

Research Article

Threats of employment precarization in Russia in the context of digitalization of the economy and society

Amenazas de la precarización del empleo en Rusia en el contexto de la digitalización de la economía y la sociedad

Andrei Vasilevich Popov^{1*} and Tatiana Sergeevna Soloveva¹

¹ Vologda Research Center of the Russian Academy of Sciences

* Correspondence: ai.popov@yahoo.com

Abstract: Digitalization of public life has a serious impact on the development of social and labor relations. In spite of the fact that digitalization has many positive effects, we can point out that the issue of employment precarization is coming to the fore and it is reflected in the growth of vulnerability and social insecurity among workers. This trend is manifested to the fullest extent in the Russian society. In this regard our paper considers theoretical and practical issues of employment precarization in Russia in the context of its rapid digitalization. In the course of our analysis we clarify the concept of precarious employment, identify digitalization trends and the extent and causes of instability in the social and labor sphere. In particular, we have found out that more and more people are involved in unstable labor relations against the background of the rapidly forming digital environment in the country.

Keywords: employment precarization; digitalization; precarious employment; labor market; digital economy; labor relations.

Resumen: La digitalización de la vida pública tiene un grave impacto en el desarrollo de las relaciones sociales y laborales. A pesar de que la digitalización tiene muchos efectos positivos, puede afirmarse que las cuestiones relacionadas con la precarización del empleo están cobrando relevancia y se reflejan en el incremento de la vulnerabilidad y la inseguridad social de los trabajadores. Esta tendencia se manifiesta en toda su extensión en la sociedad rusa. En este sentido, el artículo analiza las cuestiones teóricas y prácticas de la precarización del empleo en Rusia en el contexto de su rápida digitalización. En el análisis se aborda el concepto de empleo precario, se identifican las tendencias de la digitalización, el alcance y las causas de la inestabilidad en la esfera laboral y social. En particular, los resultados evidencian que cada vez más personas se ven afectadas por las relaciones laborales inestables en el contexto del entorno de trabajo digital que se está formando rápidamente en el país.

Palabras clave: precarización del empleo; digitalización; empleo precario; mercado de trabajo; economía digital; relaciones laborales.

1. Introduction

Digitalization is one of the world's global trends. Currently, information technologies go far beyond individual economic sectors and are actively implemented in all spheres of life. Production is shifting from automation and robotization, which form the core of the third industrial revolution, to its fourth stage characterized by digitalization and virtualization of economic relations and public space as a whole. At the same time, the impact of digitalization on socio-economic processes is contradictory and can be manifested both in positive aspects (increasing productivity and efficiency of the use of resources, expanding the range of available services, etc.) and in negative aspects (aggravating inequality, technological unemployment risks, information security threats, etc.).

In the economic context the development of digital technology and processes is associated with the transition to the so-called sixth techno-economic paradigm (Lasi et al., 2014; Brass & Hornsby, 2019). The digital economy includes a wide range of economic activities that involve the use of digitized information and knowledge, modern information networks, and the effective use of information and communication technologies (G20 DETF, 2016). According to forecasts of The Boston Consulting Group, by 2035 the volume of the digital economy in China alone may reach \$16 trillion and provide 415 million jobs¹. At the same time, the formation of the digital economy will entail transformational shifts in various areas and largely predetermine the trajectory of their development. In this regard, labor and employment issues are most sensitive to the ongoing changes since they have a direct impact on the future jobs and, consequently, on the position of an individual in society.

The modern labor market faces an important task of adapting to the challenges of the digital economy. Indeed, each wave of technological innovation causes an increase in uncertainty; but the rapid introduction of information technology has provoked numerous debates concerning possible threats to labor and employment, including the abolition of hired labor as such (Daheim & Wintermann, 2017) or the emergence of a "world without jobs" (Srnicek & Williams, 2015) in the distant future. At the same time, today we can already observe a wide range of impacts that digitalization exerts on the labor market. It concerns not only the changing requirements for the necessary skills and competencies of the applicant, but also workplace arrangements. In this context we can say that digital technologies are a driving force in the de-standardization of labor relations (Walwei, 2016: 5), i.e. they facilitate the abandonment of the traditional employment model that involves full-time employment and an indefinite employment contract with one employer.

Modern society witnesses the development of such forms of employment as part-time jobs, freelance, telework, outsourced employment, etc.; they provide greater flexibility in organizing the work for employees and employers. This, in turn, provides more opportunities for participation in the labor market; it concerns socially vulnerable groups as well. Digital technologies make it possible to study and work remotely, which enables more effective employment, especially for the population of those regions where the demand for labor is low. On the other hand, an increase in the flexibility of labor relations often leads to a growth of insecurity and vulnerability of workers; this fact is associated with the emergence of the phenomenon of precarious employment. As a rule, it leads to pay cuts and delays, failures to provide legal social guarantees, deteriorating working conditions, etc.; all this negatively affects the quality of working life (Rodgers & Rodgers, 1989). According to reports of the International Labor Organization (ILO, 2012), precarization of employment is no less a threat than unemployment, since it affects a much larger number of people and brings into question the possibility of providing them with decent working conditions. In this regard it is relevant to study precarious employment and factors contributing to its growth in the context of

¹Year 2035, 400 Million Job Opportunities in the Digital Age. URL: http://image-src.bcg.com/Images/BCG_Year-2035_400-Million-Job-Opportunities-Digital%20Age_ENG_Mar2017_tcm52-153963.pdf

digitalization of the economy and society. We have chosen Russia as an object of our research, since it is a country with a young market economy, in which the elements of a new economic system are combined with those of the old one. This provides us with a better understanding of how quickly global trends penetrate into public life and manifest themselves in the current conditions.

