications system for NASA and the US Air Force in which several employees were involved, some working remotely. Later, in 1979, Franck Schiff introduced the term flexible work (Chiru, 2017).

Telework has been defined as an alternative form of work that involves employees performing work tasks in another location, for at least part of their work schedule, using electronic media (Gajendran and Harrison, 2007). Thus, telework represents a type of work in which employees work from home instead of being present at the employer's premises. The biggest advantage of teleworking is represented by the performance optimization of employees' work while respecting their own needs regarding location and time (Sládek and Sigmund, 2021).

Teleworking allows more flexibility and autonomy in work, supports the balance between professional and personal life, leading to greater job satisfaction. Employees who work remotely can organize their own schedule, managing time more efficiently, the effects on stress levels (Golden and Veiga, 2008), physical and mental health are positive (Chung and van der Horst, 2020).

Thus, among the most important advantages of telework are the following: freedom of planning (Johnson, et al., 2007), autonomy (Fonner and Roloff, 2010), reduction of commute time (Hopkins and McKay, 2019), increased opportunities for disadvantaged social groups and less pollution due to reduced daily transport.

Studies on teleworking have also highlighted its disadvantages (Golden, et al., 2008; Morganson, et al., 2010), including stress at work (Fonner and Roloff, 2012; Weinert, et al., 2014) caused by radical and rapid changes in order to keep up with technological change. This type of stress, called “technostress” (Ayyagari, et al., 2011; Lei and Ngai, 2014) often prevents telework from generating professional satisfaction (Srivastava, et al., 2015).

Job satisfaction is the result of employers meeting employee requirements (Rutherford, et al., 2009), being significantly influenced by cognitive and mental factors perceived during IT use (Cheney and Scarpello, 1985), and perceived mental stress in a work environment significantly influences personal job satisfaction (Cooper, et al., 2000). Job satisfaction in case of teleworking is also due to autonomy at work, especially in areas where in order to perform tasks there is a dependence on IT technology (Clear and Dickson, 2005).

Due to program and workspace flexibility, telework is very strongly correlated to personal-professional balance (Duxbury, et al., 1998; Johnson, 2001; Maruyama, et al., 2009; Chung and van der Lippe, 2018) and thus becomes a decisive factor in choosing an employer (Maruyama, et al., 2009). The results are also supported by Malik et al. (2010), who in their study argue that the positive link between telework and personal-professional balance leads to job satisfaction. In the same direction, Haar, et al. (2014) highlights a strong and positive correlation between personal-professional balance and job satisfaction and a negative correlation between telework and anxiety and depression.

Although in Romania teleworking was introduced in order to meet the needs of companies and their employees, its recognition came much later, only in April 2018, with the issuance of special regulations on telework (Dima, et al., 2019), based on the European Framework Agreement on Telework, concluded between the social partners, in Brussels.

Social changes, such as the increase in the number of women employed with children and the aging population support telework (Mendlova, 2019), with employees being able to work from home daily (total home working-HOT) or partially (partially home working-HOP) throughout the normal program. With the help of technology, teleworking contributes to the realization of activities outside the standard work schedule (Sigmund and Sladek, 2021), allowing the development of activities in co-working spaces or in spaces suitable for learning and creative activities (flex-office).

The benefits of the four flexible workspaces that define teleworking from different perspectives are recognized in the literature: home-working and partial home working (Nakrošienė, et al., 2019, Gorlick, 2020, Gottlieb, et al., 2020,); co-working (Butcher, 2016, Kojo and Nenonen, 2017, Spinuzzi, et al., 2019); flex-office (Capotescu, 2019, Nappi and Eddial, 2021).

In 2020, the analysis of the index of the digital economy and society placed Romania next to the last countries of the European Union. Thus, although Romania registers high performances regarding the Broadband connection, and also in terms of digital technology integration by enterprises, Romania only ranks 27th among EU countries, in the index, being well below the EU average (Tofan, 2020).

The factors that contribute to increased work performance are self-determination (Ölçer and Florescu, 2015), job stability, work responsibility and autonomy, work comfort, prospects for advancement, benefits packages, development professional, remuneration (Bercu and Onofrei, 2017), efficient communication between board and workers, recognition and remuneration (Tampu and Cochina, 2015). Lefter et al. (2017) highlighted at the level of 220 companies in Romania that flexible schedules, telework, and reduced working time significantly influence job satisfaction and job performance, improving employee's well-being, personal and professional performance, and motivation.

Studies show that teleworking significantly influences overall employee satisfaction (Danielsson and Bodin, 2008, Suh and Lee, 2017, del Carmen Gutierrez-Diez, et al., 2018, Dang and Hong, 2020, Brunelle and Fortin, 2021).

Studies show that forms of flexibility also influence job satisfaction: home working and partial home working (Bellmann and Hübler, 2020, Hashim, et al., 2020, Shaikh, et al., 2021); co-working (Houghton, et al., 2018; Wijayati, et al., 2020); flex-office (Rawashdeh, et al., 2016, Taskin, et al., 2019, Gudep, 2019).

2. Data and methodology

On reaching the objective of the paper, 3 hypotheses will be formulated and tested, based on:

Hypothesis 1 (H1). Most Romanian employees have a rather low level of teleworking, even if this new form of flexibility is well known and much appreciated by employees who acknowledge its benefits.

