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EMPLOYMENT OF DISABLED PEOPLE IN RUSSIA IN THE CONTEXT OF THE DIGITAL ECONOMY

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EMPLOYMENT OF DISABLED PEOPLE IN RUSSIA IN THE CONTEXT OF THE DIGITAL ECONOMY[2]

This paper analyses indicators which describe the employment of disabled people in Russia and the position of this group in the Russian labour market. Special attention is given to disabled workers skills in the sphere of information and communication technologies. The analysis is based on data from the Rosstat population surveys and administrative data. The analysis shows that the information on the disabled people employment is limited due to an underrepresentation of the disabled in the data from population surveys and the methodological approaches used in administrative data. Available statistics demonstrate that the disabled are in a weak position in the Russian labour market: low employment rates, high unemployment rates, widespread employment in the informal sector, and the concentration of employment in low-skilled occupations. Furthermore, disabled people of working age in Russia possess markedly weaker digital skills than non-disabled, which further worsens their position in the labour market.

Keywords: Disability statistics, Employment of persons with disabilities, Digital skills, Russian Labour force survey, Russia.

JEL: J21, J24, I14

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1. Introduction

In 2006 the United Nations adopted The Convention on the Rights of Persons with Disabilities (CPRD), according to which disability results from the interaction between persons with impairments and the attitudinal and environmental barriers which hinder their participation in society.

The Convention obliges the collection of statistical and research data on disability which is necessary for the formulation and implementation of corresponding public policies. The data collected should be consistent with the CPRD and be internationally comparable (Eide et al., 2008; Madans et al., 2011; Harley, Palmer, 2012).

The ratification of the CRPD by the Russian Federation in 2012 promoted the transition from a medical to a bio-psychological approach to disability in policy-making: from disability as a result of a problem localized in the body or mind of an individual and its medical treatment to disability as a result of barriers. Recently many actions have been taken to address the barriers faced by persons with disabilities in Russia, especially in the sphere of employment.

The problems of identifying persons with disabilities and the insufficiency of indicators for monitoring the Convention's implementation in Russia have been previously discussed (Vasin et al., 2014; Ragozina et al., 2015; Burdyak, Tyndik, 2016). However, the methodology to estimate employment indicators has not been considered in detail and the analysis of the inclusion of the disabled in the Russian labour market has not been conducted.

This research analyses sources of official statistics and indicators of employment for disabled people in Russia and describes the position of the disabled in the Russian labour market. Special attention is paid to their skills in the sphere of information and communication technologies (ICT). Those skills are essential for many occupations and make employment more flexible.

The analysis of the sources of statistical data conducted revealed that for a long time the official statistics did not carry out a detailed study of employment for persons with disabilities. There were several limitations. First, in the administrative statistics until 2017, data on the employment of disabled people were compiled on the basis of information from pension documents, which was not always relevant. Secondly, disabled people are substantially underrepresented in the Russian Labour Force Survey (LFS). Thirdly, estimates of the employment rates of persons with disabilities according to the Pension Fund of Russia (PFR) and the LFS vary considerably, due to differences in the reference period and the coverage of different categories of employment, in particular those employed in the informal sector of the economy.

The available statistics evidence that persons with disabilities are in a weak position in the Russian labour market, which is characterized by low employment rates at all ages, high unemployment rates, widespread employment in the informal sector, and a concentration of employment of people with disabilities in low-skilled occupations. Fewer disabled people of working age in Russia possess digital skills than non-disabled people, which further worsens their position in the labour market.

The article has the following structure. Section 2 analyses the sources of statistics and the methodology for calculating the main statistical indicators of number of the disabled people and their employment. Section 3 describes the position of persons with disabilities in the Russian labour market based on data from the Russian LFS. Section 4 characterizes possession of ICT skills by the disabled and non-disabled on the basis of data of the Population Survey of the Use of Information Technology and Information and Communication Networks. In the conclusion the main results of the research are discussed.

2. The sources of statistical data on the number of disabled people and their employment in Russia

In the 1990s and 2000s official disability statistics were based on administrative data from different institutions: the PFR, the State Medical and Social Assessment Service (authorized for the assignment of disability status[3]), the Federal Service for Labour and Employment, social protection institutions and other authorities. Data for this period primarily included information on the number of persons with disabilities; the number of persons newly qualified as disabled, including their structure by disability groups and the causes of disability. Information on the provision of social assistance, disability payments, and support for the disabled to find appropriate work was published.

Information about disability collected from the population via censuses and household surveys was extremely limited for a long period of time. Questions about disability status were not included in the 2002 and 2010 Russian censuses. Only information about the receipt of disability pensions was collected. Although this indicator did not identify all disabled people as the majority of older persons with disabilities in Russia receive pensions. Moreover, censuses are not good at identifying several sources of subsistence [Vasin et al. , 2014; Makarentseva et al., 2016].

[3] Disability status in the Russian Federation is assigned to persons with stable impairments and limitations in their daily activities according to special assessment procedure by the State Medical and Social Assessment Service. Disability status is used to entitle persons with disability to disability pensions and other public social support measures.

The inclusion of questions about disability status in a number of Federal State Statistics Service (Rosstat) household surveys substantially increased the availability of data on disability in the 2010s. Questions were included in the following household surveys: the Comprehensive Survey of the Living Conditions of Population (since 2011), the Survey of Income and Participation in social programs (since 2012), the Survey of the Quality and Availability of Services in the Spheres of Education, Health and Social Services, and Employment promotion (since 2013), the LFS (since 2014), the Micro-census of the Population (2015). As a result, household survey data became an important source of information on the receipt of medical care, social support, and the involvement of people with disabilities in various spheres of society, and the housing conditions of households with people with disabilities. Most official statistics on the labour market attachment of the disabled are published on the basis of the LFS and the Comprehensive Survey of the Living Conditions of the Population.

For a long period, administrative sources provided information about disability "flows". However many indicators of disability "stocks" were not available. In order to eliminate contradictions and ensure the possibility of conducting an operative analysis of disability by public authorities when making decisions, the Federal Register of Disabled Persons (FRD) was founded in 2017. It is administered by the PFR.

The FRD is a complex database on disability which should provide comprehensive information on people with disability status to public authorities. Information about people with disabilities is collected from various sources of administrative data: the PFR, the State medical and social assessment service, the Federal Service for Labour and Employment; the Social Insurance Fund of the Russian Federation; the Ministry of Health; the Ministry of Education, the Ministry of Science and Higher Education; the executive authorities of Russian regions. The aggregation of data from various sources allows the tabulation of information about people with disabilities in terms of disability groups, disability causes, demographic characteristics, the types and severity of the limitations of activities, etc. In addition, the FRD includes detailed information on social support, pensions and other payments, the results of medical and social assessment, rehabilitation and habilitation, the types of assistance that disabled persons need, the employment of persons with disabilities and employment services, etc.[4] Currently, few statistics on disability and the employment of the disabled are published in open access. In the nearest future, the FRD should become the main source of data on disability for public and regional authorities, although it is unlikely that its micro-data will be made available to researchers.

