

Assessment of female telework scope in the conditions of digital economy

Tonkikh N.V.

Ural State University of Economics
Ekaterinburg, Russia
nvvorobl@mail.ru

Chudinovskikh M.V.

Ural State University of Economics
Ekaterinburg, Russian Federation
chud-marina@mail.ru

Markova T.L.

Ural State University of Economics
Ekaterinburg, Russian Federation
tmark@mail.ru

Abstract — The article focuses on the issues of telework assessment in the conditions of digital economy. The study aims to identify the methodological approaches to the research into female telework scope and elaborate recommendations for developing state mechanisms of such assessment. The study was based on benchmarking and content-analysis of open information about vacancies, published on Internet portals of commercial and state employment agencies ("Work in Russia", HeadHunter.ru). The subject of the content analysis was the information on the total number and scope of vacancies by Russian regions, special emphasis being on the proportion of telework vacancies. Compiled a rating of Russia's regions by the share of telework vacancies in the total labor demand. Proposed solutions to the problem of developing a mechanism for collecting qualitative information on female telework segment, given the best foreign practices.

Keywords — female telework, employment, digital economy, vacancies, gender factor, freelance

I. INTRODUCTION

Employment management in the conditions of economy digitalization brings up to date the need to transform the standard methods and mechanisms of state management implemented within the current regulations on assisting the employment of the women who seek assistance from the Employment Agency of the Russian Federation. Traditionally, in the labor market the key emphasis has been on improving women's competitiveness. Women are recognized as vulnerable category of citizens, so there is organized a continuous monitoring of women's share in the labor market, the average unemployment duration and other indicators, characterizing female employment.

Modern institutional priorities of social development are specified in the National Action Strategy for Women for 2017–2022 [1]. The document states that motherhood is considered by the state as the major female social role. It is noted that one of the key aims of the state policy is to assist women in combining more successfully their paid employment and family commitments, parental work. The document outlines possible ways of addressing this problem by expanding the use of flexiwork schemes, that are currently admitted to be insufficient and limited in terms of their

application scope. Female telework can be of great significance for developing particular territories of our country. So, newly developing regions in the North of Russia are characterized by prevalence of demand for "male jobs" and a high female unemployment rate [2]. The road map for the Strategy implementation aims to increase the female competitiveness on the labour market by arranging professional training and development courses for those women who are on a child care leave until their child reaches the age of 3 years old. In our opinion, at the next stages of the Strategy implementation it is expedient to focus on developing and appraising the mechanisms designed to promote flexible forms of employment, including, in particular, telework.

II. RESEARCH METHODOLOGY

The researchers from developed countries started to study actively telework issues at the beginning of the new millennium. In 2000, the European Institute of Employment Studies (IES) carried out the assessment of eligible employees in the USA, Japan, the developed countries of Europe [3]. In foreign scientific literature, the researchers study two employee categories:

- employees who already participate in telework;
- "eligible teleworkers", i.e. those who can be transferred to such jobs in the long term.

In 2000, the level of telework participation in the developed countries ranged from 3 up to 17%, eligible telework – from 12 to 24% [4]. Later telework became a research object for the largest analytical consultancies: International Telework Association & Council (USA), Institute of Employment Studies. The level of their studies always implies big selections of respondents, at the same time the analysis is carried out both in terms of demand for this type of work, and in terms of the labour supply for teleworkers. During this period, foreign researchers addressed the problem of information shortage for assessing telework scales. To tackle this problem a number of foreign countries set up a system of telework calculation. So, in the USA since 2004 the public authorities annually report to Congress on the level of telework participation. The annual report to Congress exceeds 200 pages, it includes:

- telework statistics in dynamics, by sex, age;
- comparative analysis of telework efficiency in different government institutions;
- assessment of telework economic and social effect in the sector of public administration;
- assessment of the arising difficulties and prospects for improving public administration in the sphere of telework [5].

Each report includes the questionnaire filled out by all public services and departments. The questionnaire enables to accumulate quantitative indices and also serves as a tool to assess the effectiveness of efforts to manage telework in each government body.

According to the reporting for 2017, telework in the USA public authorities accounted for 22%, while in 2012 this indicator was at 14% of all employees. The first telework jobs were created mainly in the spheres connected with computer equipment and communications. American researchers argue that the shortage of highly qualified IT specialists in the 90ies was one of the reasons why telework became popular [6]. Granting an opportunity to telework allowed to attract such employees and ease the problem of staff shortage. Owing to this fact, it was men [7] who were pioneers in telework. Later there was a gradual growth in the female proportion among teleworkers and diversification of telework activities. Currently, employees actively telework in banking, trading, and education. This diversification led to an increase in female telework employment. In 2017, female telework made up 49% of the total number of employees in the USA [5]. This example indicates that the USA have accumulated a sufficient volume of data to elaborate the state policy for telework management.