Hypothesis 2 (H2). A synthetic measure of teleworking constructed at individual level, capturing the mix of possible new forms of workspaces, shows a positive impact on job satisfaction.

Hypothesis 3 (H3). All new individual forms of workspaces (HOT, HOP, CW and FO) exhibit a positive impact on job satisfaction.

In order to test the 3 hypotheses formulated previously, the information collected through a survey conducted among employees aged between 15 and 64 years was analyzed. The sampling technique used was probabilistically stratified by region, activity areas, gender, and area of residence. The research relies on a nationally representative sample of 220 workers, selected from 16 counties and Bucharest. The study was conducted between October 29 and November 11, 2018, through a face-to-face interview. The questionnaire has been structured on two main sub-sections: the first one related mostly with employee satisfaction and salary satisfaction, main motivational determinants, and the second one-residing mainly on elements of workspace flexibility (main forms, measures to be taken for increasing flexibility, targeting among other forms also teleworking). In order to capture the presence of all these elements of flexibility, in most of the cases, binary variables have been used, coding with 1-the presence of a particular form of flexibility and with 0-otherwise.

The research methodology combines staged basics statistical methods with more complex approaches. Thus, in the first stage the basic statistical methods include descriptive statistics and charts in order to highlight the answers collected, non-parametric correlation analysis to evaluate the strength of the relationship between teleworking, salary satisfaction, and employee satisfaction, non-parametric Mann–Whitney and Kruskal–Wallis tests for showing how different socio-demographic variables could create statistically significant discrepancies in teleworking levels. In the second stage, the synthetic teleworking indicator depends on the weights provided by the MCA (multiple correspondence analysis) and takes into account the standardized scores of the first component based on all four types of workspace flexibility. The index as such is further scaled to take values from 0 to 100. The analysis of multiple correspondences (MCA) has the particularity of considering the teleworking preference of employees as a multidimensional latent variable (unobserved). It uses binary variables in its construction process and is based on the axiom of monotonicity and also on the consistency of the order of the first axis. Valuable information for the application of this type of method was provided, among others, by Asselin (2002), Asselin and Vu Tuan (2008) or Davidescu et al. (2020).

The last layer of analysis, which evaluates the influence of teleworking on the level of satisfaction, uses as input for the logistic regression model, the synthetic indicator of teleworking build in the previous stage together with a set of covariates, mostly categorical.

The accuracy of the models was evaluated using the ROC and AUC curve (area under the curve), values very close to 1 of these indicators signaling better models at the correct

classification of the results. To implement all three stages of the research methodology, we used both the SPSS 23 software version and the 14 STATA software version.

3. Results

3.1. Romanian Employee Sample Profile

The main details regarding the structure of the sample are as follows: a) 55% of the respondents are males, b) 30% of the respondents were aged between 36 and 45, the same percentage between 46 and 55, 7% 55 and over and 5% under 26, c) 82% of the respondents have no experience in management positions and 27% have a seniority over 10 years, d) 38% of the respondents declared salaries between 2500 and 5000 lei and 46% of them indicated values lower than 2500 lei. In what the employment sector and level are regarded, the respondents have the following structure: 42% are skilled workers, 19% are professionals with higher education level and 15% are employees of the public sector. 24% of the respondents work in the manufacturing industry, 44% are employed in the services sector, and 11% in retail and trade. 27% work in large companies and 31% work in small companies with up to 49 employees. In what the geographical distribution is regarded, most of the respondents, around one fifth, are located in the Bucharest-Ilfov region and around 13% in North-West and other 13% in the center.

3.2. Is teleworking part of the Romanian labour market?

Teleworking is ranked only third as a measure of increasing flexibility on the Romanian labour market, being mentioned by less than 1 out of 4 Romanian workers, the first places being occupied by team work (81%) and computer usage (47%). In terms of employee motivation improvement, the Romanian employees mentioned as relevant measures the financial component-the wage increase, 79%, followed by professional development through training courses, 41%, and followed by the flexible program, 29%. The empirical results of Kruskal-Wallis and Mann-Whitney tests, at the significance level of maximum 10% revealed that teleworking is more widespread among men, young employees, employees from the Center and South-East regions, usually from middle management with a managerial experience of at most five years and exhibiting a medium level of remuneration. Teleworking is also important for small and medium companies and for micro-companies. The most common type of workspace flexibility refers to home working (31% of responses), followed by partial home working (28%), co-working (20%) and flex office (17%). The sector of activity and the dimension of the company leads to statistical discrepancies in the new forms of workspace flexibility. Therefore, if workers from retail and small and medium companies declared to have this type of flexibility, the workers from services and large companies are on the other side of the spectrum (Appendix 1).

3.3. Building the Romanian Employee Teleworking Index using the multiple correspondence analysis (MCA)

In supporting our hypothesis H1, the MCA has been used to build, the teleworking index among Romanian employees capturing the linear combination of the new four forms of flexible workspaces. According to our knowledge, this is the first index proposed for Romania.