[4] Order of the Ministry of Labour and Social Protection of the Russian Federation of October 12, 2016 N 569n

Despite the active transformation of disability statistics in recent years and the creation of the FRD, many of these problems still exist. Firstly, official disability statistics still focus mainly on persons with disability status [Demyanova, Ryzhikova, 2017]. Disability status is used in enterprise surveys, administrative data, and in population surveys. The surveys still do not include questions that allow an analysis of disability according to the international definition established by The Convention on the Rights of Persons with Disabilities, in particular, the set of questions proposed by the UN Washington group on disability statistics[5] which was recommended by the International Labour Organization (ILO) as a modular questionnaire of the LFS on disability (ILO, 2018).

The question about the presence of long-term activity limitation was asked only in the Microcensus of the Population 2015. The results confirm that not all persons who face activity limitations were assigned disability status: 14% of respondents indicated the presence of a chronic condition that limits their activity, however, only half of them indicated the presence of disability status[6]. Questions on the types of disability (mobility, hearing, vision, self-care, etc.) were asked only in the Sample Survey of Quality and Availability of Services in the Spheres of Education, Health and Social Services, which included little information on the employment of the disabled people.

Secondly, before the FRD, administrative data were segmented. In the absence of a comprehensive database, public authorities and researchers were not able to conduct a comprehensive analysis of the position of persons with disabilities, especially by socio-demographic groups or types of disabilities.

Thirdly, there are discrepancies in the estimates of the same indicators based on different sources. This is a result of differences in the calculation methodology and the coverage of different groups of the population. An example of such discrepancies is the indicators of number of people with disabilities (Figure 1).

The number of persons with disabilities is calculated on the basis of administrative data. The initial indicator is the number of disabled registered in the PFR. In the early 1990s the estimate included only those who received disability pensions, which led to an underestimation of the total number of people with disabilities, because some disabled people received other

[5] Washington Group on Disability Statistics. Short set of disability questions http://www.washingtongroup-disability.com/washington-group-question-sets/short-set-of-disability-questions/
This technique includes questions on difficulties seeing (even if wearing glasses), hearing (even if using a hearing aid), walking or climbing, remembering or concentrating, self-care, communicating (understanding or being understood).
[6] Microcensus of Population 2015. Section VI . Health Assessment
http: //www.gks.ru/free_doc/new_site/population/demo/micro-perepis/finish/micro-perepis.html

types of pensions [Vasin, 2005]. Since 1997 all people with disabilities have been taken into account, regardless of the type of pension received.

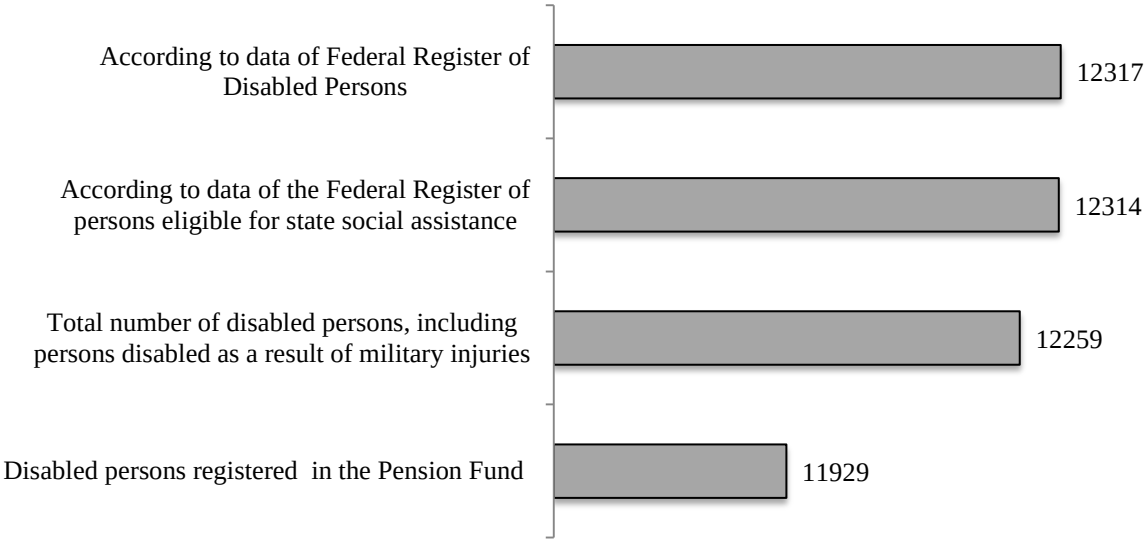

Figure 1. The number of persons with disabilities on 01/01/2017, thousand people

Source: Rosstat website (www.gks.ru), section "The situation of persons with disabilities"; Web-site of the Federal Register of Disabled Persons, section "Statistics. Analytics"

Since 1999 Rosstat has published the indicator "Total number of disabled persons". This indicator includes not only persons who receive pensions from the PFR but also persons who receive disability pensions from military institutions (such as the Ministry of Defence, the Ministry of Internal Affairs, the Federal Security Service, the Federal Penitentiary Service of the Ministry of Justice of Russia (since 2008)). This indicator exceeds the number of persons with disabilities according to the PFR by approximately 330,000 people (Figure 1).

Since 2014 Rosstat has also published the number of persons with disabilities (and their age and gender) according to the Federal Register of persons eligible for state social assistance. This data differs from the data of the two sources of information described above. The difference may be explained by the fact that filling out the register implies a reconciliation of the information between the federal and regional executive authorities. This procedure may result in information updates with a time lag. The register data is the closest to the number of persons with disabilities according to the FRD. The size of the discrepancies between the last three indicators is not high, but not all of them can be explained by differing methodology.

The Rosstat household surveys use questions about disability status to identify disabled people. However, the wording of their questions differ. In some cases, they do not identify all persons with disabilities [Demyanova, Ryzhikova, 2017]. In particular, there is no separate

question about disability status in the LFS. Persons with disabilities are identified on the basis of a multiple choice question. Individuals are not always inclined to disclose their disability status and such a question design further reduces the likelihood of a disability being indicating.

The LFS data are of particular interest for analysing the employment of persons with disabilities. On the basis of this survey the employment and unemployment rates and most employment characteristics of the disabled persons (and the whole population of the Russian Federation) in official statistics are estimated. According to the LFS data for 2017, the number of disabled people aged 18 years and older was about 6,206,000 people[7], while according to the FRD it was about 11,460,000 people (at the beginning of 2018). Thus, in the LFS data, the number of people with disabilities was almost half that according to the administrative data.

The problem of the underestimation of the number of persons with disabilities is common for household surveys. In addition to the ambiguous wording of the question and the reluctance of individuals to declare their disability, the gap in estimates may be explained by the fact that collective and institutional households (hospitals, nursing homes, etc.) are not covered by the survey. There is a higher proportion of persons with disabilities in these types of households. When a disabled person lives there, household members do not fill out a questionnaire for him or her. In addition, some groups of disabled may face barriers to participation in surveys (for example, people with significant hearing or visual impairments) [Burdyak et al., 2017]. Finally, household survey data may have a certain amount of error due to the sampling method.