The analysis of the data from the American reports shows that despite sufficient experience in tracking and assessing telework, when forming reporting indicators there arise a number of difficulties. Firstly, employers who provide statistical data do not always correctly interpret the concept of telework. It is complicated to identify the employment type in case of situational telework. Secondly, in the USA several approaches are used to calculate the number of employees. These methods include [5]:

- automatic data collection based on the system of employee work time tracking;
- analysis of employment contracts (in the manual mode);
- use of sociological staff surveys;
- use of the automated data of an employee geolocation.

For the Russian labor market, the question of assessing the telework scope is still a new phenomenon; there are no statistical data available. The research into telework is carried out by several methods. The first method – conducting employers’ surveys [8]. The data collected during the survey carried out by the Bitriks24 company and the analytical agency J’son & Partners Consulting, revealed that the average teleworker was “a programmer aged 30 years old”. According to the surveys, about 50% of teleworkers are engaged in the programming-related activity, IT [9]. Over the last two-three

years the share of telework in education has also increased significantly.

The second method – assessing the number of resumes placed on telework portals or freelancers’ surveys. Based on freelancers’ survey it was concluded that women more often have to telework in the field not connected with their degree subject. One of the reasons why women are interested in telework is the possibility of combining telework with small children care. Women more often perform low-skilled telework (typing, dealing with documents, surveys, phone calls), that leads to an increase in their social vulnerability and insecurity [10].

Telework can be assessed by means of benchmarking based on the comparative content analysis of open information about the vacancies placed on Internet portals of commercial and state employment agencies. The subject of the content analysis was the information on the total number and scope of vacancies by Russian regions, including the proportion of telework vacancies. We analyzed the information published on *HeadHunter.ru* (hh.ru), the leader among the commercial job search agencies by labor market coverage. The authors identified this leadership by analyzing the public ratings of several job search portals placed on electronic resources.

The second information resource used within the research framework was the state portal “Work in Russia” (the all-Russian data base of vacancies, *trudvsem.ru*). This way of creating the research empirical base can be attributed to the fact that the Russian Federation lacks an established system of telework data collection and processing at the level of Federal State Statistics Service. Both resources allow to generate the list of vacancies for the same time period: a month, a week, three days or one day. This circumstance makes it possible to draw comparison and carry out benchmarking of the information placed on the portals.

III. RESEARCH FINDINGS

The data, presented in Table I, are formed on the basis of the request for vacancies, published over the last month. The request was made on 25 January 2019, i.e. rating relies on the data obtained from 25.12.2018 to 25.01.2019.

TABLE I. RATING OF RUSSIA’S REGIONS BY THE SHARE OF TELEWORK VACANCIES IN THE VACANCY MARKET TOTAL ACCORDING TO *HEADHUNTER.RU*

Region	Vacancies		
	total units	Incl. telework units	%
Moscow	105,072	1,854	1,8
St. Petesrburg	42,289	810	1,9
Republic of Tatarstan	16,081	538	3,3
Moskovskaya oblast	30,048	1,053	3,5
Novosibirskaya oblast	12,249	431	3,5
Samarskaya oblast	12,152	432	3,6
Voronezhskaya oblast	9,335	341	3,7
Republic of Udmurtiya	4,232	155	3,7
Republic of Bashkortostan	10,404	399	3,8
Permskii krai	7,657	303	4,0
Krasnoyarskii krai	8,564	340	4,0
Sverdlovskaya oblast	15,641	626	4,0
Khabarovskii krai	3,497	144	4,1
Krasnodarskaya krai	19,314	802	4,2
Omskaya oblast	4,923	207	4,2
Yaroslavskaya oblast	5,097	215	4,2
Chelyabinskaya oblast	8,488	375	4,4

