

# Working from home and job satisfaction: evidence from Russia

Working from  
home and job  
satisfaction

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## Abstract

**Purpose** – This study aims to investigate the impact of working from home and its duration on job satisfaction.

**Design/methodology/approach** – The analysis was conducted on a representative panel data set from the Russian Longitudinal Monitoring Survey - Higher School of Economics (RLMS-HSE) for 2016–2021 using endogenous regression models. The impact of working from home on job satisfaction before and during the coronavirus disease 2019 (COVID-19) pandemic, and separately for men and women, was analysed.

**Findings** – Working from home was found to positively affect job satisfaction in the Russian labour market. From 2016 to 2021, men and women who worked from home were more satisfied with their jobs than their counterparts who did not work from home. The positive impact of working from home on job satisfaction was observed before and during the COVID-19 pandemic. However, remote workers (RWR) putting in more than eight hours per day reported lower job satisfaction.

**Research limitations/implications** – Working from home can be considered as a measure to combat unemployment, increase employment and improve the utilisation (distribution) of human resources. Further research is required to analyse the impact of health issues and the need to care for young children or infirm persons on job satisfaction in remote work. A more detailed analysis is required of the factors that affect the job satisfaction of women who work remotely.

**Practical implications** – To ensure that labour productivity increases and not decreases, employers are advised to develop more detailed working arrangements and labour management for RWRs. Especially for such assigned workers, task control regulations must be developed. To increase the motivation of individuals to work remotely, overtime should be paid at a higher rate.

**Social implications** – Unclear working time regulations lead to overwork, irregular working hours and burnout. For RWRs, this leads to lower job satisfaction and a consequent drop in productivity.

**Originality/value** – The empirical investigation is based on a representative panel of Russian data with six waves. Wide ranges of job characteristics were incorporated as determinants. The problem of causality was investigated. For models with an endogenous regressor, instrumental variables were tested and selected.

**Keywords** Job satisfaction, COVID-19 pandemic, Remote work, Working from home, Working hours

**Paper type** Research paper

Received 18 February 2023

Revised 18 July 2023

Accepted 10 August 2023

## 1. Introduction

The development of digital technologies and widespread use of broadband Internet have contributed to the global paradigm shift towards remote work. The coronavirus disease 2019 (COVID-19) pandemic only accelerated this process. Virtually every country in the world has seen the large-scale transition of a significant percentage of its workforce to remote work.

Increasing labour flexibility and lowering labour costs for employers, remote work has a mixed impact on the job satisfaction of company employees. Factors that have a positive impact on job satisfaction include autonomy, flexible work hours, time savings and reduced stress. Factors that have a negative impact on job satisfaction include overtime, social isolation and an unhealthy work-life balance (Bellmann and Hübler, 2021). Researchers have obtained results confirming both the positive (Reuschke, 2019) and negative impact of remote work on job satisfaction (Song and Gao, 2020).

However, the impact of remote work on job satisfaction often differs between socio-demographic groups, such as men and women and depends on their marital status (Bernhardt *et al.*, 2022).



**Funding:** The study was implemented in the framework of the Basic Research Program at the HSE University.

International Journal of Manpower

© Emerald Publishing Limited

0143-7720

DOI 10.1108/IJM-02-2023-0089

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Employee perception of remote work is influenced by both individual preferences and external conditions. Whereas before COVID-19 workers were more likely to voluntarily choose to work remotely, during the pandemic most people were obliged to work from home. During this time, there were higher levels of uncertainty, fewer opportunities for social contact outside of households, more time spent at the computer and fewer opportunities to participate in physical activity (Möhring *et al.*, 2021). Consequently, the impact of working from home on job satisfaction during the COVID-19 pandemic may differ significantly from pre-COVID-19 levels.

This study aims to determine the impact of working from home on job satisfaction before and after COVID-19 for employed workers and separately for men and women. This will contribute to the discussion of the social implications of remote work, which have not yet been sufficiently studied for developing countries.

According to some researchers, there are fewer opportunities to work remotely in developing countries than in developed countries. The underdeveloped infrastructure and lack of access to important services in developing countries can limit opportunities for effective remote work (Viollaz, 2022). At the same time, the case of Russia is of particular interest. Russia is a country with an emerging market economy, a large area, a relatively high interregional income inequality and an unevenly developed infrastructure. The costs of travelling between the Russian regions are relatively high. Remote work may increase employment opportunities in economically successful regions (cities) for workers from depressed regions (cities) with high unemployment (wage arrears). This would have a positive impact on job satisfaction. In this regard, we can look at Russia to predict the impact of working from home in developing countries in a globalised economy.

Within countries, not all employees have access to the same remote work opportunities. The scope for working from home varies and this can lead to increased income inequality between men and women (Allen *et al.*, 2021). To discuss the potential of remote work for reducing gender inequality in the labour market, this study tests the hypothesis of heterogeneity in respect of the impact of remote work on job satisfaction across gender groups.

Remote work may require employees to be continuously engaged in the work process, thereby increasing their working hours. Since long working hours lead to increased fatigue and lower productivity (Allison *et al.*, 2022), headaches and weight gain (Virtanen *et al.*, 2020), this may have a negative impact on job satisfaction (Hoang and Knabe, 2021). In this regard, this study tests the hypothesis of the impact of working hours on job satisfaction for remote workers (RWRs).

This study goes beyond previous research. The study sample is not limited to specific populations (Kivi *et al.*, 2021) or regions (Pesha and Tonkikh, 2020), nor does it contain aggregated data (Huebener *et al.*, 2020). This study was conducted on a representative panel data set from the Russian Longitudinal Monitoring Survey (RLMS-HSE) for 2016–2021. This makes it possible to track the job satisfaction of RWRs over a relatively long period of time. The contribution of this study is to identify the impact of remote employment on job satisfaction using models with instrumental variables. The study methodology takes into consideration that remote work and remote working hours are endogenous regressors in job satisfaction equations. With this in mind, the calculations were performed using instrumental variable models. This study contributes to the impact research of remote employment on job satisfaction, not only on the labour supply side (men and women (Bernhardt *et al.*, 2022), hours of work (Dong *et al.*, 2023) but also on the labour demand side, taking into consideration such factors as macroeconomic conditions (before and after COVID-19) and the heterogeneity of regional labour markets.

Based on the study objectives, this paper consists of several sections. The second section is devoted to a review of the related literature. This section presents the results of research on

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the relationship between remote work and job satisfaction, taking into consideration the heterogeneity of workers by gender and the impact of COVID-19.

The third section of the paper presents a description of the data and study methods. The fourth section describes the results of descriptive and regression analyses. The fifth section presents the study conclusions and outlines prospects for future research.

## 2. Related literature and hypotheses

During the COVID-19 pandemic, many workers were obliged to transition to remote work (Jacks, 2021). They joined workers who had previously worked remotely or from home (ILO, 1996).

Before COVID-19, 12% of Europeans worked from home, whilst during the pandemic, approximately 50% of the population began to work remotely (Eurofound, 2020). In December 2020, the average percentage of RWRs was 25% in the United States, 47% in Australia, 38% in Sweden and almost 33% in the United Kingdom (Ker *et al.*, 2021).

In Russia, remote work began to gain popularity before the onset of the COVID-19 pandemic. However, in 2020, amendments were made to the Labour Code of the Russian Federation on the basis of which remote work began to be regulated (Federal Law, 2020). According to the legislation, RWRs are defined as individuals who perform work outside the registered location of the employer or a fixed workplace and outside the territory under the control of the employer. At the same time, they use information and communications technologies (including the Internet) to perform their work duties and communicate with the employer.