Despite the fact that persons with disabilities are underrepresented in the survey data, the analysis of the age and gender structure of persons with disabilities aged 16 years and older and the structure by disability groups in the LFS did not reveal significant discrepancies with administrative data (see Table P1 in the Appendix). First, the structure of the population with disabilities by disability groups in the LFS is similar to the corresponding indicator for the FRD. Secondly, the gender and age structure in the LFS is not significantly different from the information on the general population of the disabled. According to the FRD, women constitute 58% of persons with disabilities aged 18 years and older, according to the LFS – 55%. Both sources confirm that the incidence of disability increases with age. Thus, LFS data can be used to analyse the socio-demographic structure of the population with disabilities, including those of working age.

Information on the number of employed persons with disabilities has been published by the PFR since 2009. Up until January 1, 2018 the number of employed people with disabilities was calculated on the basis of a special statistical form gathered from branches of the PFR. A person

[7] The author's calculations based on micro data of the Labour force survey.

was considered to be employed if there was a corresponding record in her pension file in the PFR. The information was received from disabled people during their initial application for pensions or when recalculating the pension payment. If the pensioner was working at that moment and did not notify the Pension Fund about the change in the employment status then he or she continued to be regarded as employed, which led to an overestimation of the number of employed in PFR statistics. Similarly, pensioners re-entering the labour market could be missed.

Since 2018, on the Rosstat website, information on the number of employed disabled people has been published according to information from the Federal Register of Disabled Persons. Disabled people who worked for at least four months a year are considered to be employed. There is no description of the methodology, but I suggest that these yearly estimates follow approach described by the order of the Ministry of Labour and Social Security on the monitoring of employment of the disabled. According to the Order, disabled persons are considered to be employed if they have worked for at least 1 month per quarter, 2 months in the first half of the year, 3 months in three quarters, or 4 months in the year[8].

The monthly indicator "The number of employed disabled people of working age" is published on the website of the FRD. For the calculation of this indicator and the indicator discussed above monthly data is required. In the documents dedicated to the register I did not find information about the source of data on the monthly statistics for disabled employment. However, I suggest that these indicators are estimated on the basis of information on employer insurance contributions to the PFR. This information is used for the (non) indexation of the pensions of working pensioners.

According to PFR data, during 2016, there was a 20% reduction in the number of disabled workers by half a million people (Figure 2). The main reason for this reduction is likely to be a change in the indexation of insurance pensions. From 2016 pensions of working pensioners have not been indexed in Russia. The changes in the procedure of pensions indexation could have technical consequences. Non-working pensioners who were registered as employed in the PFR should have updated information on their employment in their pension documents in the PFR (in early 2016)[9]. Later this became unnecessary, as from April 2016 information for pensions indexation has been collected by the PFR on the basis of a new statistical form which employers use to report monthly on their employees. Individual entrepreneurs submit the form, but only about their employees (not themselves). The Federal Tax Service of Russia provides information on the employment of individual entrepreneurs and other registered self-employed to the PFR.

[8] The Order of the Ministry of Labour and Social Security of Russia of September 19, 2017 No 680
[9] https://rg.ru/2016/02/17/chto-nuzhno-znat-ob-otmene-indeksacii-pensij-rabotaiushchim-pensioneram.htm

In addition to technical consequences, a change in the procedure for pension indexation could also lead to a change in the labour behaviour of pensioners. Some pensioners could actually stop working or switch to informal employment in order to increase the size of their pensions.

In 2017 the decline in the number of employed disabled continued, it decreased by more than 350,000 and reached 1,644,000 by the beginning of 2018. The cancellation of pension indexation continued to have a negative effect on employment. Furthermore, several changes in the methodology of the indicator calculation occurred. In particular, the source of data on employment changed: earlier it was information from pension documents, now it is information gathered from employers for pensions indexation. The coverage of employed persons with disabilities has narrowed by age: only persons with disabilities aged 18 years and older are taken into account; previously, disabled children aged between 16 and 18 years old who worked at least one month a year were also included in the number of employed disabled.

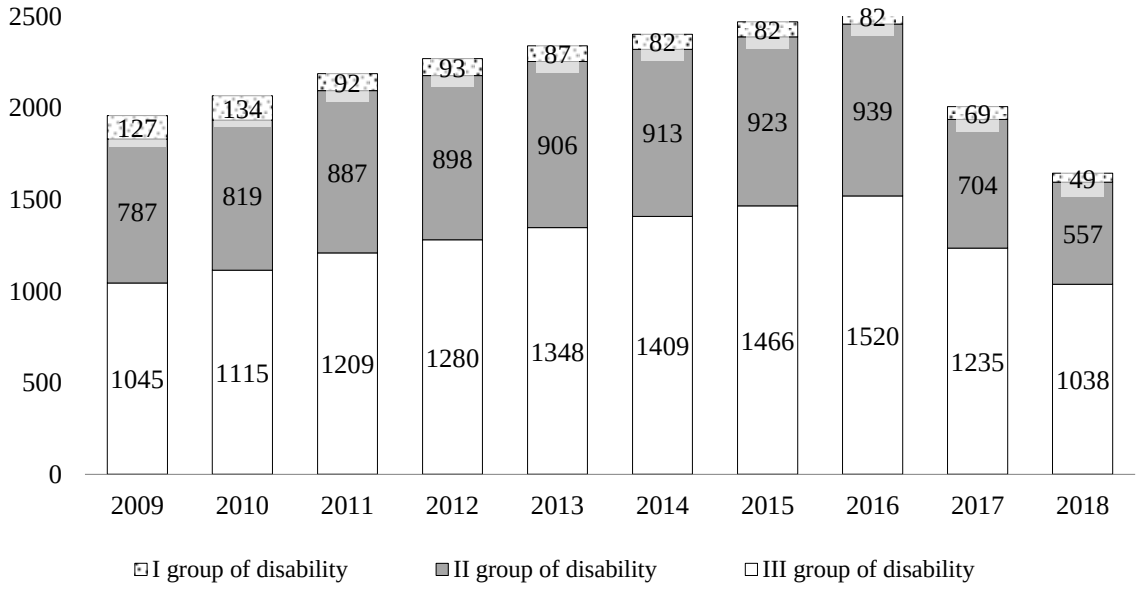

Figure 2 . The number of the employed disabled people aged 18 and over according to the PFR, thousand people

Source: Rosstat website (www.gks.ru), section "The situation of persons with disabilities"; Statistical compilation "The social situation and the standard of living of the population of Russia"

Note: Data on January 1 of the reporting year.

An alternative estimate of the number of employed people with disabilities can be provided by population surveys. All of the population surveys at the beginning of this section have questions about employment status. However, only the LFS allows an estimation of the number

of employed people in accordance with the ILO definition. According to this definition, persons in employment are all those of at the age of 15 years and older "who, during a short reference period, were engaged in any activity to produce goods or provide services for pay or profit" (ILO resolution concerning statistics of work, employment and labour underutilization, 2013, p.6). The ILO recommends using one week as a reference period. This definition includes all employed people, regardless of the registration of activities and payment of taxes, including self-employed and persons who work in their own economic units to produce goods intended mainly for sale or barter.