2. Conceptualizing the notion of precarious employment

Despite the fact that the term “precarious employment” is widely used in the scientific and practical literature, so far there is no clear understanding of its essence. Without asserting the comprehensive nature of all relevant viewpoints, we propose to consider some of them, which, in our opinion, reflect the diversity of scientific ideas best of all (Table 1). For greater clarity, the approaches under consideration were divided into two groups. Some scientists (Kalleberg, 2009; Campbell & Price, 2016) interpret precarious employment through the prism of all kinds of negative implications for the employee (uncertainty, instability, low level of social security, etc.). At the same time, the form of employment itself is not very important. Based on this, it turns out that the standard model of labor relations with its inherent “guarantees of stability” (indefinite employment contract, compliance with labor legislation, work in the formal sector, etc.) may be subject to precarization risks. In recent years, this point of view has found increasing support in the academic community, and similar conclusions can be found in reports prepared under the auspices of the International Labor Organization (ILO, 2016). However, such an interpretation of precarious employment has its drawbacks. For instance, the absence/vagueness of basic criteria for the allocation of this category makes it very complicated to obtain universal knowledge about the essence of the phenomenon under consideration. Often, the principle of theoretical and methodological pluralism makes it impossible to compare the results obtained; this drawback can be clearly seen in the studies in which the estimates of the extent of precarious employment can vary from 8 (Veredyuk, 2013: 32) to 70% (Bobkov et al., 2018: 96) within one country and with the use of a single information base.

Other scientists (Cranford, Vosko & Zukewich, 2003; Fudge & Owens, 2006) understand precarious employment as atypical forms of employment that are distinguished primarily by a low level of social security. In this case, attention is focused on deviations from a generally accepted standard, the standard that is widely spread though it has its specific features in different countries. In the end, it helps get a comprehensive picture of the essence of the phenomenon under consideration. In addition, some works (Bobkov et al., 2018) point out the forced nature of the circumstances that lead to a violation of the stability of workers’ position. We find this thesis very valuable in order to distinguish between the concepts of “precarious employment” and “non-standard employment”, because they are used as synonyms within the framework of this approach. At the same time, if we consider precarious employment by referring only to non-standard forms of labor relations, it significantly narrows the scope of the research.

Table 1. Selected approaches to the definition of “Precarious work”

Author	Essence of precarious work
Rogders, Rodgers, 1989: 3	Work characterized by the risk of its loss, insufficient control over the labor process (including working arrangements), low degree of legal protection of the employee, and low income.
Cranford, Vosko, Zukewich, 2003: 455	Forms of employment involving atypical employment contracts, limited social benefits and statutory entitlements, job insecurity, low job tenure, low earnings, poor working conditions and high risks of ill health.

Fudge, Owens, 2006: 3	Work that departs from the normative model of the standard employment relationship (which is a full-time and year-round employment relationship for an indefinite duration with a single employer) and is poorly paid and incapable of sustaining household.
Kalleberg, 2009: 2	Employment that is uncertain, unpredictable, and risky from the point of view of the worker.
Choi, Mattoni, 2010: 215	All those forms of atypical employment characterized by short-term contracts and lacking social protection.
ILO, 2012: 27	Means for employers to shift risks and responsibilities on to workers.
Bizyukov, 2013: 108-109	Activity of the employee involved in non-standard labor relations formed by the employer only in the employer's own interests and excluding the possibility of the employee's participation in the formation of these relations.
Zakaluzhnaya, 2015: 120	All forms of employment in both the formal and informal sectors that do not provide the workers with basic social guarantees (or deprive them of these guarantees) such as stable wages, social support, social security guarantees, protection from unjustified dismissals, etc.
Campbell, Price, 2016: 4	Work that displays several dimensions of insecurity or precariousness.
Bobkov et al., 2018: 6	Forced employment, associated with the loss of standard employment relations based on an indefinite employment contract with a full working week (standard employment); forced employment includes elements of insecure and informal employment (for those employed in the informal sector) in the formal economy, elements of insecure employment in informal production in general, insecure employment in hidden production, and illegal activities, as well as temporary unemployment.

Note: conditional grouping of approaches to the understanding of the nature of precarious work is highlighted in color.

Source: Own elaboration.

In our opinion, in order to reflect the essence of precarious employment more accurately it is necessary to dwell on its categorical features:

1. Any individual regardless of the form of employment relationship with the employer can find themselves in conditions of precarious employment. According to the studies (Quinlan, Mayhew & Bohle, 2001; Kalleberg & Vallas, 2018), de-standardization of employment has a decisive impact on the spread of instability in social and labor relations. However, even the jobs that are traditional for modern society are not homogeneous; they have different working arrangements, which are changing continuously. In this regard, it is possible to form a comprehensive view on the stability of workers' position only when the entire range of forms of employment is taken into consideration.