In 2020, under the impact of COVID-19 and this legislation, the number of companies in Russia that transferred their employees to remote work increased significantly. Whilst in 2019, only 14% of companies had RWRs, by 2020 this had risen to 35%. At the same time, in 2019, 4% of employees in Russian companies worked remotely, and by 2020, this had more than tripled to 14.23% [1].

The growth of remote work has transformed traditional jobs and working conditions (Naumann *et al.*, 2020). This has had both positive and negative implications for workers, with a mixed impact on job satisfaction.

On the one hand, remote work has given them the opportunity to work from different countries and regions, save time and money by avoiding the office commute (Wheatley, 2012); combine work and leisure and achieve a more harmonious work-life balance (Bellmann and Hübner, 2021).

On the other hand, remote work has begun to blur the boundaries between work and leisure. It did not always resolve the conflict between work and family responsibilities and could, therefore, lead to an exacerbation of family tensions (Song and Gao, 2020).

During the COVID-19 pandemic, workers often chose to work remotely for health reasons, and this had a positive impact on job satisfaction. At this time, remote work became widespread for some job types (Bloom *et al.*, 2015). Meanwhile, during the COVID-19 pandemic, remote work contributed greatly to the compulsory self-isolation of workers (Reuschke and Felstead, 2020). It increased worker autonomy, but also decreased direct social contact and so had a negative impact on job satisfaction. In addition, during the COVID-19 pandemic, kindergarten and school closures resulted in the need for parents to combine work and childcare. Their workload increased, leading to a drop in job satisfaction (Huebener *et al.*, 2020).

In Russia, interest in analysing the reasons for remote work increased after 2020 (Loginov and Lopatina, 2021). However, the impact of remote work on job satisfaction has not been well studied.

Results for the Sverdlovsk region for 2015–2016 suggest that remote work prior to COVID-19 increased job satisfaction amongst highly skilled workers and contributed to the

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growth of women's employment (Pesha and Tonkikh, 2020). However, these results are not representative of Russia as a whole and cannot be used to draw conclusions on the overall situation in the country. More recent research indicates that during COVID-19, negative attitudes towards remote work prevailed amongst workers in 2020 and became more neutral in 2021 (Lyashok, 2021). As remote work was obligatory rather than voluntary for workers during the COVID-19 pandemic, it is understood to have had a negative impact on job satisfaction.

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*H1.* During the COVID-19 pandemic, RWRs were less satisfied with their jobs than their non-remote working colleagues.

Because of differences in labour market behaviours between men and women, the impact of remote work on job satisfaction may also differ (Kim *et al.*, 2020). Whilst working from home was more common amongst men in the eighties and nineties (Stanworth, 1997), opportunities for women to work remotely have increased with the advancement of digital technologies (Kim *et al.*, 2020). With an ageing population, remote work was hoped to increase women's labour force participation and reduce gendered income inequality. However, these hopes have not yet been conclusively confirmed (Sullivan and Smithson, 2007). The benefits of remote work for women are diminished if their free time is taken up by household chores and caring for family members. In this regard, remote work may have a positive impact on job satisfaction for men rather than women (Binder, 2016).

Russia has a higher women's labour force participation than many countries with similar levels of economic development (Verick, 2018). Researchers have not found any differences between men and women in Russia in terms of preference for remote work (Lyashok, 2021). At the same time, during the acute phase of the COVID-19 pandemic in 2020–2021, a higher percentage of Russian women were employed remotely than men. 28% of women worked remotely, compared to 19% of men.

For many years, job satisfaction amongst women in Russia has been relatively low compared with job satisfaction amongst men. The main determinants of job satisfaction amongst Russian women were workplace rights and wage growth (Linz and Semykina, 2013). Since remote work in Russia has not significantly affected workplace rights and has not led to a noticeable increase in their wages, job satisfaction amongst women employed remotely is expected to remain at a relatively low level compared to job satisfaction amongst men employed remotely. On this basis, we tested the second study hypothesis.

*H2.* Job satisfaction from remote work is lower for women than for men.

Remote work blurs the concept of the standard working day (week). RWRs have been found to work an average of more hours per week than employees who do not work remotely. Working remotely longer than the standard working day leads to poor physical and mental health in workers and burnout (Piovani and Aydiner-Avsar, 2021). In this regard, the negative impact of remote work on job satisfaction may be related to working hours (Suh and Lee, 2017).

However, researchers have not obtained conclusive evidence that long working hours always negatively impact job satisfaction. For example, Valente and Berry (2016) found that men in the United States are happier if they work longer hours. However, Bartoll and Ramos (2020) found, using data from Spain, that long working hours reduce job satisfaction. Dong *et al.* (2021) found that the relationship between working time and job satisfaction in China is inverse U-shaped. Zheng *et al.* (2023) confirmed the significant negative impact of working time on job satisfaction in China. They also found that job satisfaction did not change with changing working hours for individuals working less than 9 h per day.

Before the COVID-19 pandemic, working hours had a positive impact on job satisfaction in Russia (Ankudinov *et al.*, 2013). During the COVID-19 pandemic, one in two RWRs had

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blurred boundaries when it came to working time. Men and women who worked remotely spent less than 7–8 h of their daily time on paid labour, whilst individuals who did not work remotely spent up to 10–11 h (Monusova, 2021). It follows that remote work constituting more than eight hours a day may have a negative impact on job satisfaction.

*H3.* Remote employees who work more than eight hours a day are less satisfied with their jobs than remote employees who work eight hours or less.

Remote work is not applicable in all cases. If the work of company employees requires autonomy and does not involve constant or informal communication with colleagues or clients, then, all other things being equal, it can have a positive impact on job performance and lead to a relatively high level of job satisfaction. When work takes place in a team setting, requires networking, or involves interpersonal direct and/or informal communication, remote work makes this more difficult and so can negatively impact job performance, inhibit employee career growth and lead to lower job satisfaction. In this regard, we can expect the impact of remote work on job satisfaction to vary by sector and occupation.

### 3. Data and methodology

This study used a dataset from the RLMS-HSE for 2016–2021 [2]. The RLMS-HSE is the only representative microeconomic survey on households in Russia that details a wide range of respondent characteristics such as job satisfaction, remote work, their sex, education, income, marital status, profession, industry and so on.

RLMS-HSE data can be used to assess job satisfaction levels of RWRs and compare it to job satisfaction levels of individuals who do not work remotely. I assessed job satisfaction levels by asking respondents: “In general, how satisfied (dissatisfied) are you with this job?” The corresponding answer is based on a five-point scale: 1 = completely dissatisfied, 2 = rather dissatisfied, 3 = yes and no, 4 = rather satisfied and 5 = completely satisfied.

A feature of RLMS-HSE data is its bias towards low-income respondents, who are more willing to respond to questions about their income than high-income respondents are. Since the employment conditions of low-income respondents are often inferior to those of high-income respondents, job satisfaction may be underestimated in the RLMS-HSE data.

I restricted my analysis to females aged 15–55 and males aged 15–60. I included in the sample respondents who have a job; are on paid leave, excluding maternity leave; are on unpaid leave; who have taken on additional work in the last 30 days for which they have or will be paid. I excluded from the sample respondents who are employed in the following sectors: the army, Ministry of Internal Affairs and security services in order to increase the sample homogeneity. The final sample includes employees, the self-employed and entrepreneurs who work officially or unofficially in the labour market ( $N = 15,316$  respondents). In the sample, 50% of respondents were observed for 4 years or less and 25% of respondents were observed for 6 years.