The current estimates of the number of employed persons with disabilities, according to the LFS and the FRD, differ significantly. According to the FRD, the number of employed disabled people aged 18 and over on January 1, 2018 was about 1,644,000 (14.3% of all persons with disabilities)[10], number of employed disabled people of working age (16-54 years old for women, 16-59 years old for men) was about 927,000 people (26% of all persons with disabilities of these ages). In the LFS data for 2017 only approximately 503,000 disabled people aged 18 years and older were employed (8.1% of all disabled people in the sample); of working age – about 374,000 people (17% of disabled people of these ages in the sample)[11].

Employment estimates based on two sources may vary for the following reasons. First, according to the FRD, there is no opportunity to form an employment indicator that meets the ILO statistical standards. The FRD statistics take into account mostly people employed in the formal sector of the economy and registered employment in the informal sector (including individual entrepreneurs, lawyers, notaries). Those self-employed without registration, including those engaged in household production for sale or barter, as well as the unregistered employment of employees in the formal sector, are unlikely to be included in these statistics. The LFS takes into account all those employed in the formal and informal sectors. Secondly, the reference periods in the administrative data of the FRD and in the LFS are different, this limits the comparability of the indicators. The reference period for employment in the LFS is one week and the LFS data reflects the average number of people employed based on monthly data. The FRD statistics most likely are based on employer reports for the month and the FRD data reflects the number of people with disabilities who have worked for at least 4 months a year.

Our analysis of the official sources of statistics for the employment of persons with disabilities reveal serious shortcomings in both indicators. These statistics should be used with

[10] Hereinafter, the number of employed disabled people aged 18 and over according to the FRD, published on the Rosstat website in the section "The situation of disabled people", table " Information on employed disabled people registered in the Pension Fund of the Russian Federation ".
[11] Estimates of the author on the LFS micro- data.

caution. The number of disabled people employed according to the PFR statistics until 2017 is probably significantly overstated, as the transition from the statistics of pension cases to monthly employers reports reduced the estimate of the employed people with disabilities by more than one third. In our opinion, data from January 1, 2017 reflect the number of employed people with disabilities more accurately, as the disabled people who were not employed could update information on their employment status in their pension documents in the PFR because of the introduction of indexation. The FRD data for January 1, 2018 probably contain the most up-to-date information, as it is calculated on the basis of monthly employer reports. However, the information for both years does not take into account informal employment.

In the LFS data, the employment levels of people with disabilities may be underestimated because of the substantial underrepresentation of persons with disabilities. Although the structure of employment can be analysed on the basis of the LFS, the estimates should not be interpreted as detailed, but can be used to track the more general phenomenon. In connection with a significant underestimation of persons with disabilities in the LFS data, it is preferable to analyse the number of employed people with disabilities in recent years using administrative data.

3. The employment of persons with disabilities

The section analyses the employment of persons with disabilities in Russia using data from official statistics[12]. Disability statistics are still being collected and are subject to numerous methodological changes. A detailed analysis of the tendencies in disability employment does not make sense because of incompleteness or incomparability of data over time. This section describes the key characteristics of the position of persons with disabilities in the Russian labour market, the reliability of which causes the least doubt.

This section describes the situation of persons with disabilities and compares them with non-disabled people. The employment of disabled persons of working age (16-54 years - for women, 16-59 years - for men) is analysed. It is not possible to trace the long-term employment dynamics of people with disabilities due to the data limitations indicated in the previous section. The analysis is carried out on the basis of the aggregate data of the FRD for January 1, 2018 and micro-data of the LFS for 2017. The LFS is held on monthly basis. There were no significant changes in the employment structure of people with disabilities in the LFS data 2014–17.

[12] A detailed analysis of child disability, marital status, rehabilitation of disabled people, access to infrastructure, mobility, etc. is carried out in studies of the RANEPA [Ragozina et al., 2015; Burdyak et al., 2017]. The situation of persons with disabilities identified on the basis of international definition and on the basis of the disability status is analyzed on the data of INSAP RANEPA. In these papers, a detailed description of the employment of persons with disabilities is not given.

According to the FRD, at the beginning of 2018, the employment rate of all people with disabilities aged 18 years and older was only 14%, and among people with disabilities of working age it was 26%. Thus, the employment rate of persons with disabilities is below the average for the population as a whole by at least 52 percentage points, and of those of working age by 48 percentage points (in comparison with the LFS data on the employment rate of the population). Disabled people constitute a significant proportion of the population of Russia – 8% of the total population (12.1 million people), 4% of the population of working age (3.6 million people).

Persons with disabilities are a heterogeneous group by type of health problems and their severity, as well as the impact their disability has on daily activity. Russian statistics do not allow an analysis of the employment of persons with disabilities by type of health problems. However, statistics on the groups of disabilities has been collected. Three groups represent the severity of disability: group I is the most severe, group III is the least severe. According to the FRD, the employment rates of people with less severe disabilities is higher than among to the most severe. At the beginning of 2018, the share of employed among all people of group III was 23%, group II - 10%, group I - 3%. The employment rate of those of working age was higher: group III - by 15 percentage points (38%), group II - by 9 percentage points (19%), group I - by 2 percentage points (5%). Thus, the employment rates of persons with disabilities are significantly lower than the employment rates of non-disabled people, but notwithstanding their significant health problems, all disability groups are represented in the labour market.

Further analysis is done for people of working age on the basis of the LFS data for 2017. The socio-demographic characteristics of disabled and non-disabled people of working age are given in Table P2 in the Appendix. Among non-disabled, the shares of men and women are approximately equal, while disabled men constitute about two-thirds of disabled population.

The age structure of persons with disabilities is older compared to the age structure of non-disabled people. Among the disabled 40% are 50-59 years old, which is 20 percentage points more than among the non-disabled. Accordingly, there is a lower proportion of younger people among the disabled than among the non-disabled.

Disabled people, on average, have accumulated less human capital than non-disabled, especially in terms of education. Disabled people are on the average less educated than non-disabled people: the share of persons with higher education among the disabled is 20 percentage points lower while the share of people with secondary education and lower is by 20 percentage points higher than among non-disabled. The LFS data confirm that people with disabilities have

less competitive individual characteristics from employers point of view. This results in the disabled having a weaker position in the labour market.

For the employment rates of different socio-demographic groups of disabled and non-disabled persons see Table P3 in the Appendix. As noted, the employment rates of people with disabilities are likely to be underestimated, but measurement errors seem to be similar for different groups of the population. Therefore, I pay attention not to the values of the indicators, but to their ratios for different groups of people with disabilities.

Among non-disabled people the employment rate for men is 7 percentage points higher than for women, while among people with disabilities the employment rates of men and women are almost the same. This agrees with the results of foreign empirical studies: disability has a stronger effect on the employment of men [Lindeboom et al, 2006; García-Gómez et al, 2010].

For disabled and non-disabled people there is a similar dependence on age for the employment rate; there are lower levels of employment in younger and older age groups with a peak in middle ages. The maximum level of employment is among 40–49 year old individuals for both disabled and non-disabled. Among persons with disabilities, the differences in employment rates between age groups are smoother than among non-disabled people. Thus, disability has a serious negative effect on employment, regardless of age. The employment rates of 16–29 year-olds and 30–39 year-olds are quite similar, while among non-disabled employment rates of 30–39 year-olds are substantially higher than those of 16–29 year-olds. The possible explanation is that the acquisition of disability at younger ages affects access to education and serves as an obstacle to the formation of the necessary human capital.