2. Precarious employment is not voluntary, but proceeds from a series of forced circumstances. In this case, it is emphasized that this condition has nothing to do with the independent expression of will, when the employee gives up certain social guarantees in favor of other benefits. On the contrary, the employer makes all decisions concerning the position of employees unilaterally. At the same time, almost the only means of survival for the self-employed is to make a choice in favor of greater vulnerability. As a result, the criterion of compulsion allows us to focus on those workers who are "hostages" of their current conditions.

3. Precarious employment always leads to vulnerability and to a low level of social protection. Indeed, this phenomenon has other negative effects, but the two we have mentioned above constitute a kind of basis. All other implications can be considered as a supplement to the existing ones.

Thus, we consider it possible to formulate our own understanding of precarious employment: it is a condition in which the employee is forced into a situation of vulnerability and social insecurity associated with their workplace arrangements. Our definition is based on the universal nature of our interpretation; it reflects the essence of the phenomenon under consideration quite clearly and helps avoid unnecessary particularities.

After introducing a certain amount of clarity concerning the definitions we use, let us consider digitalization trends and the scale and causes of precarious employment in Russia.

3. Digitalization trends in Russia

The importance of digital technologies for national competitiveness has urged the government to pay more attention to digitalization processes. It is for a reason that the governments of many countries include digitalization of various spheres of life in strategic documents. The Europe 2020 strategy, namely the Digital Agenda, calls for a more effective use of the potential of information and communication technologies to promote innovation, inclusive economic growth and progress through the development of a single digital market, promotion of equal access to high-speed Internet, development of digital literacy and skills, strengthening Internet security (EC, 2010), etc.

In Russia, the regulatory and legal framework for the development of the digital economy is enshrined in the Strategy for the Development of the Information Society in the Russian Federation for 2017–2030² and in the national program “Digital Economy of the Russian Federation”³. The first document outlines national interests in the field of digital economy, the need to create conditions for the development of the digital economy and the principles of cooperation with foreign countries in this field. The national program replaced the program “Digital Economy of the Russian Federation”⁴ and provided for no less than a three-fold growth of Russia’s internal expenditures on the development of the digital economy in comparison with 2017; the program also provided for the establishment of a stable and secure communication infrastructure and for the use of mainly domestic software by authorities, local governments and organizations. At the same time, experts note certain gaps in the programs for the development of Russia’s digital economy; they are associated with the lack of analysis of the current state of the digital economy and with the absence of clarity concerning the amounts of funding allocated for specific areas of development (Popov & Semyachkov, 2018: 1093).

It is possible to evaluate the development of digitalization in Russia in comparison with other countries by analyzing the data of international indices. For example, the International Digital Economy and Society Index (I-DESI) measures the digital economy performance of EU28 Member States and the EU as a whole in comparison with 17 non-EU countries (I-DESI, 2018). This aggregate indicator includes the assessment of the following indicators: the deployment of broadband infrastructure and its quality, the skills needed to take advantage of the possibilities offered by a digital society, citizen use of Internet for various purposes, the digitization of businesses, and the digitization of public services, focusing on eGovernment.

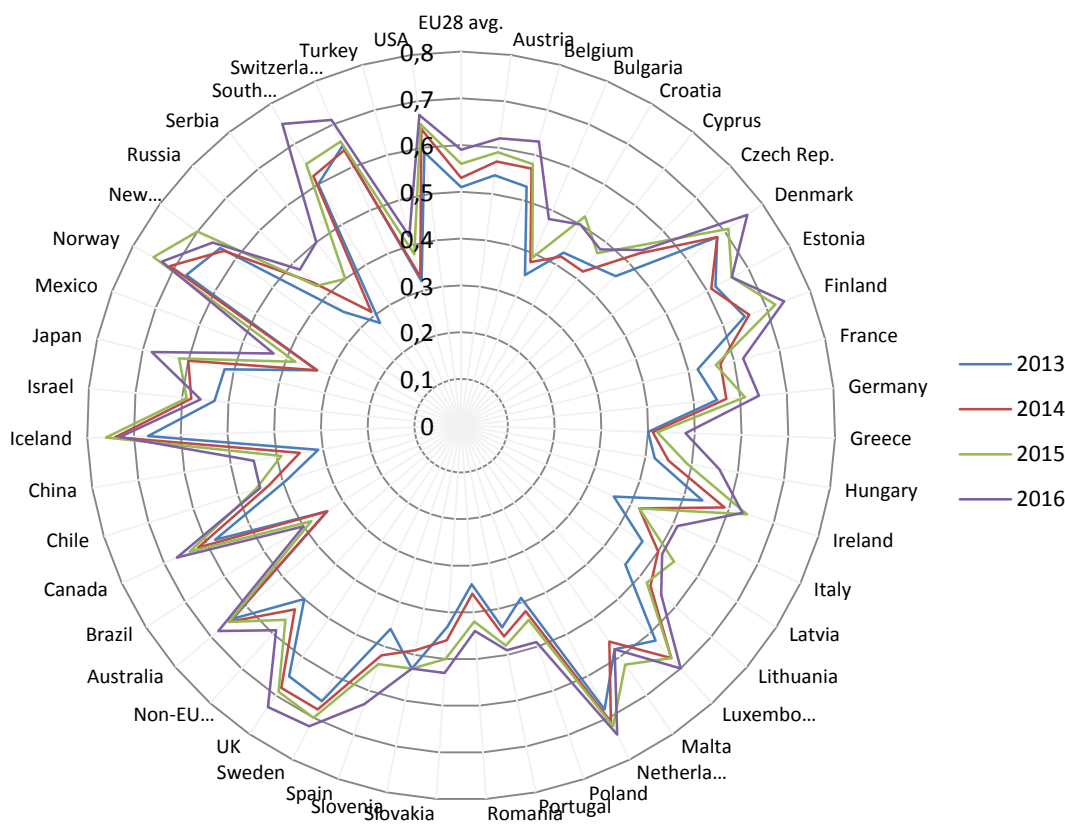
Despite the fact that in Russia this index has a positive trend, the country still lags far behind many EU countries; in general, its digital performance is comparable to countries such as Bulgaria, Greece, Cyprus and Chile (Figure 1).