I define RWRs as respondents who have “worked from home in their main job in the last 30 days” [3]. 8.5% of respondents in this sample fall within this definition (Table A1, Appendix).

A comparison of remote employment rates based on RLMS-HSE data with the rates obtained from other databases shows that they are similar. For example, in 2021, the percentage of RWRs according to RLMS-HSE data (10%) was almost identical to the percentage of RWRs according to the Russian Public Opinion Research Centre data (11%) (WCIOM, 2022).

Working hours were calculated on the basis of the question “How many hours did you spend working from home in the last 30 days?”. After determining the average hours worked per day, a binary variable was created in which 1 = more than eight hours of work per day

(0 = eight hours or less per day). About 21% of respondents in the sample worked from home for more than eight hours a day. 18% of respondents are salaried workers, whilst 31% are self-employed or entrepreneurs.

To clarify the cause-effect relationships between remote employment and job satisfaction, the self-selection of workers into remote employment was controlled. To do this, the selection equation for remote employment and Mills ratio was calculated (Table A2, Appendix). On its basis, the job satisfaction equation was adjusted (oprobit model with sample selection) (Table A3, Appendix).

Possible selection bias in the job satisfaction estimates can be explained by several circumstances.

One way companies adapt to economic and market shocks is through cost savings. Companies can transfer employees to part-time work, to reduce working hours. In Russia, companies sometimes cut wages to employees or/and don't pay them on time. They may save costs (electricity, heating, rent, etc.) and transfer workers to remote work. The undercount of workers selection for remote employment in companies with poor working conditions may underestimate job satisfaction.

The poor economic situation of companies in the regions (cities), the shortage of vacancies and the growth of unemployment may push workers to look for remote work in other regions (cities). They can do this using a variety of platforms, networking, etc. Thus, remote employment can reduce the risk of unemployment and increase the likelihood of being employed, which has a positive impact on job satisfaction. However, remote jobs are unevenly distributed across Russia's industries and regions. There are more of them in the central regions (Moscow, Saint Petersburg), large cities and in sectors of the economy such as education, science, information technology (IT) and services. The self-selection of workers for such jobs can lead to an overestimation of the impact of remote employment on job satisfaction.

Since remote work often entail need to learn new digital programmes and acquire digital skills, then more capable and educated individuals will tend to be selected for such work places. Ability and high skill levels are highly valued in the labour market and are usually correlated with earnings, which has a positive impact on job satisfaction. In this case, the impact of remote employment on job satisfaction may be overestimated.

With remote employment, the work schedule is more flexible and this makes it attractive to women (people with disabilities). The selection of workers with relatively high needs for flexible working hours (to combine work and study, work and household duties) to remote work places will result in an overstatement of the positive impact of remote employment on job satisfaction.

The self-selection of workers for remote employment may not be the only cause of the bias in job satisfaction estimates. Additional steps were taken to establish the impact of working from home on job satisfaction.

In the first stage of the analysis, the job satisfaction equation was estimated for the whole sample with the endogenous "working from home" regressor, which could correlate with an error in the job satisfaction equation and consequently lead to a bias in estimates.

It has been suggested that endogeneity could be due to, for example, factors that simultaneously influence both remote work and job satisfaction, or it can be attributable to unobservable heterogeneity of individuals. In particular, individuals with unobservable characteristics such as optimism are often more satisfied with their jobs than their colleagues. At the same time, they are more open to new things, meaning they are more likely to choose new forms of employment, such as remote work.

The empirical specification of the job satisfaction equation is therefore as follows:

$$JS_{it} = \alpha_{0it} + \alpha_1 RW_{it} + \alpha_2 Z_{it} + \eta_{it} + \varepsilon_{it}, \quad (1)$$

where  $JS_{it}$  denotes the job satisfaction of the individual  $i$  at the time  $t$ ;  $RW_{it}$  – working from home (1 = yes). The dependent variable ( $JS_{it}$ ) was rescaled (cardinalised) before applying the linear regression model as proposed by [Van Praag and Ferrer-i-Carbonel \(2004\)](#). The rescaling makes the coefficients of the linear model comparable with the coefficients of the ordered probit model ([Van Praag and Ferrer-i-Carbonel, 2004](#)).  $Z_{it}$  represents a vector of exogenous control variables (e.g. age, sex, education level, sector, city (1 = yes); logarithm of monthly working hours; contract work (1 = yes); reduction of wages or hours (1 = yes); wage arrears (1 = yes); unpaid leave (1 = yes); years) that can affect job satisfaction;  $\alpha_1$  and  $\alpha_2$  are parameters to be estimated;  $\eta_{it}$  is the individual fixed effect and  $\varepsilon_{it}$  is the robust standard error term.

I anticipate that working from home depends upon a vector of exogenous variables and one or more instrumental variables:

$$RW_{it} = \beta_{0it} + \beta_1 Z_{it} + \beta_2 IV_{it} + \mu_{it}, \quad (2)$$

where  $RW_{it}$  and  $Z_{it}$  are as defined earlier;  $\beta_1$  and  $\beta_2$  are parameters to be assessed;  $IV_{it}$  are instrumental variables ( $IV$ ) (region; occupational groups);  $\mu_{it}$  is the error term. The appropriate instrument was chosen considering that it should correlate with the endogenous regressor, but not correlate directly with job satisfaction and the error ( $\varepsilon_{it}$ ). Before being included in the equation, I tested instrumental variables using traditional tests (“estat endogenous”, “estat firststage” and “estat overid” in Stata) ([Wooldridge, 1995](#)) ([Table A4](#), Appendix).

An analysis of the impact of working from home on job satisfaction before and during the COVID-19 pandemic was performed using a linear model with an endogenous regressor (2sls). A panel-data model with an endogenous regressor (xtivreg) ([Baltagi, 2013](#)) was used to estimate changes in the impact of working from home on job satisfaction. The estimation was made for the sample as a whole and separately for men and women ([Table A5](#), Appendix).

For individuals working from home, I consider job satisfaction as a function with the endogenous regressor “hours spent working from home” as follows:

$$JS_{it} = \gamma_{0it} + \gamma_1 RWH_{it} + \gamma_2 Z_{it} + \pi_{it}, \quad (3)$$

where the dependent variable  $JS_{it}$  is “cardinalised”;  $RWH_{it}$  denotes more than eight hours of remote work a day (1 = yes);  $Z_{it}$  represents a vector of exogenous control variables that may affect job satisfaction, as defined earlier;  $\gamma_1$  and  $\gamma_2$  are parameters to be assessed; and  $\pi_{it}$  is the robust standard error term capturing unobserved heterogeneity.

$$RWH_{it} = \delta_{0it} + \delta_1 Z_{it} + \delta_2 IV_{it} + \epsilon_{it}, \quad (4)$$

where  $RWH_{it}$  and  $Z_{it}$  are as defined earlier;  $\delta_1$  and  $\delta_2$  are parameters to be assessed;  $IV_{it}$  are instrumental variables ( $IV$ ) (region, occupational group);  $\epsilon_{it}$  is the error term. The estimations were performed using linear models with an endogenous regressor (2sls). The testing of instrumental variables was conducted in line with standard rules ([Wooldridge, 1995](#)) ([Table A6](#), Appendix).