The empirical results of MCA analysis supported the existence of a unique component, who explains 98.35% of the total initial variability. The statistics of Cronbach's Alpha (0.917) fully confirmed this unique component, being greater than the threshold of 0.7.

The synthetic index of teleworking makes use of the weights of the first factorial axis for both categories, identifying the relevance of each type of workspace on the basis of the sign and the values of the weights, revealing a balanced distribution among all four forms of workspace flexibility (Appendix 2).

Finally, the TELWi index for each employee has been computed as the average of its weight categories corresponding to the average of standardized scores on the first factorial axis and rescaled to take values between 0 and 100, where 0 represents the lowest level of teleworking and 100 represents the highest level of teleworking. The index ranges from 34.32 to 92.95 with an average level of 50.22, while most of the employees registered a low level of teleworking with an index of only 34.32. While the average level is almost unexisting it seems that the Romanian employees have either a relatively low level of workspace flexibility or a high level of teleworking.

Analyzing the statistical discrepancies in the teleworking index concerning the regional distribution, the size of the company, the legal status of the company, the activity sector and the main occupation of the employee, the statistical differences were highlighted based on the results of Anova analysis (Appendix 3).

Therefore, if Romanian employees from Center and Bucharest-Ilfov regions exhibited a higher level of workspace flexibility, those from West and North-East regions are characterized by a very low level of teleworking. Teleworking is a phenomenon more often encountered in large companies and national societies compared to micro and small firms and public entities (public organizations with an economic activity but not organized as companies). When analyzing the position or the level of education we find that, higher education level, specialists or employees from middle and top management positions enjoy a greater degree of flexibility of the workspace.

3.4. Could teleworking be considered a pull factor of job satisfaction for Romanian employees? An empirical investigation based on binomial logistic regression models

In order to test the research hypotheses H2 and H3, were developed two alternative models based on binomial logistic regression, which capture the impact of the synthetic measure-TELWi, as well as the impact of individual workspace components on the overall level of employee satisfaction at work. The non-parametric correlation between teleworking index, job satisfaction and salary satisfaction revealed a statistically positive and significant association, even if it is relatively low in intensity.

Analyzing the estimations produced by the logistic regression we find that both the composite index and the individual items of the workspace flexibility are statistically significant indicators of the level of job satisfaction (Table no.1).

Furthermore, the synthetic measure of teleworking significantly increased the probability of being rather satisfied with their jobs, while in the case of individual components, this impact has been proved only by the home-working and co-working, as relevant forms of workspace flexibility. Therefore, the key strategy of Romanian managers that could increase the overall level of employees' satisfaction is combining home working with the work carried out in rented spaces (co-working).

Table no. 1. The empirical results of the relationship between teleworking index and job satisfaction

Variables	Model I		Model II	
	B	Sig.	B	Sig.
salary satisfaction (ref = otherwise)				
satisfied	4.213***	0.000	4.5696***	0.000
Workspace flexibility				
Teleworking index	0.198*	0.084		
Home-working (ref = no)				
yes			4.717***	0.012
Partial home-working (ref = no)				
yes			2.253	0.138
Co-working (ref = no)				
yes			2.251**	0.032
Flex-office (ref = no)				
yes			0.117	0.916
Socio-demographic variables				
gender (ref = male)				
female	0.502	0.293	0.719	0.156
Region (ref = Bucharest-Ilfov)				
Center	-0.165	0.986	0.343	0.704
North-East	1.517	0.139	-1.566	0.171
North-West	0.278	0.717	0.162	0.838
South-East	0.526	0.716	0.665	0.662
South-Muntenia	1.233	0.248	1.268	0.227
South-West-Oltenia	-1.262	0.369	-0.779	0.668
West	2.180**	0.058	3.381**	0.021
Company size (ref = 1-9 employees)				
10-49 employees	1.018	0.369	0.992	0.396
50-249 employees	-1.152	0.272	-1.113	0.309
More than 250 employees	0.283	0.771	0.033	0.975
Activity sector (ref = agriculture)				
manufacturing industry	-1.398	0.479	-1.469	0.458
wholesale	-3.609*	0.069	-3.116*	0.095
retail	-3.230*	0.072	-3.734**	0.026
services	-3.919**	0.054	-3.903**	0.041
constructions	-0.321	0.837	-0.510	0.752
other sector	-3.112	0.184	-2.474	0.285
Legal regime (ref = limited liability company)				
joint stock company	0.214	0.843	1.562	0.36
autonomous company	3.097**	0.033	3.118***	0.010
national society	-0.972	0.4	-0.321	0.797
public institution	0.719	0.616	1.250	0.479
other	-2.128	0.133	-1.617	0.220
Employee occupation (ref = specialist with higher education)				
general manager, director or person holding	-2.136	0.169	-1.935	0.250