²Strategy for the development of the information society in the Russian Federation for 2017–2030: app. decree of the Russian Federation President of 9 May 2017 № 203. URL: <http://kremlin.ru/acts/bank/41919>

³Passport of the national program “Digital economy of the Russian Federation”: app. Presidium of the Council under the President of the Russian Federation on strategic development and national projects of 24 December 2018 № 16. URL: <http://static.government.ru/media/files/urKHm0gTPPnzJlaKw3M5cNLo6gczMkPF.pdf>

⁴Program “Digital economy of the Russian Federation”: app. decree of the Government of the Russian Federation of 28 July 2017 № 1632-p. URL: <http://government.ru/docs/all/112831/>

Figure 1. International Digital Economy and Society Index, 2013-2016



Source: According to (I-DESI, 2018: 47).

Such a state of affairs can be explained if we take a closer look at individual components of the index. First, Russia ranks last (45th position) in terms of connectivity, due to its vast area, and this, in turn, complicates the development of broadband infrastructure. The number of users of broadband infrastructure is growing mainly due to wireless access (Table 2), particularly mobile access, the share of which in wireless access is more than 99%. In the context of regional and, above all, municipal inequality in public access to the Internet (according to Rosstat data for 2018, only 69% of households have access to the Internet from a home computer⁵– the figure does not take into account the access to high-speed Internet), a significant part of Russians cannot take advantage of many benefits of digitalization.

Table 2. Key indicators of broadband infrastructure development in Russia

Indicator	2013	2014	2015	2016	2017	2018*
Active fixed-broadband subscriptions per 100 population, units	16.5	17.0	18.3	18.6	21.0	21.6
Active mobile-broadband subscriptions per 100 population, units	59.9	65.2	69.1	72.4	81.3	86.8
Proportion of households with access to broadband Internet, in the total number of households, %	56.5	64.1	66.8	70.7	72.6	73.2

* For 2018, the first two indicators show preliminary data.

Source: According to (Abdrakhmanova et al., 2019: 13).

⁵Share of persons (households) with Internet access. URL: <https://fedstat.ru/indicator/34078>

Second, the indicators of citizen use of Internet for various purposes are also not high enough – Russia ranks 36th out of 45. This applies both to the total number of devices used by inhabitants and the number of online financial transactions and purchases. According to statistics, as of 2018, 39% of Russians use the Internet for financial transactions, 35% – for purchasing goods or services (Abdrakhmanova et al., 2019: 132-139). These figures are significantly below the level of developed countries (for example, in Denmark, the Netherlands and Norway, these indicators reach 80% and more⁶).

Third, Russia ranks 18th according to the digital skills indicator. Only 69% of Russians use the Internet every day, while in Iceland, Denmark and Norway – more than 90% (Abdrakhmanova et al., 2019: 125). As for employment in the sector of knowledge-intensive industries, Russia's indicators (44%) are close to those of developed countries (about 43–50%)⁷.

Fourth, the introduction of digital technologies in business is also a weak link in the construction of Russia's digital economy. According to this indicator, the country is an outsider and ranks 42nd out of 45. This is due to the low availability of new technologies (4.22 points out of 7 possible, compared with 6.0–6.6 points in European countries), low level of their development (4.25 points out of 7, compared with 5–6 points in Europe) and also due to the fact that ICT usage for business operations is not widespread yet (4.82 points out of 7, compared to 5–6 points in Europe)⁸.

Fifth, in the context of development of digital public services, Russia has a long way to go (32nd position out of 45). For example, according to the UN E-Government Survey, in 2016 Russia ranked 35th and in 2018 it moved upward to 32nd position out of 40 (UN, 2018: 89). The leader in this field is Denmark; it implements the Digital Strategy 2016–2020, which regulates the need for interaction between the government and citizens in digital form (Agency for Digitisation Denmark, 2016).

Thus, in order to achieve the goals outlined in national strategic documents, Russia should carry out quantitative and qualitative breakthrough in a number of areas. According to an expert forecast by the National Research University "Higher School of Economics", this must be accompanied not only by increasing expenditures on R&D and innovation, but also by a threefold increase in the number of people employed in the sphere of digital technologies and research. If these targets are met, then half of GDP growth by 2030 will be driven by digitalization in one way or another⁹.