## 4. Estimation results

### 4.1 Descriptive results

Using data with the estimates of Summary Statistics, we can determine the commonalities and differences between individuals who work remotely and individuals who do not work remotely (e.g. at a company office) [[4](#)] ([Table A1](#), Appendix). Both groups are of the same age (39 years old), the respondents in both groups are mostly married (73–74%) and are relatively often employed in trade and consumer services (22–24%).

The two groups differ in terms of levels of job satisfaction. On average, individuals who work remotely are more satisfied with their jobs than individuals who do not work remotely. Whilst 78% of RWRs are completely or largely satisfied with their jobs, only 69% of individuals who do not work remotely feel this way (Table A1, Appendix).

Differences between the two groups are also observed in respect of a number of socio-demographic characteristics. Whilst women predominate amongst RWRs (68%), men predominate amongst individuals who do not work remotely (52%). The level of education of the two groups also differs. 72% of RWRs have a college degree, whilst only 32% of individuals who do not work remotely have a college degree. Remote work is often associated with child rearing. 53% of RWRs have children (younger than 18) whilst only 51% of individuals who do not work remotely have children. Poor health is twice as common amongst RWRs (4%) than individuals who do not work remotely (2%) (Table A1, Appendix).

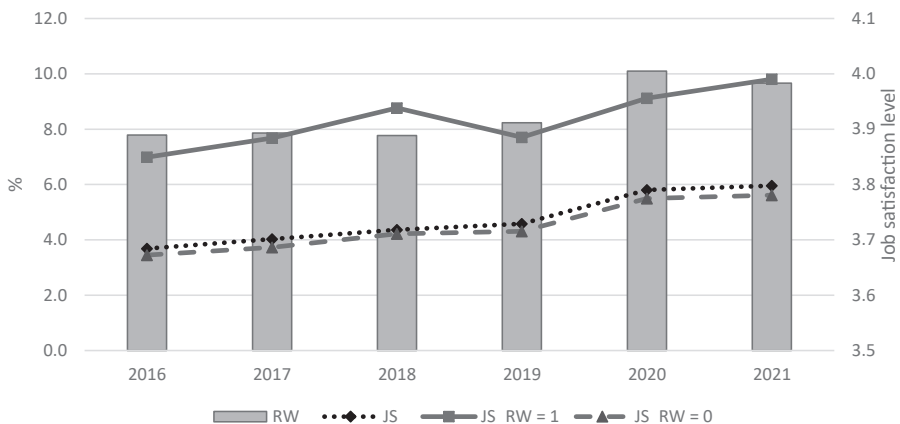
There are also differences in the job structure between the two groups. 84% of RWRs are executives and highly qualified professionals, whilst this drops to 39% for individuals who do not work remotely. Only 14% of RWRs are classified as skilled/unskilled compared to 55% of individuals who do not work remotely.

RWRs are more likely to live in large cities and regional centres (80%) compared to individuals who do not work remotely (73%). In addition, RWRs are more likely to be residents of the central regions of Russia, such as Moscow and Saint Petersburg (20%) than individuals who do not work remotely (10%) (Table A1, Appendix).

Differences in qualification levels, professional background and place of residence are manifested in the salaries of individuals in the two groups. Individuals working from home have a higher average monthly salary (RUB 45,906) than individuals who do not work remotely (RUB 34,054). However, the average monthly number of working hours for RWRs is slightly less (170 h) than for individuals who do not work remotely (172 h) (Table A1, Appendix).

#### 4.2 Working from home and job satisfaction before and during the COVID-19 pandemic

From 2016 to 2021, the Russian labour market saw an increase in the percentage of RWRs from 8% in 2016 to 10% (chi2 = 42.95\*\*\*) during the COVID-19 pandemic (2020–2021) (Figure 1). This means that Russia was one of the leaders in terms of the percentage of RWRs amongst transition countries (Figure A1 (right axis), Appendix).



**Figure 1.**  
Remote work and job satisfaction, 2016–2021

Source(s): RLMS-HSE 2016–2021, author's calculations



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In Russia, remote work before and after COVID-19 was more likely to include individuals with poor health, women and executives or professionals with higher education, residents of the central regions (Moscow or Saint Petersburg) and large Russian cities and individuals employed in sectors such as education, science, IT and services. However, the likelihood of remote employment was lower for individuals who have formal contracts with their employers, but was higher for individuals whose wages (hours of work) had been cut or unpaid (Table A2, Appendix).

With the growth of remote work, there was also an increase in the average level of job satisfaction from 3.69 in 2016 to 3.80 (F-test = 95.85\*\*\*) during the COVID-19 pandemic (2020–2021) (Figure 1).

The level of job satisfaction amongst RWRs was higher than amongst individuals who do not work remotely. Meanwhile, about 61–64% of individuals worked remotely for at least two years between 2016 and 2021. During the COVID-19 pandemic, job satisfaction amongst all individuals increased, whilst the difference in job satisfaction between RWRs and individuals who do not work remotely remained the same (Figure 1).

Russia was one of the leaders in terms of the percentage of individuals with high job satisfaction with remote employment (JS\_RW) amongst transition economies (Figure A1 (left axis), Appendix).

The results of the analysis show that, after adjustment of the self-selection of workers for remote employment, the positive impact of remote employment on job satisfaction is maintained (Table A3, Appendix). The results of the regression analysis with endogeneity control showed that job satisfaction levels for RWRs exceeded those of individuals who do not work remotely both before (5.42\*\*\*) and during (2.92\*\*\*) the COVID-19 pandemic (Table A4, Appendix).

So the hypothesis that remote work would have a negative impact on job satisfaction during the COVID-19 pandemic was not confirmed. In the Russian labour market, remote work had a positive impact on job satisfaction both before and during the COVID-19 pandemic.

Many transition countries have also found that remote employment has had a positive impact on job satisfaction. This has often been attributed to increased job autonomy, better work–life balance and reduced commuting costs (Alassaf *et al.*, 2023).

In Russia, amongst the positive aspects of remote employment, employees also point to the reduced time spent commuting (35.17%), the choice of work location and time (17.03%) and ease of planning the working day (14.96%), (Work in Russia, 2020) etc.

In addition, in Russia, for some of the workforce, working from home increased employment opportunities in what is a large country. In Russia, with large distances between towns and cities, high interregional labour mobility costs and imbalances in the distribution of the labour force between regions, remote work facilitates the job search and increases the availability of “remote” jobs in other regions, helping to reduce the unemployment risk (Ludanik and Reshetova, 2021). Remote employment during COVID-19 allowed many workers to retain their jobs and protected them from redundancy (Kapeliushnikov, 2022).

There are 321 single-industry towns in Russia [5] across 61 regions. They are home to about 9% of the country’s population (13.6 million people). Remote employment in single-industry towns has helped to curb unemployment growth and increase employment and income levels (Efimova, 2021).

Highly qualified workers who combined professional expertise with a relatively high level of digital literacy benefited from remote employment.

During the COVID-19 pandemic, safeguarding health reduced the negative perception of social isolation amongst RWRs. The transition from traditional to remote forms of work was carried out, perhaps out of necessity, but temporarily. It therefore had, according to Russian workers, a more positive than negative effect (Pronin, 2022).