	Model I		Model II	
<i>a senior management position</i>				
<i>person holding a middle management position</i>	-1.427	0.387	-0.405	0.817
<i>technician</i>	-3.829***	0.019	-3.267***	0.005
<i>public service employee</i>	0.117	0.922	-0.229	0.877
<i>skilled worker</i>	-1.845**	0.032	-2.040**	0.034
<i>unskilled worker</i>	-3.237***	0.001	-3.115***	0.003
<i>Seniority (ref = under 1 year)</i>				
<i>1-3 years</i>	0.548	0.488	0.614	0.454
<i>3-5 years</i>	0.534	0.619	-0.318	0.743
<i>5-10 years</i>	0.025	0.981	0.350	0.790
<i>More than 10 years</i>	0.944	0.288	1.236	0.150
<i>Employees age (ref = less than 26 years)</i>				
<i>26-35 years</i>	-2.074	0.131	-2.095	0.126
<i>36-45 years</i>	-2.779*	0.079	-3.327**	0.055
<i>46-55 years</i>	-3.184**	0.038	-3.605**	0.023
<i>More than 56 years</i>	-2.572*	0.095	-3.868**	0.029
<i>Management experience (ref = none)</i>				
<i>Less than 1 year</i>	-0.528	0.704	-0.837	0.571
<i>1-3 years</i>	-0.549	0.674	-0.718	0.610
<i>3-5 years</i>	-0.166	0.906	0.329	0.809
<i>5-10 years</i>	2.271*	0.086	1.951	0.135
<i>More than 10 years</i>	-2.150*	0.064	-0.325	0.779
<i>constant</i>	4.620*	0.067	1.657	0.560
<i>Goodness of fit of the model</i>				
<i>No of obs.</i>	218		218	
<i>Wald Chi2</i>	72.93		93.56	
<i>Prob Chi2</i>	0.003		0.0001	
<i>Pseudo R2</i>	0.507		0.546	
<i>Log pseudolikelihood</i>	-65.95		-60.75	

Source: Authors' work

Note: *, **, ***. Correlation is significant at the 0.10, 0.05 and 0.01 level (2-tailed).

A statistically significant and positive impact in explaining job satisfaction is proven by the financial benefits as the impact is statistically and positively significant, meaning that employees who are satisfied with their salary most likely are satisfied also with their job, even if this is most likely only available in the short term.

The results highlighted the statistical significance of occupation, age and management experience and region. In contrast, gender, seniority, and company size do not seem to influence in any way the likelihood of being satisfied with the job.

The profile of the Romanian employee who declares himself satisfied with his/her job is the following: he lives in the West region, works in autonomous companies, is a specialist with higher education, and has under 26 years old, uses teleworking in its job (home-working and co-working) is satisfied with his salary and has at most five years of experience in management.

On the other hand, the characteristics of the dissatisfied employee are: he suffers from the lack of financial satisfaction and workspace flexibility, he lives in Bucharest, works in wholesale, retail or services, in limited liability companies, he is a technician or skilled or unskilled worker, he is older than 36 and has more than 10 years of management experience.

These two profiles of employees can provide valuable information to human resources managers whose major role is to increase both the satisfaction of their employees and their degree of retention with a direct impact on the organizational performance. The high probability of Hosmer and Lemeshow test (table no. 5 from appendix) reveals a good fit of the models. The overall rate of correct classification is similar for both models, they correctly classifying a total of 89.45% of the total employees (table no. 6-in the annex)

Based on the empirical results of logistic regression models, we can compute the probability that a certain employee is satisfied with his/her job, using socio-demographic variables, salary satisfaction and adding the impact of teleworking as independent predictors.

For both models, the AUC value is very high, reaching almost 1 which indicates that the models classify the results correctly. (AUC can be used to compare the performance of two or more models. The model with higher AUC is the most efficient.)

The empirical results obtained are also confirmed by studies in the literature (del Carmen Gutierrez-Diez et al. 2018; Brunelle and Fortin, 2021; Suh and Lee, 2017). Suh and Lee (2017) highlighted that workers with a lower level of teleworking intensity tend to have a lower level of job satisfaction, while Brunelle and Fortin (2021) confirm the positive role of teleworking in meeting the psychological needs of autonomy, competence and relationship of employees, having a moderating role in explaining the relationship between these needs and employee job satisfaction.

Positive effects of working from home and co-working on employee job satisfaction were also confirmed by the studies of Bellmann and Hübner (2020) and Hashim et al. (2020) which proves that individuals who work from home are happier, the satisfaction is higher and work-life balance is not miss proportioned.

Conclusions

The pandemic of COVID-19 has dramatically impacted the entire socio-economic ecosystem of the world changing the large majority of both personal activities and professional activities of the humans. Both local businesses and international corporations were heavily affected by restrictions and reduced mobility of the workforce and of the potential customers. In this new context digitalization and remote work that was merely and emerging trend reserved for a minority until February 2020 has become the norm in most activities where physical presence is not mandatory. Therefore, flexibility, agility and resilience became key characteristics of any work related activity in both the private and the public sector.

Our main goal in the current research is to map magnitude of the work flexibility phenomenon in Romania before the COVID-19 pandemic.

Using MCA, we have constructed the aggregate indicator of workspace flexibility and the analysis has highlighted the existence of a unique component, who explains 98.35% of total initial variability. The four dimensions used in the construction process have almost equal contribution to the newly created measure, more exactly, the home working and the partial home working contribute to the total with little under a quarter while co-working and flex-office both contribute with little over a quarter. Using the standardized and rescaled indicator we find that little under 40% of the respondents have a rather low level of teleworking levels (values under 35 points).