4. Precarious employment in Russia in the context of digitalization

The widespread penetration of digitalization processes into the Russian reality could not but affect the sphere of social and labor relations. Although researchers (Sizova & Khusyainov, 2017: 392; Lapidus & Polyakova, 2018) note that Russia's indicators of introduction and use of digital technologies in workplace management are significantly inferior to those in the world's most developed countries, Russia is actively implementing a transition from the traditional model of employment to the economy of free earnings or gignomics. More and more people are employed with the help of online recruitment services; they work remotely or on a flexible schedule; many of them do not need anything but a computer (and sometimes just a smartphone) to do their job; they use electronic platforms for direct interaction with customers (uberization), etc. In turn, companies are increasingly using content workers in order to reduce costs and adapt the personnel to changing market conditions more swiftly. As of 2019, every third organization (33%) in Russia employed remote workers, and the attitude toward them as

⁶Eurostat database. URL: <https://ec.europa.eu/eurostat/data/database>

⁷World Bank Open Data. TCdata360. URL: <https://tcdata360.worldbank.org/>

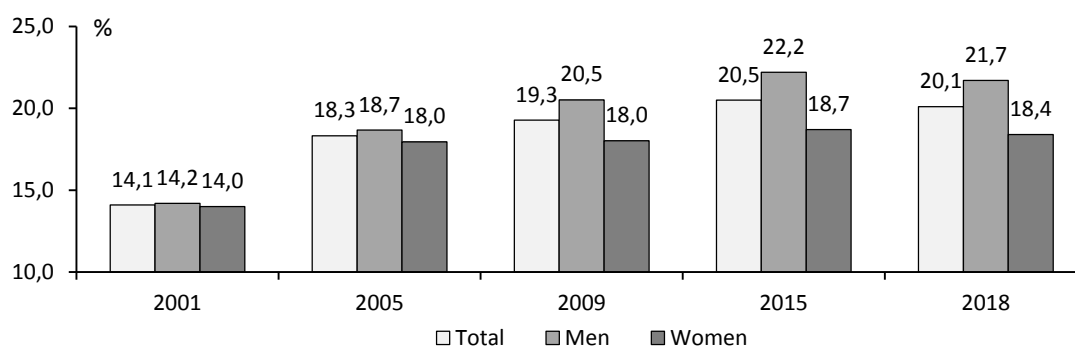
⁸World Bank Open Data. TCdata360. URL: <https://tcdata360.worldbank.org/>

⁹Dranev, Yu.Ya., Kuchin, I.I., and Fadeev, M.A. The Contribution of digitalization to the of the Russian economy growth: Express information. 04.07.2018. URL: https://issek.hse.ru/data/2018/07/04/1152915836/NTI_N_91_04072018.pdf

professionals in their field has improved significantly over the past seven years¹⁰. Moreover, if in the early 2000s the scale of distance employment according to some estimates did not exceed 2%¹¹, then in 2018 the share of remote workers was already about 31% (14% were freelancers, 17% – full-time employees)¹². In this regard, a reasonable question arises: to what extent has digitalization affected the stability of employees' situation?

Practically the only statistical indicator characterizing the dynamics of employment precarization in Russia is "employment in the informal sector" (Figure 2). From 2001 to 2018, the values of this indicator increased from 14 to 21% (from 14 to 23% for men and from 14 to 19% for women), reaching a maximum for the period under review. Taking into consideration statistical accounting, we can say that informal workers are primarily small business units (without setting up a separate legal entity), but they are more exposed to precarization risks. The scale of the informal sector in the economy is confirmed by the results of sociological surveys. In 2018, according to HeadHunter, about 43% of Russian workers received part or all of their wages "in the envelope" (39% in 2016)¹³. For comparison, in the European Union, the share of workers with officially declared wages reaches an average of 97% (EC, 2014).

Figure 2. The number of people employed in the informal sector, % of total employment



Source: According to the Federal State Statistics Service of the Russian Federation.

URL: <http://www.gks.ru/>

Unfortunately, the data of official statistics are rather limited and do not allow us to reveal the features of labor relations between the employee and employer; this makes it difficult to find the causes of a growing instability in the social and labor sphere. In this regard, many scientists use sociological research methods, which provide more opportunities to study the phenomenon under consideration. Currently, there is a shortage of such works in Russia; consequently, we have developed a set of questions in the framework of the sociological survey "Socio-cultural modernization in the regions – 2017"¹⁴, which allows us to assess the stability of employees' situation (Table 3). Our technique has the following methodological basis: we use conceptual provisions of C. Cranford, L. Vosko, and N. Zukewich (2003) in order to identify standard and non-standard jobs, and we also use A. Kalleberg's approach (2014) to identify the extent and causes of precarious employment. We have chosen the works of these researchers,

¹⁰Employers believe that the quality of work of remote employees has become higher. URL: <https://www.superjob.ru/research/articles/112180/rabotodateli-schitayut/>

¹¹Chernov, A. Stray: why companies use home-based workers. *Vedomosti Newspaper*, 2003, May 14. URL: <https://www.vedomosti.ru/newspaper/articles/2003/05/14/besprizorniki>

¹²Pros and cons of remote work: survey of job seekers. URL: <https://hhcdn.ru/file/16708276.pdf>

¹³Employers have become more likely to offer "gray" wage schemes. URL: <https://hhcdn.ru/file/16676147.pdf>

¹⁴The sociological survey "Socio-cultural modernization in the regions – 2017" was conducted among the adult population in some regions of the Northwestern Federal District of Russia: the Vologda, Murmansk, Kaliningrad and Novgorod regions and in the Republic of Karelia. Sampling method: zoning with proportional allocation of observation units. Sample type: quota by sex and age. Sample size: 3,108 people; sampling error: 5% or less.

because the criteria they propose have high validity and clarity, and they can be easily interpreted in practice. In our case, non-compliance with at least one of the criteria indicated in the Table was interpreted as a deviation from the principles of standard/secure employment. The data obtained were processed with the help of SPSS statistics package.