#### 4.3 Working from home and job satisfaction levels for men and women

The results of the calculations presented in [Table A5](#)(Appendix) show that individuals who work remotely have a greater increase in job satisfaction over time than individuals who do not work remotely (Column 2;[Table A5](#), Appendix). This result is in line with the earlier conclusion about the positive impact of remote work on job satisfaction.

For men and women, the impact of remote work on job satisfaction had both commonalities and differences. A commonality was that men and women who work remotely had higher job satisfaction than men and women who do not work remotely (Columns 4 and 6;[Table A5](#), Appendix).

On the other hand, there were also differences between men and women. The percentage of RWRs amongst men was almost half that (5.32%) of women (11.62%). The average level of job satisfaction amongst men was lower (3.71) than amongst women (3.76) (F-test = 30.99\*\*\*). However, the average level of job satisfaction amongst men (3.93) and women (3.90) working remotely did not differ significantly (F-test = 0.76) ([Figure A2](#), Appendix). Remote employment allows the two gender groups to increase levels of job satisfaction and narrow the gap between them. It is likely that non-monetary factors (e.g. employment conditions) are contributing to narrowing the job satisfaction gap. After all, wage differentials between men and women persist even with remote employment. Men who work from home earn on average more per hour (318 roubles) than women (225 roubles).

The results of the fixed-effects estimation tell us that the impact of remote work on job satisfaction for men (6.64\*\*) is greater than for women (2.98\*) ([Table A5](#), Appendix). In other words, men working remotely experienced a greater increase in job satisfaction than men who do not work remotely and women working remotely also experienced increased job satisfaction, but by a smaller amount compared to women who do not work remotely. Based on this, we can conclude that remote work will bring a greater increase in job satisfaction for men than for women.

There may be several reasons for this. Firstly, in Russia, the work-life balance is markedly different for men and women. Women spend about twice as much time on housekeeping and childcare duties as men ([Monusova, 2021](#)). It is likely that the need for women to combine working from home with household duties increases the value and appeal of remote work for them. However, women's choice of remote employment may be forced. Remote employment can reinforce or even revive traditional gender roles, negatively influencing women's careers ([Arntz et al., 2020](#)). Remote employment can be a source of conflict and stress at home, leading to a lower increase in job satisfaction ([Song and Gao, 2020](#)).

Secondly, the most common occupations amongst men in Russia are those that do not require a high level of education, whilst the main occupations amongst women are those that require a rather high level of education. The percentage of persons with higher education amongst women (35%) is higher than amongst men (27%). However, in Russia, the level of digital literacy amongst women is lower than amongst men ([NAFI, 2021](#)). This limits remote working opportunities for women and reduces the benefits of working from home when, for example, building a career. This may lead to a lower increase in job satisfaction with remote work amongst women than men.

At the same time, occupations associated with manual labour are more common amongst men than women ([Maltseva and Roshchin, 2006](#)). In Russia, men are more likely to be remotely employed in industry (13%) and women in education (38%). However, the percentage of individuals employed remotely in education is higher (28%) than in industry (7%). Based on this, men may be less likely to work remotely than women. In this regard, the value of remote work, as a less accessible resource, may be higher for men than for women.

#### 4.4 Hours of remote work and job satisfaction

Remote work is often associated with working hours that extend beyond the eight-hour workday. The results of this study confirmed the hypothesis that remote work that extends

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beyond the eight-hour workday has a negative impact on job satisfaction. Individuals who work from home for more than eight hours a day are less satisfied with their work than individuals who work from home for eight hours or less a day ( $-3.66^*$ ).

This may be because the daily schedule of RWRs is significantly different from that of those who do not work remotely. RWRs, on average, spend less time on paid work than individuals who do not work remotely (Monusova, 2021). If the working day of RWRs extends beyond the standard eight hours, it loses its appeal and job satisfaction decreases.

The negative impact on job satisfaction of working from home for more than eight hours a day is more pronounced for salaried workers ( $-4.90^{**}$ ) than for the self-employed or entrepreneurs (Table A6, Appendix).

Salaried workers, whilst performing the duties set for them by their employer, are more focused on compliance with work schedules and deadlines than the self-employed or entrepreneurs. In this regard, the organisation of remote work for salaried workers differs from the organisation of remote work for the self-employed and entrepreneurs. Employers who are transferring employees to remote work should consider this.

In contrast, remote work has a negative impact on job satisfaction for workers with official labour contracts (Table A6, Appendix). This may be because of a breach of contractual terms by employers regarding employee working hours.

In this case, labour contracts that cannot protect worker rights or guarantee compliance with labour legislation on working hours lead to a reduction in job satisfaction.

## 5. Conclusion

This study looked at the impact of remote work on job satisfaction in Russia. This is an important subject due to the increase in the scale of remote work globally and the need to study its impact on workers. The study is of interest because it looks into the impact of remote work on job satisfaction for developing countries, which includes Russia.

The objective of this study was to determine the impact of remote work and working hours on job satisfaction. The impact of remote work on job satisfaction before and during the COVID-19 pandemic and separately for men and women was analysed. For RWRs, the impact of working hours on job satisfaction was determined. The study was based on data from the RLMS-HSE for 2016–2021 using endogenous regression models.

The results of the study showed that during 2016–2021 in the Russian labour market, remote work had a positive impact on job satisfaction. Its impact on job satisfaction was positive both before and during the COVID-19 pandemic. In Russia, remote work was more common amongst women than men. Both men and women who worked remotely were more satisfied with their jobs than their colleagues who did not work remotely.

The study concludes that remote work has had a positive impact on job satisfaction in the Russian labour market. Working from home can therefore be seen as a form of employment worth pursuing, not only in force majeure situations (e.g. during a pandemic) or for specific jobs and professions. It should be pursued more broadly.

Remote work enables employers to cut costs and can protect workers from layoffs. It increases worker access to jobs in “remote” labour markets. Remote employment is attractive to highly skilled individuals, individuals who have problems finding employment in the labour market (e.g. women, people with disabilities). It can therefore be considered as a measure to combat unemployment, increase employment and improve the utilisation (distribution) of human resources. Increasing remote work opportunities for more professions and socio-demographic groups could contribute to higher job satisfaction in the labour market.

However, when adopting remote work policies, companies need to review the regulations and the organisation of the working day of RWRs. RWRs were found to have lower job

satisfaction when working more than eight hours. In Russia, employers sometimes violate statutory or contractual limits on working hours for employees. Unclear working time regulations lead to overwork, irregular working hours and burnout. For RWRs, this leads to lower job satisfaction and a consequent drop in productivity.

Therefore, when adopting remote work policies, employers need to pay greater attention to compliance with standard working hours as stipulated by contracts and/or labour law. In addition, employers should be more careful when setting work schedules in order to reduce the likelihood of employees working remotely beyond their standard working hours. To ensure that labour productivity increases and not decreases, employers are advised to develop more detailed working arrangements and labour management for RWRs. Especially for such workers assigned task control regulations must be developed. To increase the motivation of individuals to work remotely, overtime should be paid at a higher rate.

In this study, job satisfaction variables were included in the estimated equations of job satisfaction. However, their impact on job satisfaction in respect of remote work requires further exploration. For example, an analysis of the distance from workplace to home, relationships with colleagues and supervisors and the importance of working with colleagues to obtain results on the potential for remote work and satisfaction with it. Further research is also required to analyse the impact of health issues and the need to care for young children or infirm persons on job satisfaction in remote work. A more detailed analysis is required of the factors that affect the job satisfaction of women who work remotely.