The impact of the flexible workspace on the job satisfaction was assessed using a logistic regression. As expected, we find that financial aspects have a crucial importance in explaining the level of job satisfaction.

The results highlighted also the statistical significance of occupation, age, and management experience, and region. Unlike these, gender, seniority, and company size seem not to influence in any way the probability of being rather satisfied with the job.

The profile of the Romanian employee who is most likely satisfied with his/her job, this would be the following: he lives in the West region, works in autonomous companies, is a specialist with higher education, and has less than 26 years old, uses teleworking in its job (home-working and co-working) and is satisfied with its salary and has at most five years of management experience.

On the other hand, the profile of the less satisfied employee might be: he suffers from the lack of financial satisfaction and workspace flexibility, he lives in Bucharest, works in wholesale, retail or services, in limited liability companies, he is a technician or skilled or unskilled worker, he is older than 36 and has more than 10 years of management experience.

Based on identify profiles the key strategy of Romanian managers that could increase the overall level of employees' satisfaction should include combining home working with the work carried out in rented spaces (co-working). However, as future direction research we consider very important to conduct the research again on data collected in the current situation where most of the workspace flexibility options tested in our research are the norm and are no longer regarded as a benefit. Therefore, assessing again their impact on the overall job satisfaction both for the Romanian employees and for a broader population might be a short term development direction with obvious practical utility. Finally, it can be mentioned that the main limitations of the research are those common to any survey research. However, these are minimal as they are a representative probabilistic survey. Also, other limitations refer to the covariates used in the study because their number was limited by the availability of data collected using the questionnaire.

References

- Airtasker, 2019. The Benefits of Working From Home. *Airtasker Blog*. Available at: <<https://www.airtasker.com/blog/the-benefits-of-working-from-home/>> [Accessed 21 December 2020].
- Ayyagari, R., Grover, V. and Purvi, R., 2011. Technostress: technological antecedents and implications. *MIS Quarterly*, 35(4), pp.831-858.

- Bellmann, L., Hübler, O., 2020. Working from home, job satisfaction and work–life balance – robust or heterogeneous links? *International Journal of Manpower*, pp.424-441.
- Bercu, A.M., Onofrei, M., 2017. The Empirical Research on Civil Servants' Motivation: Evidence from Romania. *Managing Global Transitions*, 15(4), pp.399-417.
- Brunelle, E. and Fortin, J.A., 2021. Distance Makes the Heart Grow Fonder: An Examination of Teleworkers' and Office Workers' Job Satisfaction Through the Lens of Self-Determination Theory. *SAGE Open*, 11(1), 215824402098551. <https://doi.org/10.1177/2158244020985516>.
- Cheney, P.H., and Scarpello, V., 1985. Job satisfaction and information systems research. *Journal of Management Information Systems*, 2(3), pp.21-36.
- Chung, H. and van der Horst, M., 2020. Flexible Working and Unpaid Overtime in the UK: The Role of Gender, Parental and Occupational Status. *Social Indicators Research*, 151(2), pp.495-520.
- Chung, H., van der Lippe, T., 2018. Flexible Working, Work-Life Balance, and Gender Equality: Introduction. *Soc. Indic. Res.*, pp.1-17.
- Codul muncii, 2021. *Art. 108 Codul muncii Munca la domiciliu*, [online] LegeAZ. Available at: <<https://legeaz.net/legea-53-2003-codul-muncii/art-108>> [Accessed 20 December 2020].
- Cooper, C.L., Dewe, P. and O'Driscoll, M.P., 2001. *Organizational stress: a review and critique of theory, research, and applications*. Foundations for organizational science. Thousand Oaks, Calif: Sage.
- Dang, T.K.P. and Hong, T.N., 2020. Teleworking and job satisfaction: How the COVID-19 outbreak shapes the new working pattern in Vietnam? *Proceedings of the 6th International Conference on Finance and Economics*, pp.38-53.
- Danielsson, C.B. and Bodin, L., 2008. Office Type in Relation to Health, Well-Being, and Job Satisfaction Among Employees. *Environment and Behavior*, 40(5), pp.636-668.
- Davidescu, A.A., Apostu, S.A., Paul, A. and Casuneanu, I., 2020. Work Flexibility, Job Satisfaction, and Job Performance among Romanian Employees – Implications for Sustainable Human Resource Management. *Sustainability*, 12(15), 6086.
- Debora, J. and Carolyn, A., 2014. E-Internships: prevalence, characteristics and role of student perspectives. *Internet Research*, 24(4), pp.457-473.
- Deloitte, 2020. *Modelul Kurzarbeit în România – avantaje și vulnerabilități*, [online] Deloitte Romania. Available at: <<https://www2.deloitte.com/ro/en/pages/business-continuity/articles/modelul-kurzarbeit-in-romania-avantaje-si-vulnerabilitati.html>> [Accessed 20 November 2020].
- Dima, A.M., Țuclea, C.E., Vrâncanu, D.M. and Țigu, G., 2019. Sustainable Social and Individual Implications of Telework: A New Insight into the Romanian Labor Market. *Sustainability*, 11, 3506.
- Duxbury, L., Higgins, C. and Neufeld, D., 1998. TeleWork and the Balance between Work and Family: Is TeleWork Part of the Problem or Part of the Solution? In *The Virtual Workplace*; Igbaria, M., Tan, M., Eds.; Idea Group Publishing: Hersey, PA, USA, pp. 218-255.