Region	Vacancies		
	total	Incl. telework	
	units	units	%
Nizhegorodskaya oblast	12,865	588	4,6
Tverskaya oblast	3,865	181	4,7
Tyumenskaya oblast	4,884	229	4,7
Irkutskaya oblast	5,916	286	4,8
Primorskii krai	3,858	188	4,9
Kaluzhskaya oblast	3,707	186	5,0
Ryazanskaya oblast	3,542	179	5,1
Rostovskaya oblast	11,527	596	5,2
Lipetskaya oblast	3,326	176	5,3
Sarstovskaya oblast	5,757	309	5,4
Khanty-Mansiysky AO – Yugra	4,277	232	5,4
Tomskaya oblast	3,613	200	5,5
Ulyanovskaya oblast	2,747	158	5,8
Tulskaya oblast	5,153	297	5,8
Republic of Chuvashia	2,639	156	5,9
Republic of Mari El	1,233	77	6,2
Mordovia Republic	1,190	75	6,3
Kemerovskaya oblast	6,891	437	6,3
Smolenskaya oblast	2,324	149	6,4
Orlovskaya oblast	1,849	120	6,5
Yamalo-Nenetsky AO	1,454	97	6,7
Republic of Buryatia	1,313	88	6,7
Vladimirovskaya oblast	4,294	289	6,7
Altaysky krai	4,664	315	6,8
Penzenskaya oblast	2,422	164	6,8
Volgogradskaya oblast	5,985	409	6,8
Ivanovskaya oblast	2,848	196	6,9
Republic of Khakasiya	608	42	6,9
Orenburgskaya oblast	3,112	219	7,0
Kurskaya oblast	2,070	147	7,1
Kirovskaya oblast	3,213	232	7,2
Amurskaya oblast	1,333	97	7,3
Republic of Crimea	3,239	238	7,3
Vologodskaya oblast	2,880	219	7,6
Republic of Karelia	1,222	94	7,7
Republic of Sakha (Yakutiya)	850	66	7,8
Belgorodskaya oblast	3,765	294	7,8
Republic of Komi	1,220	97	8,0
Kurganskaya oblast	1,203	96	8,0
Tambovskaya oblast	1,877	150	8,0
Kostromskaya oblast	1,839	157	8,5
Sakhalinskaya oblast	794	68	8,6
Stavropol'sky krai	4,003	356	8,9
Novgorodskaya oblast	1,359	124	9,1
Adygeya Republic	443	42	9,5
Kaliningradskaya oblast	2,403	228	9,5
Zabaykalsky krai	1,070	110	10,3
Arkhangelskaya oblast	2,298	239	10,4
Magadanskaya oblast	430	45	10,5
Bryanskaya oblast	2,810	311	11,1
Pskovskaya oblast	1,321	160	12,1
Leningradskaya oblast	4,753	576	12,1
Astrakhanskaya oblast	1,612	201	12,5
Murmanskaya oblast	1,820	238	13,1
Kamchatsky krai	543	73	13,4
Republic of Altai	232	33	14,2
Republic of Tyva	118	18	15,3
Republic of North Ossetia-Alania	333	59	17,7
Chukotsky AO	73	13	17,8
Karachayevo-Cherkesskaya Republic	228	44	19,3
Evreyskaya AO	161	32	19,9
Kabardino-Balkarskaya Republic	272	61	22,4
Republic of Kalmykia	205	48	23,4
Republic of Dagestan	560	144	25,7
Nenetsky AO	88	26	29,5
Chechen Republic	137	51	37,2
Republic of Ingushetia	69	33	47,8
On average across Russia	485,752	20,883	4,3

The analysis showed that on *HeadHunter.ru* (hh.ru) in Russia as a whole the telework vacancies make up about 4% of the total vacancy market. The analysis of the total number of vacancies and the proportion of telework vacancies revealed an interesting trend – the fewer the number of vacancies, the higher specific weight of telework. So, in Moscow from 105 thousand vacancies only 1.8% imply telework employment. At the same time, the Chechen Republic, the Republic of Ingushetia have the largest proportion of telework vacancies – more than 35%. The conducted research empirically proved that telework can be of great significance for regions with higher unemployment rate.

Benchmarking of the similar information on the *Work in Russia* portal (The all-Russian database of vacancies. *trudvsem.ru*) allowed to compare only the total number of telework vacancies as an ordinary user cannot download the list of vacancies by regions. It is required to make a separate request for every region that appears to be rather labor-consuming. Both resources do not allow to carry out the gender analysis because vacancies do not specify the desirable sex of a candidate. The representation rate of the real vacancy market on the portals is much higher on hh.ru. The *Work in Russia* portal for the same period published 116 telework vacancies for 884 jobs, i.e. the proportion of telework vacancies makes up about 13% of the total. Summing up the conducted research, it is possible to conclude that there is a significant regional differentiation by telework supply rate.

Thus, the research findings confirm that a pressing problem of female telework management consists in the lack of information on its quantitative and qualitative characteristics, including gender. Currently, the telework distribution scope in Russia is evaluated either based on expert estimates of the information from databases of commercial and state job search portals, or non-recurrent sociological surveys, narrative studies [11].