### Notes

1. Russian Enterprises Survey (RES) conducted by the labour market laboratory at the HSE University from 2009. The sample is representative for Russia and includes companies working in seven branches of the economy (mining, industry, construction, transport and communications, trade, finance and business services) with more than 50 employees, <https://lirt.hse.ru/ielm>
2. The Russia Longitudinal Monitoring Survey - Higher School of Economics (RLMS-HSE) is a series of nationally representative surveys designed to monitor the effects of Russian reforms on the health and economic welfare of households and individuals in the Russian Federation. More information about RLMS-HSE project and databases in English is available on the University of North Carolina at Chapel Hill, Carolina Population Center's website.
3. In this study, remote work (remote employment and teleworking) and working from home are treated as synonyms.
4. The differences between the two groups of individuals are substantiated by meaningful test results.
5. A single-industry town is one in which at least 20% of the working population is employed by one company.

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(The Appendix follows overleaf)

Variables	Total		RW = 1		RW = 0	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
Job Satisfaction level (1 = min, 5 = max)	3.74***	0.84	3.92	0.83	3.72	0.84
Job Satisfaction distribution (Completely dissatisfied = base category):	***					
Rather dissatisfied	0.07	0.26	0.05	0.21	0.07	0.26
Yes and no	0.22	0.41	0.16	0.37	0.23	0.42
Rather satisfied	0.55	0.50	0.56	0.50	0.55	0.50
Completely satisfied	0.14	0.35	0.22	0.41	0.14	0.34
Remote work (1 = yes)	0.09	0.28	--	--	--	--
Age, years	36.52	11.67	38.77	8.99	39.03	9.84
Sex (male = 1)	0.40***	0.49	0.32	0.46	0.52	0.50
Education level (Upper secondary education or below = base category):	***					
Post-secondary non-tertiary education	0.37	0.48	0.19	0.39	0.35	0.48
Higher education	0.29	0.46	0.72	0.45	0.32	0.47
Health (Bad = base category)	***					
Average	0.44	0.50	0.49	0.50	0.48	0.50
Good	0.52	0.50	0.47	0.50	0.50	0.50
Family status (Married = 1)	0.65	0.48	0.73	0.44	0.74	0.44
Children under 18 (1 = yes)	0.45**	0.50	0.53	0.50	0.51	0.50
Sectors (Agriculture = base category)	***					
Industry	0.21	0.41	0.07	0.26	0.22	0.41
Transport and communications	0.10	0.30	0.04	0.21	0.11	0.31
IT-sector	0.01	0.08	0.04	0.18	0.01	0.06
Education	0.10	0.30	0.28	0.45	0.08	0.28
Healthcare	0.07	0.26	0.04	0.19	0.07	0.26
Finances	0.03	0.16	0.04	0.20	0.03	0.16
Trade, Consumer Services	0.24	0.43	0.22	0.41	0.24	0.43
Housing and Communal Services	0.05	0.21	0.05	0.22	0.05	0.21
Science	0.02	0.15	0.06	0.24	0.02	0.14
Construction	0.08	0.27	0.05	0.22	0.08	0.28
Public administration	0.03	0.16	0.02	0.15	0.02	0.15

(continued)

Table A1.  
Summary statistics



Variables	Total		RW = 1		RW = 0	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
Other services	0.03	0.17	0.07	0.25	0.03	0.16
Occupation (Head of organisations = base category)	***					
Professionals of the highest qualification	0.38	0.49	0.70	0.46	0.34	0.47
Employees	0.06	0.23	0.03	0.18	0.06	0.23
Skilled Workers	0.27	0.44	0.05	0.21	0.30	0.46
Unskilled Workers	0.23	0.42	0.08	0.27	0.25	0.43
Wage per month, Rub	34678,18***	24683,46	45905,55	41510,47	34054,33	22108,11
Working hours, h/month	171,60**	40,24	169,93	56,07	171,74	38,62
Reducing wages or hours (1 = yes)	0.07***	0.25	0.09	0.29	0.07	0.25
Contract work (1 = yes)	0.93***	0.26	0.94	0.23	0.93	0.26
Unpaid leave (1 = yes)	0.03***	0.18	0.02	0.14	0.04	0.19
Wage arrears (1 = yes)	0.02***	0.15	0.03	0.18	0.02	0.15
Residence (city = 1)	0.69***	0.46	0.80	0.40	0.73	0.45
Region (Moscow and St. Petersburg = 1)	0.11***	0.31	0.20	0.40	0.10	0.30
Years (2016 = base category)	***					
2017	0.17	0.38	0.16	0.37	0.17	0.38
2018	0.17	0.37	0.15	0.36	0.17	0.37
2019	0.16	0.37	0.16	0.37	0.17	0.37
2020	0.16	0.37	0.19	0.39	0.16	0.36
2021	0.16	0.37	0.18	0.39	0.16	0.37

**Note(s):** Significant level of the differences between remote worker and non-remote worker: \* -  $p < 0.1$ ; \*\* -  $p < 0.05$ ; \*\*\* -  $p < 0.01$   
**Source(s):** RLMS-HSE 2016-2021, author's calculations

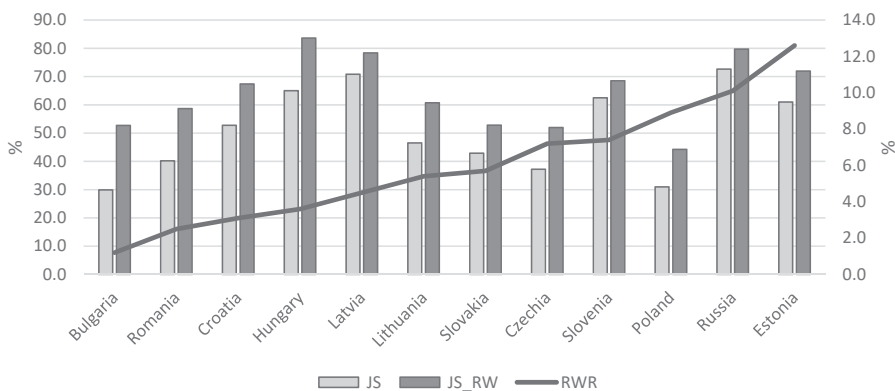
Table A1.

Remote work = dependent variable	2016–2021		2016–2019 (COVID-19 = 0)		2020–2021 (COVID-19 = 1)	
	Coef	Robust Std. Err	Coef	Robust Std. Err	Coef	Robust Std. Err
Sex (male = 1)	–0.10***	0.03	–0.10***	0.03	–0.11**	0.04
Region (Moscow and St. Petersburg = 1)	0.33***	0.03	0.24***	0.04	0.49***	0.05
Sector (IT, education, science, service = 1)	0.60***	0.02	0.64***	0.03	0.52***	0.04
Education level (Upper secondary education or below = base category)						
Post-secondary non-tertiary education	0.14***	0.04	0.13**	0.05	0.13*	0.07
Higher education	0.62***	0.04	0.59***	0.05	0.66***	0.07
Occupation (Head of organisations or Professionals of the highest qualification = 1)	0.73***	0.03	0.70***	0.04	0.79***	0.06
Health (Good = base category)						
Average	0.10***	0.02	0.12***	0.03	0.08**	0.04
Bad	0.31***	0.07	0.40***	0.08	0.10	0.14
Reducing wages or hours (1 = yes)	0.17***	0.04	0.32***	0.05	–0.07	0.07
Contract work (1 = yes)	–0.30***	0.05	–0.28***	0.06	–0.40***	0.09
Wage arrears (1 = yes)	0.36***	0.07	0.31***	0.08	0.57***	0.13
Residence (city = 1)	0.08**	0.03	0.10**	0.04	0.06	0.05
Constant	–2.27***	0.06	–2.34***	0.08	–2.12***	0.11
N	32,383		21,930		10,453	
Wald chi2	2607.7***		1684.2***		940.0***	
Pseudo R2	0.20		0.20		0.21	
Log pseudo likelihood	–7272.04		–4660.62		–2570.79	