Table 3. Criteria for the allocation of standard and precarious employment and their interpretation in the study

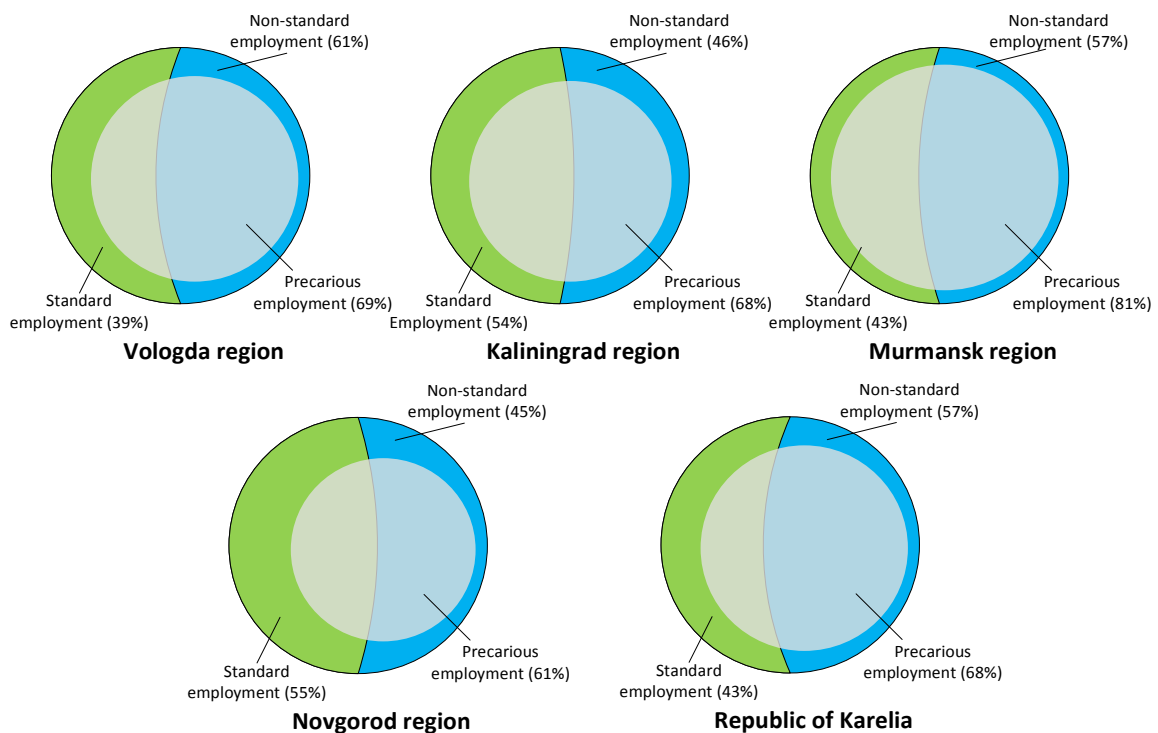
Assessment criterion	Interpretation in the study
Standard employment	
1. Work in the formal sector	Respondents employed on the terms of an oral agreement with the employer are excluded
2. Full package of social benefits and guarantees, observance of all labor rights regulated by the legislation	The respondent has compulsory social insurance, paid holiday and paid sick leave
3. The worker has one employer	The respondent has only primary employment
4. Indefinite employment contract	The respondent has an indefinite employment contract with the employer
5. Full-time working day	The respondent is employed full-time at his/her main job
Precarious employment	
1. Work that is insecure, unstable, and uncertain	Fixed-term employment relationship with the employer For the past 12 months employees were forced to: – accept a pay cut – switch to reduced working hours – take an unpaid leave – the work became less reliable, there was a threat of being fired
2. Work that provides limited economic and social benefits	The employer does not provide any social benefits The amount of wages does not exceed the subsistence level for the working population
3. Work that limits the employee's statutory rights	Verbal agreement with the employer
4. Jobs that have little potential for advancement to better jobs	Low prospects for decent wages and career promotion
5. Jobs that expose the worker to dangerous and hazardous conditions	Unsatisfactory working conditions in the context of sanitary and hygienic environment (microclimate, clean air, lighting, etc.) and safety

Sampling method: zoning with proportional allocation of observation units. Sample type: quota by sex and age. Sample size: 3,108 people; sampling error: 5% or less.

Source: Own elaboration.

Our analysis has shown that about 69% of employees are involved in precarious employment relations (Figure 3). In the context of individual entities of the Northwestern Federal District of Russia we can distinguish only the Murmansk region, where the values of the indicator increase to 81%. The reasons for this discrepancy are probably related to the functioning of the regional labor market, and they require further research. At the same time, the spread of instability in the social and labor sphere is primarily due to the development of atypical forms of employment (by 68%). As for the standard model, although it provides employees with the greatest stability, it does not guarantee comprehensive protection. This thesis is also reflected in other studies (Broughton et al., 2016).