Rural residents among disabled people are more often employed than urban ones. While among the non-disabled we observe the opposite situation. Higher employment rates of disabled people living in rural areas are a result of a higher prevalence of production of goods in their own household for sale or barter. This trend is characteristic not only for Russia. In developing economies large gaps in the employment rates of the disabled and non-disabled exist less often: self-employment in the agricultural sector is associated with minimal entry barriers [Mitra, Sambamoorthi, 2008; Mizunoya , Mitra , 2013]. In a competitive urban economy, people with disabilities face more serious barriers.

The labour market position of disabled persons is also unfavourable in terms of the quality of employment. First, a significant proportion of the disabled are employed in the informal sector of the economy (Figure 3). Only about 60% of the employed disabled of working age are employed in legal entities, compared with 80% among non-disabled people. Moreover, about 12% of employed disabled people are involved in the production of products in their households for sale or barter (a type of employment according to ILO standards), compared with 1% among

non-disabled people. This form of employment may be involuntary for many people with disabilities, who have difficulties finding employment in other types of employment.

Secondly, employed persons with disabilities are in a less protected position in the labour market in terms of contract characteristics. The proportion of employees have an oral agreement is much higher than for non-disabled people (12% vs. 4%, respectively).

Thirdly, the occupations of employed disabled people correspond to their education less often: 74% of disabled people said that their job did not correspond to their education, while among non-disabled people it was only 47%. Among disabled people with vocational education 60% said that their jobs do not correspond with their education, among non-disabled it was 25%.

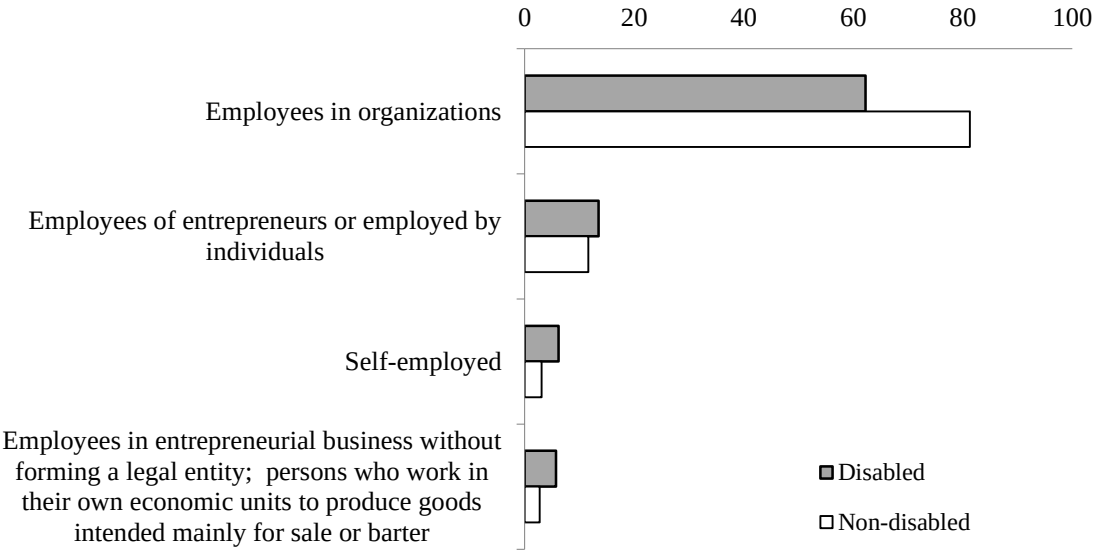

Figure 3 The structure of employment of individuals of working age by types of place of main job in 2017,%

Source: Rosstat, Labour force survey data, Author's calculations

Fourthly, the occupational structure of the employment of people with disabilities is very different from the occupational structure of non-disabled people (Figure 4). To begin with, people with disabilities are less likely than non-disabled people to work in highly-qualified occupations. The disabled are more often employed as unskilled workers and skilled workers in agriculture, forestry and fishing. The first group accounts for 22% of employed people with disabilities, it is 14 percentage points higher than among non-disabled people. The second accounts for 15% of employed disabled compared to 2% among non-disabled people. The latter is primarily due to the high prevalence among disabled people of activities in their own economic units to produce goods intended mainly for sale or barter.

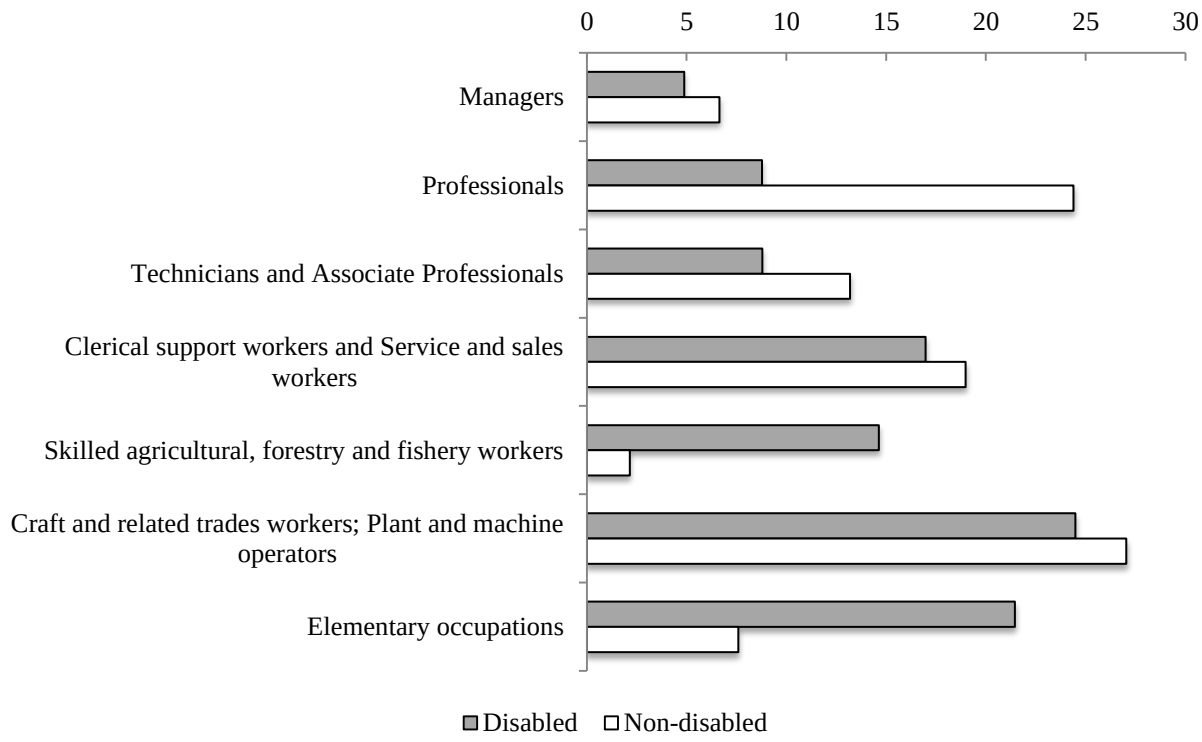

Figure 4 The occupational structure of the employed people of working age in 2017,%
Source: Rosstat, Labour force survey data, Author's calculations

Working hours are an important characteristic of employment. In many countries, part-time employment is widespread among persons with disabilities. Reduced working hours may be associated with the reduced labour supply of people with disabilities, especially their desire to work fewer hours per day or to work part-time, or with a legislative reduction in working hours for people with disabilities. On the other hand, part-time employment may be involuntary due to the difficulty of finding a full-time job. In Russia, part-time employment is not widespread among the population, including disabled people. However, the proportion of disabled people employed in part-time or flexible working hours is 10% of employees, which is three times higher than among non-disabled people.