**Note(s):** Significant level: \*  $-p < 0.1$ ; \*\*  $-p < 0.05$ ; \*\*\*  $-p < 0.01$

**Source(s):** RLMS-HSE 2016–2021, author's calculations

**Table A2.**  
Determinants of remote work before and during the COVID-19 pandemic (Probit)



**Figure A1.**  
Remote work and job satisfaction in transition countries, 2020

**Source(s):** Eurofond and RLMS-HSE 2020, author's calculations

Working from home and job satisfaction

Job satisfaction = dependent variable	2016–2021		2016–2019 (COVID-19 = 0)		2020–2021 (COVID-19 = 1)	
	Coeff	Robust std. err	Coeff	Robust std. err	Coeff	Robust std. err
Remote work (1 = yes)	0.07***	0.03	0.06**	0.03	0.10**	0.04
Ln(age)	0.07***	0.02	0.04	0.03	0.12**	0.04
Sex (male = 1)	0.06***	0.01	0.06***	0.02	0.06**	0.03
Education level (Upper secondary education or below = base category)						
Post-secondary non-tertiary education	−0.05***	0.02	−0.06***	0.02	−0.02	0.03
Higher education	−0.18***	0.03	−0.21***	0.03	−0.13**	0.05
Sectors (Agriculture = base category)						
Industry	0.09***	0.03	0.07*	0.04	0.14**	0.06
Transport and communications	0.07**	0.04	0.07*	0.04	0.08	0.06
IT-sector	0.00	0.09	0.00	0.11	−0.02	0.14
Education	−0.11***	0.04	−0.13**	0.05	−0.08	0.07
Healthcare	0.05	0.04	0.01	0.05	0.13*	0.07
Finances	0.05	0.05	0.04	0.06	0.05	0.08
Trade, Consumer Services	0.09**	0.03	0.07*	0.04	0.13**	0.06
Housing and Communal Services	−0.07*	0.04	−0.14***	0.05	0.06	0.07
Science	−0.02	0.05	−0.05	0.06	0.04	0.09
Construction	0.07*	0.04	0.07	0.05	0.06	0.07
Public administration	0.01	0.05	−0.04	0.06	0.13	0.09
Other services	0.01	0.05	−0.03	0.06	0.09	0.10
Reducing wages or hours (1 = yes)	−0.39***	0.02	−0.47***	0.03	−0.31***	0.04
Contract work (1 = yes)	0.35***	0.03	0.35***	0.03	0.34***	0.05
Wage arrears (1 = yes)	−0.53***	0.05	−0.55***	0.05	−0.38***	0.10
Residence (city = 1)	−0.02	0.01	−0.01	0.02	−0.03	0.03
Health (Good = base category)						
Average	−0.39***	0.01	−0.38***	0.02	−0.38***	0.02
Bad	−0.68***	0.05	−0.70***	0.05	−0.57***	0.09
/cut1	−2.94	0.12	−3.07	0.14	−2.80	0.21
/cut2	−2.08	0.12	−2.22	0.14	−1.90	0.21
/cut3	−1.18	0.12	−1.34	0.14	−0.95	0.21
/cut4	0.48	0.12	0.27	0.14	0.84	0.21
lambda2	−0.45***	0.02	−0.47***	0.03	−0.41***	0.04
Wald (chi2)	2111.6***		1519.6***		611.2***	
N	32,123		21,705		10,418	

Note(s): Significant level: \*  $-p < 0.1$ ; \*\*  $-p < 0.05$ ; \*\*\*  $-p < 0.01$

Source(s): RLMS-HSE 2016–2021, author's calculations

**Table A3.**  
Job satisfaction of remote workers before and during the COVID-19 pandemic (Oprobit)

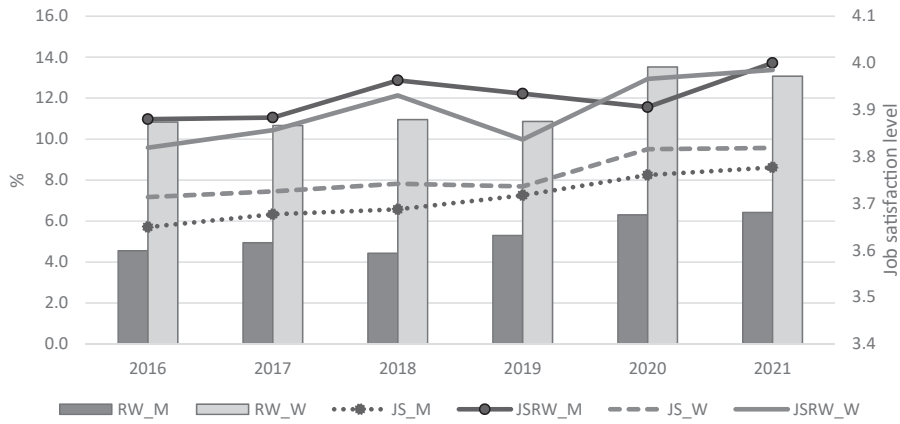
Job Satisfaction = dependent variable	2016–2021		2016–2019 (COVID-19 = 0)		2020–2021 (COVID-19 = 1)	
	Coef	Robust Std. Err	Coef	Robust Std. Err	Coef	Robust Std. Err
Remote work (1 = yes)	4.31***	0.32	5.42***	0.49	2.92***	0.36
Age, years	-0.03***	0.01	-0.04***	0.01	-0.01	0.01
Sex (male = 1)	0.06**	0.02	0.04	0.03	0.09**	0.04
Education level (Upper secondary education or below = base category)						
Post-secondary non-tertiary education	-0.01	0.02	-0.02	0.03	0.02	0.04
Higher education	-0.22***	0.05	-0.29***	0.06	-0.14**	0.06
Sectors (Agriculture = base category)						
Industry	0.19***	0.05	0.19**	0.07	0.24**	0.08
Transport and communications	0.11*	0.06	0.13*	0.07	0.10	0.09
IT-sector	-0.81***	0.21	-0.35	0.26	-1.10***	0.31
Education	-0.44***	0.08	-0.69***	0.11	-0.13	0.11
Healthcare	0.20***	0.06	0.15*	0.08	0.33***	0.09
Finances	0.11	0.08	0.18*	0.11	0.03	0.13
Trade, Consumer Services	0.07	0.05	0.03	0.07	0.16*	0.09
Housing and Communal Services	-0.06	0.07	-0.12	0.09	0.09	0.10
Science	-0.02	0.09	-0.01	0.12	-0.01	0.14
Construction	0.05	0.06	0.06	0.08	0.07	0.10
Public administration	0.10	0.08	-0.01	0.11	0.29**	0.12
Other services	0.10	0.09	-0.02	0.12	0.28**	0.13
Reducing wages or hours (1 = yes)	-0.59***	0.05	-0.80***	0.07	-0.35***	0.06
Ln(hours) per month	0.05	0.04	0.07	0.06	-0.02	0.05
Contract work (1 = yes)	0.44***	0.04	0.47***	0.05	0.38***	0.07
Unpaid leave (1 = yes)	0.07	0.06	-0.21**	0.10	0.12*	0.07
Wage arrears (1 = yes)	-0.87***	0.09	-0.90***	0.12	-0.71***	0.16
Residence (city = 1)	-0.06**	0.02	-0.06**	0.03	-0.07**	0.04
Years (2016 = base category)						
2017	0.01	0.04				
2018	0.05	0.04				
2019	0.02	0.04				
2020	0.10**	0.04				
2021	0.11***	0.04				
Constant	-0.36	0.25	-0.27	0.35	-0.34	0.35
Wald chi2(23)	754.40***		490.08***		238.05***	
Test of endogeneity						
Robust score chi2	288.32***		212.61***		87.18***	
Robust regression F	294.68***		217.85***		89.01***	
Estat firststage (Robust F)	258.04***		144.59***		120.12***	
Estat overid (Score chi2)	2.48		1.57		0.04	
N	28,361		19,153		9,208	