Figure 3. Prevalence of precarious employment in some regions of the Northwestern Federal District of Russia



Source: own calculations based on the data of the sociological survey "Socio-cultural modernization in the regions – 2017", VolRC RAS, 2017.

We can point out the following main features of precarious employment: fixed-term employment contract or the absence of any employment contract (35%), decrease in employment stability, threat of being fired (33%), pay cuts (33%), uncertain career prospects (32%), lack of basic social benefits (28%), low wages (26%). The results we have obtained allow us to conclude that the key drivers of employment precarization are as follows:

- Prevalence of non-standard forms of employment, which often lead to social insecurity and general vulnerability for the employee;
- Development of the informal sector of the economy, where labor relations are often arranged on the basis of an oral agreement;
- Stability of the economic situation in the territory; companies' actions in relation to personnel policy directly depend on this;
- Institutional restrictions that, in particular, allow the employer to pay the wages that do not provide for the simple reproduction of the labor force.

Thus, the process of digitalization of the economy and society contributes to the de-standardization of labor relations, which, in turn, is one of the most important factors in employment precarization. At the same time, the vast majority of people continue to work full-time at their main job; and the practice of mastering and using new technologies at work and in everyday life is quite rare (only 14% of respondents do it). However, every second respondent noted they were willing to learn the values and behaviors corresponding to the modern way of life. In this regard, we can assume that further development of the digital environment in Russia will lead to even greater flexibility of the labor market and labor relations. Consequently, precarization risks will grow, which urges the government to adapt labor legislation and other

labor market institutions to the challenges of the digital society. Otherwise, an increase in precarious employment may lead to deterioration in the quality of working life and to negative socio-economic implications for the country (Popov, 2018).

5. Conclusions

Digitalization is an objective and inevitable process that largely determines the future shape of the economy and society. At present, rapid introduction of digital technologies leads to transformational changes in the field of social and labor relations as one of the most sensitive areas of human life. This is particularly evident in the gradual shift from the standard employment model toward greater flexibility. In addition to many positive effects, such changes are often accompanied by vulnerability and social insecurity among workers; scientific literature usually associates this with the concept of precarious employment.

According to the results of our study, Russia is witnessing an increase in the scale of precarious employment against the background of rapid digitalization. This is confirmed by both official statistics and sociological observations. Using our own technique, we have found that the processes of employment precarization in Russia are widespread, and they affect standard jobs (though to a lesser extent) as well as non-standard jobs. The reasons for such a situation are as follows: expanding practice of using fixed-term employment contracts; developing the informal sector of the economy; limitations of the institutional environment and sustainability of the economic situation in a given territory. Since the level and pace of digitalization in Russia are noticeably inferior to those in Europe's most advanced countries, we can assume that in the future the threat of employment precarization will only increase. It is necessary to establish legal conditions for the use of non-standard employment contracts, promote consistent legalization of the informal sector of the economy, enhance labor market institutions and promote high-performance jobs. In our opinion, these are the directions to be implemented in order to find a solution to the problem under consideration.

Funding: The study was supported by RF President's Grant № MK-3571.2019.6 for providing state support to young Russian scientists – candidates of sciences.

References

Abdrakhmanova, G., Demyanova, A., Dranev, Y., Dyachenko, E., Fridlyanova, S., Fursov, K., ... Kovaleva, G. (2019). *Digital Economy Indicators in the Russian Federation: 2019*. Moscow: HSE.

Agency for Digitisation Denmark. (2016). *A Stronger and More Secure Digital Denmark. Digital Strategy 2016-2020*. Copenhagen: Agency for Digitisation. Available at: https://digst.dk/media/16165/ds_singlepage_uk_web.pdf

Bizyukov, P.V. (2013). Unstable forms of employment as a form of degradation of labor relations. *The Russian public opinion herald. Data. Analysis. Discussions, 1*, 100-109. (In Russian). URL http://www.levada.ru/sites/default/files/vom_1_2013_0.pdf

Bobkov, V.N., Kvachev, V.G., & Kolmakov, I.B. et al. (2018). *Precarious employment in Russian Federation: theory and methodology of identification, evaluation and reduction*. Moscow: KNORUS.

Brass, I.C., & Hornsby, D. (2019). Digital technological innovation and the international political economy. In T. Shaw, L. Mahrenbach, R. Modi, & X. Yi-Chong (eds.), *The Palgrave Handbook of Contemporary International Political Economy* (pp. 615-631). London: Palgrave Macmillan UK.

Broughton, A., Green, M., Rickard, C., Swift, S., Eichhorst, W., Tobsch, V., & Tros, F. (2016). *Precarious employment in Europe. Part 1. Patterns, trends and policy strategies*. Brussels: European Parliament.

Campbell, I. & Price, R. (2016). Precarious Work and Precarious Workers: Towards an Improved Conceptualisation. *The Economic and Labour Relations Review*, 7(3), 314-332. DOI: <https://doi.org/10.1177/1035304616652074>

Choi, H. & Mattoni, A. (2010). The contentious field of precarious work in Italy: political actors, strategies and coalitions. *WorkingUSA*, 13, 213-243. DOI: <https://doi.org/10.1111/j.1743-4580.2010.00284.x>

Cranford, C., Vosko, L., & Zukewich N. (2003). Precarious employment in the Canadian labor market: a statistical portrait. *Just labour*, 3, 6-22. DOI: <https://doi.org/10.25071/1705-1436.164>

Cranford, C.J., Vosko, L.F., & Zukewich, N. (2003). The Gender of Precarious Employment in Canada. *Industrial Relations*, 58(3), 454-482. DOI: <https://doi.org/10.7202/007495ar>

Daheim, C. & Wintermann, O. (2017). 2050: The Future of Work. Findings of an International Delphi-Study of The Millennium Project. Available at: <https://www.bertelsmann-stiftung.de/en/publications/publication/did/2050-the-future-of-work/>

European Commission. (2010). *A Digital Agenda for Europe*. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Brussels: European Commission.