IV. CONCLUSION

Telework employment is so far a rather new, non-standard form of employment which has high rates of distribution scope in the world according to the recent research findings. In the long term, in the conditions of digitalization, it can make up more than 40% of all jobs [2]. The review of foreign and Russian publications confirms that telework has good prospects as an employment form allowing women to successfully combine parental and socially useful work [8, 10].

Female telework management is a modern trend in the state employment policy aimed to solve one of the objectives of the National Action Strategy for Women for 2017–2022: rendering assistance to women on how to effectively combine paid employment and family commitments. In the conditions of economy digitalization, the significance of this direction is increasing multifold. The female telework management requires establishing a special mechanism for collecting and processing data about the telework segment of employment and labor market. The assessment of the experience gained by foreign countries allows to make a number of recommendations for improving the system of telework tracking and assessment.

First, it is necessary to make changes in the methodology of the Monitoring of Information Society Development in the

Russian Federation implemented by Federal State Statistics Service by including into it the indicators related to female telework.

Secondly, it is advisable in the first place to set up a system of tracking teleworkers in public authorities, local government bodies, and state corporations. As the USA experience showed, launching this initiative first in the public sector makes it possible to test all necessary mechanisms, develop an appropriate way of data assessment and presentation. Only after that the initiative can be launched in the private sector. Without this preliminary stage, establishing new requirements for the commercial sector will lead only to an increase in administrative workload, and businesses' aspiration to back out of the state control.

Thirdly, when developing mechanisms for public telework administration it is necessary to consider the advantages it provides for women. Therefore, it is expedient to take into consideration the gender factor and keep record of female telework.

V. DISCUSSION

The USA experience demonstrates that the share of teleworkers in the countries with developed economy exceeds 20%. In the developed countries, telework is gender neutral, and involves approximately equal proportions of men and women. In the conditions of digital economy, it is possible to expect changes in the methods of collecting and analyzing information. If in the traditional economy the reporting was mainly based on the submission of statistical data, then in digital economy, the information can be collected in the automatic mode by means of tracking, geolocation, the analysis of the staff portals data, the freelancers' market. The further research can involve assessing supply and demand balance in the telework market, appraising methods for telework assessment by applying information and computer technologies.

Acknowledgment

The article is prepared with the financial support of the Russian Foundation for Fundamental Research within the scientific project No. 18-010-00774 "The research into the impact of the female telework on the institute of parenthood".

References

- [1] National Action Strategy for Women for 2017-2022. Retrieved from URL: <https://rosmintrud.ru/uploads/magic/ru-RU/6fbee78a-1500964810.pdf>
- [2] V. A. Toskunina and A. V. Karmakulova, "Female employment in the regions of Russia's North: issues and solutions," *Economy of the region*, 2013, vol. 4, pp. 27-35.
- [3] N. Ordioni, "L'accroissement du télétravail en Europe: Quelques hypothèses interprétatives," *Mondes en Développement*, 2000, vol. 28, pp. 69-79.
- [4] R. P. Kolosova, T. N. Vasilyuk, and M. V. Ludanik, *Telework employment in Russia*. Moscow: Teis, 2006.
- [5] *Status of Telework in the Federal Government: Report to Congress, Fiscal Year 2017*.
- [6] D. E. Beasley, D. E. Lomo, and V. R. Seubert, "Telework and Gender: Implications for the management of information technology professionals," *Industrial management and data systems*, 2001, vol. 101, pp. 477-482.
- [7] M. Gallivan, "A structured review of IS research on gender and IT, SIGMIS-CPR 2013," in *Proceedings of the 2013 ACM Conference on Computers and People Research*, pp. 45-56.
- [8] *Female telework employment: specific features, issues and new opportunities*, N. V. Tonkikh, Ed. Ekaterinburg: UNIKA, 2018.
- [9] *Map of Russian telework market 2015: Joint research of Biatrix24 and analytical agency J'son & Partners Consulting*. Retrieved from URL: https://www.1c-bitrix.ru/images/infographics/json_b24_infographics.pdf
- [10] A. Shevchuk, D. Strebkov, and S. N. Davis, "Educational mismatch, gender, and satisfaction in self-employment: The case of Russian-language internet freelancers," *Research in Social Stratification and Mobility*, 2015, no. 40, pp. 16-28.
- [11] N. V. Tonkikh, O. A. Koropets, "Female telework employment: specific features, issues, effectiveness criteria," *Sociodynamics*, 2018, no. 12, pp. 63-77.