

Rural deprivation as a challenge for agricultural sustainability in digital era

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Abstract. Although rural poverty has been declining in recent decades, it remains a predominantly rural phenomenon. However, success in reducing poverty does not always lead to a reduction in social deprivation in rural areas or a narrowing of the gap between urban and rural areas. Inequalities in access to basic services and opportunities continue to be a problem for rural residents. The COVID-19 pandemic has further exacerbated the plight of vulnerable rural populations, reducing incomes, limiting mobility and threatening livelihoods and food security. Available research suggests that people living in rural areas experience deprivation differently than urban residents. This confirms the continuing income stratification of urban and rural residents. More than 50% of rural households do not have a car. Under the restrictions of the self-isolation regime, this is a significant factor in social isolation. Low incomes and material deprivation do not allow such households to change this situation. Not even all wealthy families have access to high-speed Internet. This may be due to the underdevelopment of high-speed Internet infrastructure.

1 Introduction

Although rural poverty has been declining in recent decades, it remains a predominantly rural phenomenon. However, success in reducing poverty does not always lead to a reduction in social deprivation in rural areas or a narrowing of the gap between urban and rural areas. Inequalities in access to basic services and opportunities continue to be a problem for rural residents. The COVID-19 pandemic has further exacerbated the plight of vulnerable rural populations, reducing incomes, limiting mobility and threatening livelihoods and food security.

Faced with disproportionate levels of poverty and social exclusion, and given high levels of seasonal and informal employment in rural areas, access to social protection is essential for rural residents. However, social protection coverage in rural areas is generally lower than in urban areas.

Available research suggests that people living in rural areas experience deprivation differently than urban residents. Special problems in rural areas include increased fuel consumption for heating and transport, less accessible socially significant services, including healthcare, and limited opportunities to earn income comparable to the city.

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Inequalities in social class, status and power or mode of production occur in all societies. Recently, sociologists have begun to focus on social deprivation as one of the main factors of stratification. Social stratification is a term meaning inequality. Stratification is the ranking of people in society. The rating is compiled according to certain criteria. Marxists view stratification from the point of view of the mode of production. This approach is historical and takes into account the conceptual basis of productive forces and relations of production. Weber's approach to stratification takes into account the concepts of wealth, power and prestige. Wealth can be defined as an abundance of intangible and tangible assets (such as money, capital goods, real estate, or personal property) in excess of the needs of life. Prestige means comfort and lifestyle. Power means the ability to control or dominate the course of events that make up social life.

Rural stratification is not that complicated compared to urban stratification. It is possible that some societies have higher rates of social stratification than other societies, but some pattern of stratification certainly exists in all societies. When social stratification in rural areas is studied, the mode of production, that is, land owners, types of villagers, their wealth, status and power are emphasized as the main determinants of stratification or ranking.

In one study, the authors examine the specificity and sensitivity of deprivation indices in the UK in identifying income and employment related welfare benefit claimants. Across all indices, sensitivity and specificity for identifying people deprived of income and work were low, with less than half living in the poorest 20% of areas. Between 55% and 62% of people deprived of income and between 56% and 63% of people deprived of work were not indexed at the 20% deprivation threshold. Area Deprivation Index support measures in the UK have limited sensitivity and specificity for identifying those deprived of income or employment. As a result, local support is unlikely to be effective in reducing inequality. Creating individually linked data sets and interventions that take into account the social and economic relationships between social groups is likely to be more effective. [1]

Research on social needs is fundamental to understanding the dynamics of quality of life, social exclusion, poverty or economic inequality, and to developing social policy. In Romania, a study of social conceptions of the good life showed that people's material aspirations can be analyzed in two dimensions: a) basic needs necessary for survival, which are universal and have an internal source, and b) material needs, reflecting the social conditions in which people live. The most important factors determining differences in material deprivation are income, employment, education and place of residence. [2]

L. Ayala, J. Martín-Román, and C. Navarro analyzed how material deprivation responds to sharp changes in the unemployment rate. They examined unemployment shocks recorded in some European Union countries. As a result, they found that, contrary to the traditional assumption of low sensitivity of measures of material deprivation to changes in the business cycle, unemployment shocks have a large and rapid impact on material deprivation. This conclusion remains valid even if the analysis period is extended, the measure of material deprivation is changed, or the definition of an unemployment shock is changed. [3]

In another study, the authors analyzed the degree of housing deprivation faced by households in European countries when COVID-19 containment measures were implemented. They found similar distributions of housing deprivation rates in countries with the highest and lowest levels of deprivation in terms of living area. However, levels of housing deprivation vary across countries. At the start of the lockdown, Eastern European households were significantly more homeless than others. This shows that the social welfare impacts of lockdown have not affected all Europeans equally and highlights the need for government measures to promote housing provision. [4]

J. McCartney and R. Hoggett sought to compare the sensitivity of the Scottish Index of Multiple Deprivation (SIMD) for identifying income and employment deprivation across

urban-rural and council classifications. As a result, they found that the number and percentage of people deprived of income and work are higher in cities than in rural areas. The SIMD index misses the higher percentage of people deprived of income and employment in remote, rural and island areas across deprivation thresholds and regardless of whether classification strata are used at the national, local or urban-rural classification. [5]