In 2017, people with disabilities worked on average 35 hours a week, which is 3 hours less than non-disabled people. The average actual working time varies by disability group. Group III worked on average 36 hours a week, groups I and II worked 32 and 33 hours a week, respectively. This effect includes the influence of legislation, according to which the duration of the working week for groups I and II should not exceed 35 hours. The self-employed make a substantial contribution to the differences in working hours. The working week among self-employed people with disabilities is 24 hours, which is 12 hours less than among non-disabled

self-employed people. Among employees, the duration of the working week differed only by 1 hour (37 hours among the disabled compared to 38 hours among non-disabled people).

Low employment rates of people with disabilities are combined with higher unemployment rates. The unemployment rate of disabled people of working age in 2017 was 24%, which is 18 percentage points above the national average. Longer job searches of the disabled people also confirm that it is more difficult for them to find a job. There is an extremely high proportion long-term unemployed (lasting 12 months or more): 50% versus 30% among non-disabled people. Widespread long-term unemployment suggests that many of the unemployed with disabilities have a weak connection with the labour market, thus it is more difficult for them to return to employment. Among the unemployed with disabilities about 75% wanted to find a job with a normal working week, meaning that the vast majority of people with disabilities appreciate their ability to work and are ready to work on an equal basis with the non-disabled. At the same time, 25% of unemployed people with disabilities were looking for a part-time job, which is 3 times higher than the figure for non-disabled people. Strict regulation of working hours in Russian legislation and the lack of jobs with flexible working hours may impede the inclusion of persons with disabilities in employment.

The employed and unemployed together constitute the labour force, reflecting the volume of labour supply, all other people are classified as “out of the labour force”. According to the LFS, 78% of persons with disabilities of working age were classified as out of labour force in 2017, which indicates an extremely low labour supply of persons with disabilities (Figure 5). This indicator is likely to be overestimated due to an underestimation of the employment rate (and possibly the unemployment rate) of people with disabilities, that notwithstanding, a significant proportion of people with disabilities do not want to participate in labour market. The high rate of non-participation in the labour force may indicate that efforts to stimulate demand for labour of the disabled may not be enough and it is necessary to involve methods of activating persons with disabilities.

In recent years, the indicator “potential labour force” has been used for a more complete assessment of the labour supply. This indicator covers people who are “not in employment who express an interest in this form of work but for whom existing conditions limit their active job search and/or their availability” (ILO resolution concerning statistics of work, employment and labour underutilization, 2013, p.9).

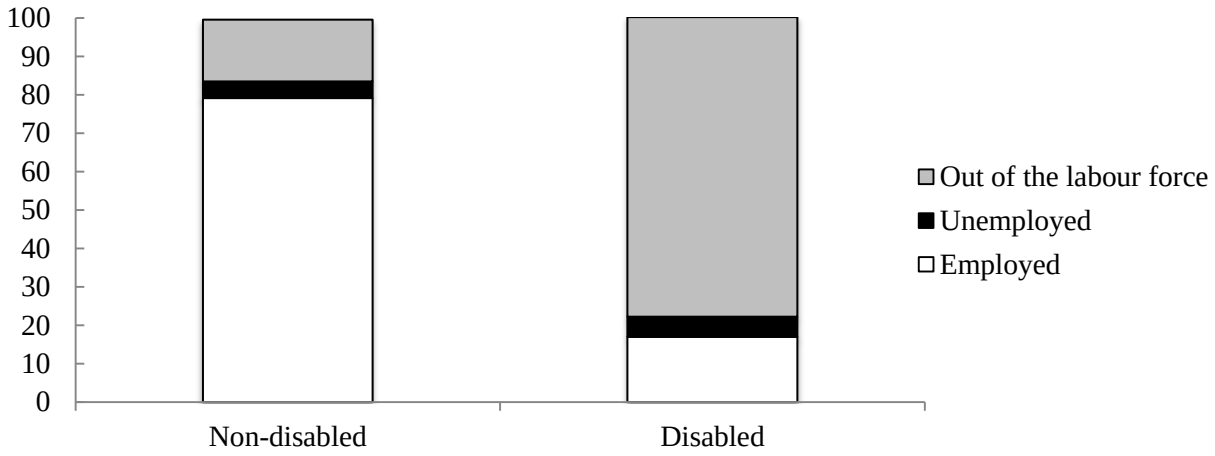

Figure 5 Structure of the working-age population by the status of participation in the labour force in 2017,%

Source: Rosstat, labour force survey data, Author's calculations

In 2017, only 4% of the total number of people with disabilities who were out of labour force could be attributed to the "potential labour force". Among non-disabled people who were out of labour force, the share of those interested in finding employment was almost twice as high - 7%. Without a serious intensification of efforts and a revision of the public policy to support employment for persons with disabilities, this indicator will not expand the labour supply of disabled people.

The analysis of the characteristics of people outside the labour force showed that 57% had previously worked, 71% of whom stopped working 3 or more years ago (39% among non-disabled people), another 21% stopped working 1–3 years ago (vs 39% among non-disabled people). Thus, the majority of persons with disabilities have not been involved in the labour market for a long time, which must be taken into account when formulating public policy, especially in terms of measures to improve professional qualifications. In most cases, the main reason for employment termination was health (79%), compared to 6% among the non-disabled people. Poor health was also the main reason for not looking for a job. The incidence of long-term unemployment and the high proportion of unemployed people with disabilities who stopped working three or more years ago, suggest that most people with disabilities have a weak connection with the labour market, their return to employment may require training or retraining.

4. ICT skills of people with disabilities

In terms of the formation of a digital economy in the Russian Federation, the ICT skills of population become extremely important, especially in the context of labour market development.

Statistics on digital skills of the Russian population are collected in the Population Survey of the Use of Information Technology and Information and Communication Networks. This survey is a modular questionnaire of the LFS, which is carried out 2-3 times a year. The survey data is used for the analysis of the digital skills of disabled people.

According to this survey, in 2017 in the Russian Federation 91% of population of working age used a computer, however the share is significantly lower among the disabled – around 62%. Moreover, only half of disabled people in the sample used a computer during the last 3 months, comparing with 83% among the non-disabled.