Table A4.

Job satisfaction of remote workers before and during the COVID-19 pandemic (2sls)

**Note(s):** Significant level: \* -  $p < 0.1$ ; \*\* -  $p < 0.05$ ; \*\*\* -  $p < 0.01$

**Source(s):** RLMS-HSE 2016–2021, author's calculations



Source(s): RLMS-HSE 2016-2021, author's calculations

Working from home and job satisfaction

**Figure A2.**  
Remote work and job satisfaction for men and women

Job satisfaction = dependent variable	Total		Male		Female	
	Coef	Robust Std. Err	Coef	Robust Std. Err	Coef	Robust Std. Err
Remote work (1 = yes)	4.53***	1.53	6.64**	2.93	2.98*	1.70
Age, years	-0.06	0.05	-0.08	0.06	-0.02	0.08
Education level (Upper secondary education or below = base category)						
Post-secondary non-tertiary education	0.01	0.05	-0.03	0.07	0.04	0.07
Higher education	0.08	0.11	0.00	0.21	0.16	0.13
Sectors (Agriculture = base category)						
Industry	0.23	0.14	0.15	0.21	0.38*	0.22
Transport and communications	0.09	0.15	-0.08	0.22	0.38	0.25
IT-sector	0.12	0.32	-0.02	0.48	0.47	0.55
Education	0.18	0.18	-0.57*	0.31	0.59**	0.25
Healthcare	0.13	0.20	-0.61	0.44	0.48*	0.28
Finances	0.24	0.19	-0.22	0.40	0.56**	0.25
Trade, Consumer Services	0.11	0.15	-0.07	0.22	0.34	0.22
Housing and Communal Services	0.13	0.15	0.05	0.23	0.38	0.24
Science	0.17	0.21	-0.47	0.37	0.61**	0.27
Construction	0.16	0.16	-0.02	0.22	0.36	0.3
Public administration	0.38**	0.18	0.50	0.34	0.58**	0.25
Other services	0.27	0.17	0.15	0.28	0.49**	0.25
Reducing wages or hours (1 = yes)	-0.38***	0.05	-0.29***	0.07	-0.42***	0.07
Ln(hours) per month	0.01	0.05	0.00	0.09	-0.01	0.07
Contract work (1 = yes)	0.35***	0.07	0.35***	0.11	0.21**	0.11
Unpaid leave (1 = yes)	0.11*	0.07	0.02	0.09	0.17	0.11
Wage arrears (1 = yes)	-0.55***	0.11	-0.55***	0.16	-0.50***	0.17
Residence (city = 1)	-0.18	0.56	-0.40	0.59	0.98***	0.04
Years (2016 = base category)						
2017	-0.05	0.05	-0.01	0.06	-0.07	0.07
2018	0.00	0.08	0.06	0.10	-0.06	0.13
2019	-0.09	0.11	0.02	0.13	-0.17	0.19
2020	-0.08	0.15	0.01	0.17	-0.15	0.25
2021	-0.08	0.18	0.08	0.21	-0.22	0.31
Constant	-0.40	1.52	0.76	1.86	-2.53	2.46
Wald chi2	176.36***		90.09***		2718.19***	
sigma_u	1.53		1.63		1.54	
sigma_e	1.35		1.46		1.23	
rho	0.56		0.55		0.61	
N	28,888		13,165		15,186	
Gr. Var	9,374		4,380		4,876	

**Table A5.**  
Job satisfaction and remote work for men and women (xtivreg)

**Note(s):** Significant level: \*  $-p < 0.1$ ; \*\*  $-p < 0.05$ ; \*\*\*  $-p < 0.01$   
**Source(s):** RLMS-HSE 2016–2021, author's calculations

## Working from home and job satisfaction

Job satisfaction = dependent variable	Total		Employee	
	Coef	Robust Std. Err	Coef	Robust Std. Err
Hours of remote work, (>8 h/day = 1)	-3.66*	2.04	-4.90**	2.28
Ln(age)	-0.30**	0.15	-0.35**	0.16
Sex (male = 1)	0.07	0.09	-0.02	0.10
Education level (Upper secondary education or below = base category)				
Post-secondary non-tertiary education	-0.13	0.20	-0.31	0.24
Higher education	-0.06	0.19	-0.17	0.23
Sectors (Agriculture = base category)				
Industry	-0.21	0.36	-0.01	0.39
Transport and communications	-0.18	0.38	-0.23	0.43
IT-sector	0.05	0.38	0.31	0.42
Education	0.01	0.33	0.10	0.36
Healthcare	-0.13	0.39	0.11	0.44
Finances	0.13	0.40	0.27	0.43
Trade, Consumer Services	0.05	0.34	0.15	0.38
Housing and Communal Services	-0.10	0.37	0.00	0.41
Science	0.28	0.38	0.45	0.41
Construction	0.11	0.37	0.20	0.40
Other services	0.41	0.36	0.49	0.40
Public administration	-0.37	0.39	-0.37	0.41
Reducing wages or hours (1 = yes)	-0.45***	0.14	-0.43**	0.16
Ln(hours) per month	0.15*	0.08	0.17*	0.09
Contract work (1 = yes)	-0.49**	0.23	-0.70**	0.27
Unpaid leave (1 = yes)	0.15	0.23	0.02	0.25
Wage arrears (1 = yes)	-0.69***	0.21	-0.71***	0.25
Residence (city = 1)	0.04	0.09	-0.03	0.10
Years (2016 = base category)				
2017	0.00	0.12	-0.03	0.13
2018	0.07	0.12	0.07	0.13
2019	-0.01	0.12	-0.05	0.13
2020	0.33**	0.13	0.35**	0.14
2021	0.39***	0.14	0.43**	0.15
Constant	0.82	0.74	1.25	0.81
Wald chi2(23)	81.62***		70.13***	
Test of endogeneity				
Robust score chi2	4.77**		8.29***	
Robust regression F	4.78**		8.48***	
Estat firststage (Robust F)	3.26**		2.96**	
Estat overid (Score chi2)	5.28		2.67	
N	2,111		1897	

**Table A6.**  
The hours of remote work and job satisfaction

**Note(s):** Significant level: \* -  $p < 0.1$ ; \*\* -  $p < 0.05$ ; \*\*\* -  $p < 0.01$

**Source(s):** RLMS-HSE 2016–2021, author's calculations

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