- EY România, 2020. *Revenirea la muncă. Noile condiții*, [online] EY România. Available at: <https://www.ey.com/ro_ro/news/2020/10/studiul-ey--revenirea-la-munca--noile-conditii--60--dintre-anga> [Accessed 20 November 2020].
- FGO, n.d. *Munca de acasă: cum îți motivezi angajații să rămână productivi*, [online] Available at: <<https://blog.fgo.ro/munca-de-acasa-cum-iti-motivezi-angajatii-sa-ramana-productivi/>> [Accessed 22 December 2020].
- Fonner, K. and Roloff, M., 2012. Testing the connectivity paradox: linking teleworkers' communication media use to social presence, stress from interruptions, and organizational identification. *Communication Monographs*, 79(2), pp.205-231.
- Fonner, K.L. and Roloff, M.E., 2010. Why teleworkers are more satisfied with their jobs than are office-based workers: When less contact is beneficial. *Journal of Applied Communication Research*, 38(4), pp.336-361.
- Gajendran, R.S. and Harrison, D.A., 2007. The good, the bad, and the unknown about telecommuting: meta-analysis of psychological mediators and individual consequences. *Journal of Applied Psychology*, 92(6), pp.1524-1521.
- Golden, T.D. and Veiga, J.F., 2008. The impact of superior-subordinate relationships on the commitment, job satisfaction, and performance of virtual workers. *The Leadership Quarterly*, 19(1), pp.77-88.
- Golden, T.D., Veiga, J.F. and Dino, R.N., 2008. The impact of professional isolation on teleworker job performance and turnover intentions: Does time spent teleworking, interacting face-to-face, or having access to communication-enhancing technology matter? *Journal of Applied Psychology*, 93(6), pp.1412-1421.
- Gudep, V.K., 2019. An Empirical Study of the Relationships between the Flexible Work Systems (FWS), Organizational Commitment (OC), Work Life Balance (WLB) and Job Satisfaction (JS) for the Teaching Staff in the United Arab Emirates (UAE). *International Journal of Management*, 10(5), pp.11-27.
- Gutierrez-Diez, M. del C., Aguilar, A.L.S. and Howlet, L.C.P., 2018. Telework as a Labor Satisfaction Strategy. Findings in Emerging Economies. *European Scientific Journal*, ESJ, 14(22), p.1. <https://doi.org/10.19044/esj.2018.v14n22p1>.
- Haar, J.M., Russo, M., Suñe, A. and Ollier-Malaterre, A., 2014. Outcomes of work-life balance on job satisfaction, life satisfaction and mental health: A study across seven cultures. *Journal of Vocational Behavior*, 85(3), pp.361-373.
- Hamblin, H., 1995. Employees' perspectives on one dimension of labour flexibility: working at a distance. *Work, Employment and Society*, 9(3), pp.473-498.
- Hashim, R., Bakar, A., Noh, I. and Mahyudin, H.A., 2020. Employees' Job Satisfaction and Performance through working from Home during the Pandemic Lockdown. *Environment-Behaviour Proceedings Journal*, 5(15), pp.461-467.
- Hopkins, J.L. and McKay, J., 2019. Investigating 'anywhere working' as a mechanism for alleviating traffic congestion in smart cities. *Technological Forecasting and Social Change*, 142, pp.258-272.
- Houghton, K.R., Foth, M. and Hearn, G., 2018. Working from the Other Office: Trialling Co-Working Spaces for Public Servants. *Australian Journal of Public Administration*, 77(4), pp.757-778.