The share of individuals who have ever used the internet is almost the same as for computer usage – 93% of the non-disabled of working age and 64% of the disabled of working age. The share of people who used the internet during the last 3 months were 88% and 54% among, non-disabled and disabled, respectively. The disabled use both computers and the internet less frequently and there is no substantial differences in the shares of people who use computer and the internet. A significant proportion of the disabled (around 34%) have not ever used neither computer nor the internet. This means that these people do not have even basic digital skills, while this is not typical for non-disabled people of working age. One of the possible explanations of this gap is that the share of rural population among the disabled is much higher than among non-disabled (42% vs 16%), and those who live in rural areas possess less digital skills (HSE, 2018).

Most disabled and non-disabled people (around 60% in both groups) who have not used the internet for a year or more or have not used the internet at all said that they "do not need to" (Figure 5). The second most common reason (almost 25%) for not using the internet is "lack of internet skills". That means that for many people, including the disabled, digital skill training would be valuable. The third barrier for not using the internet (after "Other reasons") is cost.

There is a gap in computer and the internet usage among employed disabled and non-disabled. Among employed non-disabled people, 6% have never used a computer or the internet, while among the employed disabled, it is 20%. Such a huge gap can be explained by differences in the occupational structures of these two groups: as the share of low-qualified jobs is higher among the disabled, these jobs may not need digital skills. In occupations which are connected with computers and the internet to a greater degree, for example the occupational groups "Professionals" and "Clerical support workers", no differences are observed.

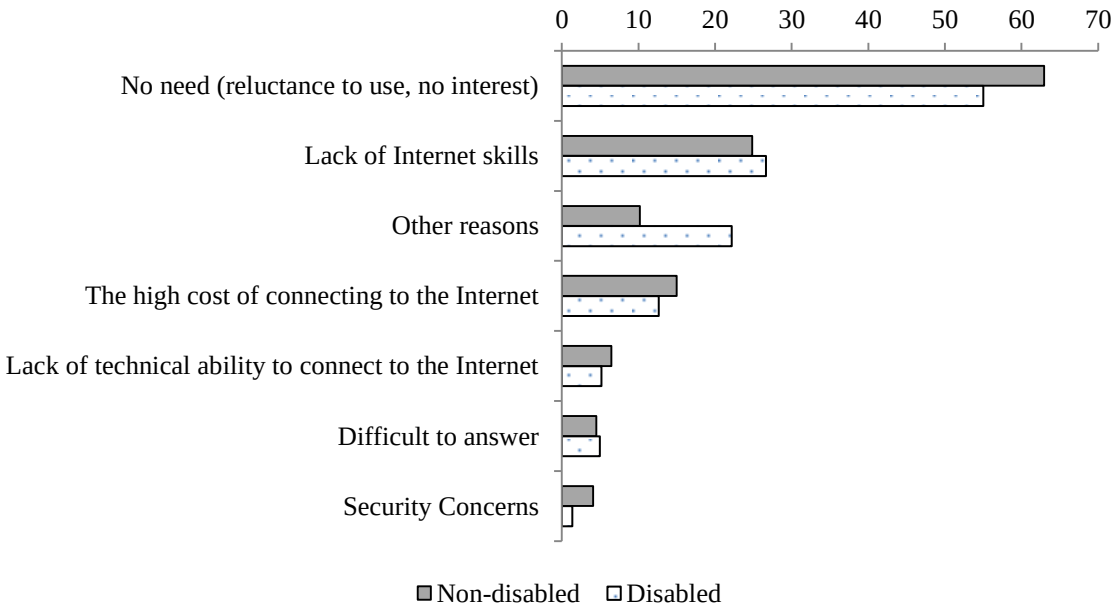

Figure 5 Reasons for not using the Internet in 2017,% of individuals who used the Internet more than a year ago or never used the Internet

Source: Rosstat, Labour force survey data, Survey of the Use of Information Technology and Information and Communication Networks data, Author's calculations

Among the unemployed, the share of people who have not used either computers or the internet is higher for both groups: 12% and 27% for non-disabled and disabled, respectively. Disabled people out of the labour force use a computer and the internet least of all: 38% of them have never used a computer or the internet. While among non-disabled people the indicator is conversely less than among the unemployed.

Survey data provides us with an opportunity to analyse the prevalence of digital skills by their types. Information on the possession of 9 computer skills and 3 internet skills which are useful for work purposes are given in the Table P4 in Appendix.

Among the non-disabled of working age the highest digital skills prevalence is typical for people out of the labour force. This can be explained by the fact that 68% of this group are less than 30 years old. People in this age group possess digital skills more often than those older (HSE, 2018). Employed people possess more digital skills than unemployed. Digital skills make a person more competitive in the labour market, however, being unemployed itself may cause people use computers or the internet less.

Among persons with disabilities, the employed have digital skills more often than the other two groups. The disabled who are out of the labour force have fewer digital skills than others. People out of the labour force in this group mostly include older people, because the disability prevalence rate rises with age. While older people on average possess fewer digital skills. In the

case of the disabled, labour market attachments and especially employment are associated with greater digital skills.

There is a significant gap in the share of people who possess different skills between the disabled and the non-disabled. The second group possess ICT skills more often. As mentioned this is partly a result of substantial differences in the occupational structure of disabled and non-disabled people. The most widespread types of computer skills are word processing, transferring files between computers and devices, using spreadsheets, and editing photos, video and audio files. These are the basic computer skills which are essential for many jobs and which are widely used in everyday life. 26–53% of non-disabled workers and only 14–31% of disabled workers have such skills. The disabled have fewer skills for online communication which is required by many modern jobs: only 20% of disabled used electronic mail (vs 43% among non-disabled), 30% used internet for telephoning and video calling (vs 43% among non-disabled). Advanced digital skills, such as installing or replacing an operating system, writing computer code are not common to either groups of employed, only 2–4% of them possess such skills.

5. Conclusion

This paper explores the sources of official statistics and methodology of the main indicators of the disabled people population and their employment in Russia. The position of disabled people in the labour market is described on the basis of administrative data and the LFS data. For the analysis of the digital skills of the disabled data from the Population Survey of the Use of Information Technology and Information and Communication Networks were used.

The results of the research suggest that for a long time official statistics in Russia did not allow a detailed analysis of the position of persons with disabilities in the Russian labour market. There were several reasons for this. Firstly, people with disabilities were underrepresented in the LFS. Secondly, the international recommendations for disability measurement were not applied in official statistics. Thirdly, the identification of the disabled in surveys was limited due to the wording of questions. Fourthly, the number of employed people with disabilities in administrative data was estimated on the basis of pensions statistics, which were not updated. Finally, the estimates of employed disabled people on the basis of administrative data and the LFS differ substantially, due to differences in methodology.

The analysis of administrative data and information from household surveys leads us to conclude that persons with disabilities are in a weak position in the Russian labour market. This position is characterized by low employment levels, high unemployment rates, widespread employment in the informal sector, especially in the sphere of production in their own

households for sale or barter, and the concentration of disabled employment in low-skilled occupations. In addition, the occupation of people with disabilities does not often match their education.