European Commission. (2014). *Undeclared work in the European Union*. Brussels: European Commission. DOI: <https://doi.org/10.2767/37041>

Fudge, J. & Owens, R. (2006). *Precarious Work, Women, and the New Economy: The Challenge to Legal Norms*. Oxford: Hart Publishing.

G20 DETF. (2016). *G20 Digital Economy Development and Cooperation Initiative*. Toronto: G20. Available at: <http://www.g20.utoronto.ca/2016/g20-digital-economy-development-and-cooperation.pdf>

I-DESI. (2018). *International Digital Economy and Society Index. Final report*. SMART 2017/0052. Luxembourg: Publications Office of the European Union. DOI: <https://doi.org/10.2759/745483>

International Labour Organization (ILO). (2012). *From precarious work to decent work. Outcome Document to the Workers' Symposium on Policies and Regulations to combat Precarious Employment*. Geneva: ILO.

International Labour Organization (ILO). (2016). *Non-standard employment around the world: Understanding challenges, shaping prospects*. Geneva: ILO.

Kalleberg, A.L. (2009). Precarious work, insecure workers: Employment relations in transition. *American Sociological Review*, 74(1), 1-22. DOI: <https://doi.org/10.1177/000312240907400101>

Kalleberg, A.L. (2014). *Measuring Precarious Work*. A Working Paper of the EINet Measurement Group. November. Available at: https://ssascholars.uchicago.edu/sites/default/files/einet/files/einet_papers_kalleberg.pdf

Kalleberg, A.L. & Vallas, S.P. (2018). Probing Precarious Work: Theory, Research, and Politics. In A.L. Kalleberg & S.P. Vallas (eds.), *Precarious Work* (pp. 1-30). Bingley: Emerald Publishing Limited.

Lapidus, L.V. & Polyakova, Yu.M. (2018). Hygonomics as a new socio-economic model: the development of freelancing and crowdsourcing. *The Bulletin of the Institute of Economics of the Russian Academy of Sciences*, (6), 73-89. Available at: http://inecon.org/images/stories/publicacii/vesnik-ran/2018/VIE_RAS_6_2018.pdf

Lasi, H., Fettke, P., Kemper, HG., Feld, T., & Hoffmann, M. (2014). Industrie 4.0. *Business & Information Systems Engineering*, 6, 239-242. DOI: <https://doi.org/10.1007/s12599-014-0334-4>

Popov, E.V. & Semyachkov, K.A. (2018). Problems of Economic Security for Digital Society in the Context of Globalization. *Economy of Region*, 14(4), 1088-1101. DOI: <https://doi.org/10.17059/2018-4-3>

Popov, A.V. (2018). The expansion of precarious work as a constraint on Russia's economic growth. *Scientific Works of the Free Economic Society of Russia*, 212(4), 270-293. (In Russian). Available at: http://www.veorus.ru/upload/iblock/a6a/veo_212.pdf

Quinlan, M., Mayhew, C. & Bohle, P. (2001). The Global Expansion of Precarious Employment, Work Disorganization, and Consequences for Occupational Health: A Review of Recent Research. *International Journal of Health Services*, 31(2), 335-414. DOI: <https://doi.org/10.2190/607H-TTV0-QCN6-YLT4>

Rodgers, G. & Rodgers, J. (1989). *Precarious Jobs in Labour Market Regulation: The Growth of Atypical Employment in Western Europe*. Brussels: International Labour Organisation.

Sizova, I. & Khusyainov, T. (2017). Labor and employment in the digital economy: The problems of the Russian labor market. *Vestnik of Saint Petersburg University. Sociology*, 10(4), 376-396.

Srnicek, N. & Williams, A. (2015). *Inventing the Future: Postcapitalism and a World without Work*. London: Verso.

United Nations. (2018). *United Nations E-Government survey 2018. Gearing e-government to support transformation towards sustainable and resilient societies*. NY: United Nations.

Veredyuk, O.V. (2013). Instability of Employment: Theoretical Concept and Assessment of its Scale in Russia. *St Petersburg University Journal of Economic Studies*, (1), 25-32. (In Russian). Available at: <https://economicsjournal.spbu.ru/article/view/2058>

Walwei, U. (2016). Digitalization and structural labour market problems: The case of Germany. *International Labour Organization, Working Papers*, 994936693502676.

Zakaluzhnaya, N.V. (2015). Contract and Agency Labor and Unstable Employment: Russian and Foreign Experience. *Pravo. Zhurnal Vysshey shkoly ekonomiki*, (4), 116-128. (In Russian). Available at: <https://law-journal.hse.ru/data/2016/01/13/1134662203/zakaluzhnaya.pdf>



© Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)
<https://creativecommons.org/licenses/by-nc-nd/4.0/>