- Impetum Group, 2020. *Studiul CONFIDEX Q4 2020: încrederea managerilor în economia românească a crescut în Q4 2020*, [online] Impetum Group Available at: <<https://impetumgroup.com/confidex/studiile-confidex/studiul-confidex-q4-2020-increderea-managerilor-in-economia-romaneasca-a-crescut-in-q4-2020/>> [Accessed 20 March 2021].
- Institutul Național de Administrație, 2020. *Telemunca – o opțiune de muncă implementată și în sectorul public*, [online] INA Available at: <<http://ina.gov.ro/2020/04/telemunca-o-optiune-de-munca-implementata-si-in-sectorul-public/>> [Accessed 20 December 2020].
- Jeske, D. and Axtell, C., 2014. E-Internships: prevalence, characteristics and role of student perspectives. *Internet Research*, 24(4), pp.457-473.
- Johnson, L.C., Andrey, J. and Shaw, S.M., 2007. Mr. Dithers comes to dinner: Telework and the merging of women's work and home domains in Canada. *Gender, Place & Culture*, 14(2), pp.141-161.
- Johnson, N.J., 2001. Case Study of the St. Paul Companies' Virtual Office for the Risk Control Division. In *Telecommuting and Virtual offices: Issues and Opportunities*; Johnson, N.J., Ed.; Idea Group Publishing: London, UK, pp.148-161.
- Legislatie, 2020. *LEGE 296 18/12/2020 - Portal Legislativ*, [online] Available at: <<http://legislatie.just.ro/Public/DetaliiDocument/235513>> [Accessed 15 December 2020].
- Legislatie, 2020. *LEGE 81 30/03/2018 - Portal Legislativ*, [online] Available at: <<http://legislatie.just.ro/Public/DetaliiDocument/199418>> [Accessed 20 December 2020].
- Legislatie, 2020. *Ordonanța de Urgență nr. 132 din 7 august 2020*, [online] Available at: <<http://legislatie.just.ro/Public/DetaliiDocument/229026>> [Accessed 10 December 2020].
- Lei, C.F. and Ngai, E.W., 2014. The double-edge nature of technostress on work performance: a research model and research agenda. In *Proceedings of 35th International Conference on Information Systems, Auckland, December*, pp.11-14.
- Malik, M.I., Saleem, F., Ahmad, M., 2010. Work-Life Balance and Job Satisfaction among Doctors in Pakistan. *South Asian J. Manag.*, 17, pp.112-123.
- Marlies, W., Verbrugge, S., Sadowski, B., Menno, D. and Pickavet, P., 2015. Identifying and quantifying the indirect benefits of broadband networks for e-government and e-business: a bottom-up approach. *Telecommunication Policy*, 39(3), pp.176-191.
- Maruyama, T., Hopkinson, G.P. and James, P.W., 2009. A multivariate analysis of work-life balance outcomes from a large-scale telework programme. *New Technol. Work Employ.*, 24, pp.76-88.
- Mendlova, I., 2019. *(Ne)zamestnanost v dobe „blahobytu”*, [online] Statistika & my, Available at: <<https://www.statistikaamy.cz/2019/01/17/nezamestnanost-v-dobeblahobytu/>> [Accessed 15 December 2020].
- Morganson, V.J., Major, D.A., Oborn, K.L., Verive, J.M. and Heelan, M.P., 2010. Comparing telework locations and traditional work arrangements: Differences in work-life balance support, job satisfaction, and inclusion. *J. Manag. Psychol.*, 25, pp.578-595.

- Ölçer, F. and Florescu, M.S., 2015. Mediating Effect Of Job Satisfaction In The Relationship Between Psychological Empowerment And Job Performance. In *Business Excellence and Management, Faculty of Management, Academy of Economic Studies, Bucharest, Romania*, 5(1), pp.5-32.
- Pandurul, 2021. *Efectele pandemiei – 5 din 10 femei lucrează mai puțin de 8 ore pe zi, pentru a putea avea grijă de copii și casă*, [online] Available at: <[https://www.pandurul.ro/articol/\[analiza\]-efectele-pandemiei-%E2%80%93-5-din-10-femei-lucr_134998.html](https://www.pandurul.ro/articol/[analiza]-efectele-pandemiei-%E2%80%93-5-din-10-femei-lucr_134998.html)> [Accessed 10 March 2020].
- Rawashdeh, A.M., Almasarweh, M.S. and Jaber, J., 2016. Do flexible work arrangements affect job satisfaction and work-life balance in Jordanian private airlines? *International Journal of Information, Business and Management*, 8(3), p.172.
- Reveal Marketing Research, 2020. *Studiu Reveal Marketing Research. La nivel național despre evoluția emoțională a românilor: Românii încep să vadă lumina de la capătul tunelului*, [online] Reveal Marketing Research. Available at: <https://reveal.ro/portfolio_page/studiu-reveal-marketing-research-la-nivel-national-despre-evolutia-emotionala-a-romanilor-romanii-incep-sa-vada-lumina-de-la-capatul-tunelului/> [Accessed 10 November 2020].
- Rutherford, B., Boles, J., Hamwi, A., Madupalli, R. and Rutherford, L., 2009. The role of the seven dimensions of job satisfaction in salesperson's attitudes and behaviors. *Journal of Business Research*, 62(11), pp.1146-1151.
- Sewell, G. and Taskin, L., 2015. Out of sight, out of mind in a new world of work? Autonomy, control, and spatiotemporal scaling in telework. *Organization Studies*, 36(11), pp.1507-1529.
- Shaikh, D., Pawar, K., Kasat, D. and Deshpande, D., 2021. Job satisfaction analysis of female Employees of IT Sector working from home during the pandemic of COVID-19 using interaction effect. *Journal of Contemporary Issues in Business and Government*, 27(1), pp.2101-2108.
- Sládek, P. and Sigmund, T., 2021. Legal Issues of Teleworking. *SHS Web of Conferences*, 90, p.01020. <https://doi.org/10.1051/shsconf/20219001020>.
- Srivastava, S.C., Chandra, S. and Shirish, A., 2015. Technostress creators and job outcomes: theorising the moderating influence of personality traits. *Information Systems Journal*, 25(4), pp.355-401.
- Suh, A. and Lee, J., 2017. Understanding Teleworkers' Technostress and Its Influence on Job Satisfaction. *Internet Research*, 27, pp.140-159.
- Tampu, D.L.I. and Cochina, I., 2015. Motivation & employee performance. In *Proceedings of The International Management Conference*, 9(1), pp.812-821.
- Taskin, L., Parmentier, M. and Stinglhamber, F., 2019. The dark side of office designs: towards de-humanization. *New Technology, Work and Employment*, 34(3), pp.262-284.
- The Virtual Leader, 2012. Year of the Mobile Worker, [online] The Virtual Leader Available at: <<https://thevirtualleader.wordpress.com/2012/01/03/2012-year-of-the-mobile-worker/>> [Accessed 10 February 2021].
- Tofan, D.O., 2020. Auditul în era digitală – precauții pe un teren minat. *Tax Magazine*, 3, pp.200-207.