It was revealed that disabled people of working age in Russia possess digital skills much less frequently than non-disabled people. Almost one third of the disabled of working age in Russia do not possess even basic digital skills as they have never used a computer or the internet. A quarter of people who had not used the internet for more than a year claim that they lack internet skills. An analysis of the possession of separate digital skills showed that the disabled have less digital skills of all types than the non-disabled, including basic computer skills and skills for online communication. This lack skills may prevent the disabled from employment in more flexible jobs (for example, those offering distance employment). This means that a large share of disabled people may need special training as the absence of digital skills may be a barrier to the inclusion of the disabled in society and the labour market especially.

Among employed disabled people, the prevalence of digital skills is much higher than among the disabled who are unemployed or out of the labour force. This can be explained the absence of skills lessening the probability of employment and employment itself may promote the acquisition of digital skills.

Bibliography

1) Burdyak A.Y., Tyndik A.O. Measurement of disability and socio-economic status of disabled: the Russian and international approaches. Vestnik NSUEM. 2016; (1) : 22-43. (In Russ.)

2) Convention on the Rights of Persons with Disabilities. ILO, 2006

3) Demyanova A.V., Ryzhikova Z.A. How to improve national statistical observation of disability employment using international practices. Voprosy statistiki. 2017;(2):33-40. (In Russ.)

4) Digital Economy Indicators in the Russian Federation: 2018 : Data Book / G. Abdrakhmanova, K. Vishnevskiy, G. Volkova, L. Gokhberg et al.; National Research University Higher School of Economics. – Moscow: HSE, 2018.

5) Eide A., Loeb M., Mont D. Approaching the measure of disability prevalence: The case of Zambia // ALTER, Revue Européenne de recherche sur le handicap. 2008. - №2. - 32-43

6) Federal State Statistics Service. Microcensus of the population in 2015. Section VI Health assessment. Access mode: http://www.gks.ru/free_doc/new_site/population/demo/micro-perepis/finish/micro-perepis.html Last accessed on: 15.11.2018.

7) Federal State Statistics Service. Position of disabled people. Access mode: Last accessed on: 15.11.2018.

8) García-Gómez P., Jones A., Rice N. (2010). Health effects on labour market exits and entries.// Labour Economics. 2010. - №17. – С. 62-76.

9) Harley D., Palmer M. Models and measurement in disability: an international review // Health Policy and Planning. 2012 - №27. - 357-364.

10) ILO. Draft Labour Force Survey Module on disability (version March 2018). Access mode: https://www.ilo.org/stat/Publications/WCMS_646356/lang--en/index.htm?ssSourceSiteId=global Last accessed on: 15.11.2018.

11) ILO. Resolution on statistics on employment, employment and under-utilization of labour. 2013

12) Lindeboom M., Llena Nozal A., Van der Klaauw B. Disability and work: the role of health shocks and childhood circumstances. – 2006

13) Madans J.H., Loeb M.E., Altman B.M. Measuring disability and monitoring the UN Convention on the Rights of Persons with Disabilities: the work of the Washington Group on Disability Statistics //BMC public health. 2011. Vol. 11 (4).

14) Makarenzeva A.O., Vasin S.A., Khasanova R.R. How to estimate the number of disabled people in Russia // Demoscope Weekly. - 2016. - №. 695-696. - p. 1-20. (In Russ.)

15) Mitra S., Sambamoorthi U. Disability and the rural labour market in India: World Development. - 2008. - T. 36. - №. 5. - p. 934-952.

16) Mizunoya S., Mitra S. Is there a gap in employment rates in developing countries? // World Development. - 2013. - T. 42. - p. 28-43.

17) Ragozina L. and others. The Social Situation of the Disabled in the Russian Federation, Subject to the Provisions of the Convention on the Rights of Persons with Disabilities. - Moscow: RANEPA.2015

18) The Federal Register of Disabled. Statistics. Analytics. Access mode: https://sfri.ru/ Last accessed on: 15.11.2018.

19) Vasin, S. et al. Organization and Carrying Out Comprehensive Monitoring of Persons with Disabilities in Russia in Light of the UN Convention on the Rights of Persons with Disabilities. - Moscow: RANEPA. 2014 (In Russ.)

20) Vasin S. Light burden of disability // [Electronic resource]. Domestic notes. - 2005. - Access mode: http://www.strana-oz.ru/2005/6/legkoe-bremya-invalidnosti Last accessed on: 15.11.2018.

Appendix

Table P1 Gender and age structure of persons with disabilities aged 18 years and older according to the Federal Register of Disabled Persons and the Labour Force Survey,%

	According to the FRD on January 1, 2018	According to the LFS for 2017
Total	100	100
By disability groups, %		
1 group	12.8	10.7
2 group	48.5	50.6
3 group	38.8	32.9
disability from childhood (only in LFS)	-	5.8
By gender at all ages,%		
men	42.2	45.0
women	57.8	55.0
By gender at working age, %		
men	62.7	65.5
women	37.3	34.5
By age groups, %		
18-30 years	4.6	5.8
31-40 years	6.8	7.5
41-50 years	9.0	8.9
51-60 years	17.9	19.8
older than 60 years	61.8	58.0
population of working age	31.1	35.5

Source: the FRD website, section "Statistics. Analytics"; Rosstat, LFS , Author's calculations

Table P2 The socio-demographic structure of disabled and non-disabled people of working age in 2017 according to the LFS,%

	Disabled	Non-disabled
Total	100	100
By gender:		
men	66	52
women	34	48
By age groups:		
16-29 years	15	31
30-39 years	21	28
40-49 years	24	23
50-59 years	40	18
By education::		
higher	10	30
vocational	35	40
senior secondary	29	23
basic general or do not have	27	7

Source: Rosstat, LFS data, Author's calculations

Table P3 Employment rates of disabled and non-disabled people of working age by socio-demographic groups in 2017,%

	Disabled	Non-disabled
By gender:		
men	17	83
women	17	76
By age groups:		
16-29 years old	11	58
30-39 years old	16	89
40-49 years old	23	92
50-59 years old	18	86
By place of residence:		
urban	16	81
rural	18	74
By education:		
higher	27	91
vocational	23	88
senior secondary	14	60
basic general or do not have	9	38

Source: Rosstat, LFS data, Author's calculations

Table P4. Share of employed, unemployed and people out of labour force by possession of different digital skills in 2017, %

	Employed		Unemployed		Out of the labour force	
	Non-disabled	Disabled	Non-disabled	Disabled	Non-disabled	Disabled
Use word proceesing software	53	31	35	27	61	18
Transfer files	36	22	29	17	40	13
Use spreadsheets	30	14	14	6	37	5
Edit photos, video and audio files	26	15	23	13	36	12
Connect or install new devices	13	6	10	6	15	4
Use software for electronic presentations (slides)	10	4	8	3	25	2
Modify the configuration of software application	5	1	3	3	5	1
Install or replace an operating system	4	2	3	4	4	1
Write computer code	2	0	1	0	2	0
Send and recieve e-mails	43	20	27	16	39	10
Telephoning / video calling	43	30	34	21	49	20
Download and install software (beside computer games)	9	6	7	8	11	2

Source: Rosstat, the Population Survey of the Use of Information Technology and Information and Communication Networks data, Author's calculations

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