- Weinert, C., Maier, C., Laumer, S. and Weitzel, T., 2014. Does teleworking negatively influence IT professionals? An empirical analysis of IT personnel telework-enabled stress. In *Proceedings of the 52nd ACM Conference on Computers and People Research*, pp.139-147.
- Wijayati, D.T., Fazlurrahman, H., Hadi, H.K., Rahman, Z. and Kautsar, A., 2020. Coaching As Determinant of Job Performance: Co-working Support As Mediating Variable. *KnE Social Sciences*, pp.240-250.
- Ziarul Financiar, 2020. Numărul de șomeri a crescut în iulie pentru a șasea lună consecutiv, la 484.200 de persoane, în creștere cu 33% față de iulie 2019. Rata șomajului a urcat la 5,4%. [online] ZF.ro. Available at: <<https://www.zf.ro/companii/numarul-de-someri-a-crescut-in-iulie-pentru-a-sasea-luna-consecutiv-19527577>> [Accessed 12 March 2021].

Appendix 1

Tabel no. 1. The empirical results of the main differences regarding teleworking characteristics

		home working	Partial home working	co-working	flex-office
Activity sector	Chi-Square	11.141	11.174	9.691	9.014
	Asymp. Sig.	.049**	.048**	.084*	.109*
Company Dimension	Chi-Square	10.160	10.957	10.016	10.320
	Asymp. Sig.	.017**	.012***	.018***	.016***
		a. Kruskal Wallis Test			

Source: Authors' work

Appendix 2

Table no. 2. The relative contribution of the workspace variables to the first dimension

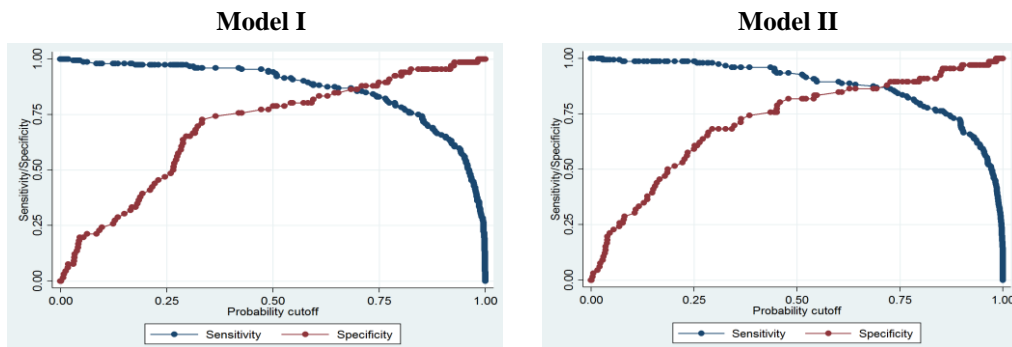
Variables	Relative Contribution (%) to the First Dimension
Do you practice home working?	24.50
Do you practice partial home working?	24.57
Do you practice co-working?	25.26
Do you practice flex-office?	25.67
	100.00

Appendix 3

Table no. 3. Descriptive statistics of composite index of work flexibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	≤35.00	85	38.6	38.6	38.6
	35.01-70.00	69	31.4	31.4	70.0
	70.01+	66	30.0	30.0	100.0
	Total	220	100.0	100.0	

Source: Authors' work

**Figure no. 1. Sensitivity and specificity analysis***Source: Authors' work*

The fit quality of the models can be assessed using pseudo R², AIC and SBC, emphasizing that both models produce reliable results.

Table no. 4. Classification tables

	MODEL I	MODEL II
Sensitivity Pr (+/-D)	94.08%	92.76%
Specificity Pr (-/~D)	78.79%	81.82%
Positive Predictive Value Pr (D/+)	91.08%	92.16%
Negative Predictive Value Pr (~D/-)	85.2%	83.08%
False + Rate For True ~D Pr (+/~D)	21.21%	18.18%
False - Rate For True D Pr (-/D)	5.92%	7.24%
False + Rate For Classified + Pr (~D/+)	8.92%	7.84%
False - Rate For Classified - Pr (D/-)	14.75%	16.92%
Correctly Classified	89.45%	89.45%

*Source: Authors' work***Table no. 5. The empirical results of Hosmer-Lemeshow godness-fit test**

	MODEL I	MODEL I
Hosmer-Lemeshow Chi 2	10.26	9.49
Prob>Chi2	0.2471	0.3023

*Source: Authors' work***Table no. 6. Measures of Fit for logit of job satisfaction**

	MODEL I	MODEL II
Mcfadden`S R2	0.507	0.546
Aic	1.119	1.172
Bic	-740.381	-691.563
Mcfadden`S Adj R2	0.088	0.044
Cragg&Uhler`S R2	0.655	0.690

Source: Authors' work