2 Method

V. Anikin on monitoring data from the Institute of Sociology of the Federal Scientific Research Center of the Russian Academy of Sciences in 2015 and 2018. defines Russia as a society of vertically integrated classes. Classes are identified on the basis of a multidimensional approach, which is based on non-monetary characteristics of the capabilities of Russians in economic conditions, industrial relations, educational and medical opportunities, as well as consumption opportunities. The most privileged part of mass Russian society forms the upper middle class, the relative size of which does not exceed 13%. Another 47% of the population belongs to the lower strata of the middle class. The remaining 40% of the country's population are deprived and fall into the lower classes. [6]

Yu. Lezhnina, using representative all-Russian data from the Monitoring Information System of the Federal Scientific Research Center of the Russian Academy of Sciences, using the Weberian logic of life chances and negative / positive privilege, demonstrated the main risks and opportunities of the population in terms of economic living conditions, characteristics of consumption and leisure, the situation at work, opportunities for obtaining education and maintaining health . She showed that positive privilege is ensured, first of all, through opportunities in the sphere of consumption and economic living conditions, and negative privilege - through the position of Russians in the production sector. Negative privilege is most often localized in rural areas, and in the production sector it even becomes the norm for the state of the population for this type of settlement. [7]

The authors of another study show that family happiness and material well-being are key parameters of life success for residents of the Russian provinces. A study of the prevalence of such life goals as professional self-realization and career growth in the hierarchy of life success criteria shows their high importance. Residents of the Russian provinces are quite acutely aware of the inequality of chances for achieving success in life in comparison both with residents of the economic and cultural "capitals" (Moscow and St. Petersburg), and within the provincial community. The narrowness of labor markets, low wages in most sectors of regional economies, manifestations of clanism, and dissatisfaction with the conditions for obtaining a quality education are factors in the intensification of territorial, educational and labor mobility. [8]

S. Korzhuk explores the factors that determine the risks and depth of poverty for households in which people with disabilities live. The results of the 2018 study show that when an adult of working age is disabled, the risks of poverty increase for the entire household. Living in rural areas or small towns, large household sizes, and the presence of children, especially preschool children, increase the risk of poverty for households of people with disabilities. [9]

Another study, based on the results of an all-Russian sociological study, provides a comprehensive multidimensional assessment of the life activity of Russian society in the context of the spread of covid-19. Data is provided on the dynamics of the material and social situation of Russians, the impact of the pandemic on socio-psychological well-being, public sentiment and the spiritual atmosphere is revealed. Particular attention is paid to the behavioural practices of different groups of the Russian population related to adaptation to

new socio-economic conditions, preserving and increasing human potential, and Russians' determination of the future of the country. [10]

Within the framework of this study, the stratification scales with five intervals are constructed to assess rural deprivation. All households included in the study are distributed according to their income, possession of socially significant assets and digital inclusion. The median per capita income is the middle of the third interval on the first sub-scale. The boundaries of other intervals are determined in increments of 0.4 from the middle of the third interval. Ownership of a first home, ownership of an additional home, ownership of one or more cars, and ownership of land are chosen as socially significant assets. [11] The absence of all above mentioned assets corresponds to the first interval. Possession of one asset corresponds to the second interval, two assets - into the third interval, three assets - into the fourth interval, and four assets - into the fifth interval. The digital divide indicators include having a computer or laptop, having Internet access, having cable/satellite television, and using mobile cellular services. The distribution of households on sub-scale of digital divide is similar to the previous scale.

To construct the integral scale of rural deprivation, the scores for the three subscales for each household are summed up, and all households are distributed among five groups: extremely poor (3-5 points), needy (6-8 points), middle class (9-11 points), upper-middle (12-13 points), rich (14-15 points).

The data source for household social deprivation is the Russian Longitudinal Monitoring Survey (RLMS-HSE). [12] The survey is carried out on an internationally recognized methodology on a regular basis and covers the entire territory of Russia. The sample of households ensures the representativeness of the study.

3 Findings

Table 1 presents the ranking of households according to a first sub-scale of social deprivation – income sub-scale.

Table 1. Ranking of rural households by per capita income, 2019-2021

Index	Intervals on the income subscale, by year														
	1			2			3			4			5		
	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
Share of households in the total sample, %	9.9	8.7	10.9	22	23.1	23.2	34.3	33.9	32.5	16.7	19.3	19.5	17.1	15	13.9
Share of individuals in the total sample, %	14.6	12.5	14.7	25.2	25	26.4	31.6	32.3	31.7	14.5	17.2	16.4	7	13	10.8
Average income, thousand rubles.	5.2	5.6	7.4	9.9	10.5	13.4	15	15.7	19.9	20.8	21.8	27.7	34.4	36.1	52.1

In 2019, 9.9% of households (14.6% of individuals) were in the lower income distribution with an average per capita income of 5.2 thousand rubles. In 2020, during the Covid-19 pandemic, the number of such households decreased by 1.5% (by 2.6% of

individuals). This may be due to government measures to support families, the unemployed, the disabled and working pensioners. However, the incomes of households remaining in the first interval practically did not increase in 2020. This made them more vulnerable to restrictions during the lockdown period. In 2021, the number of poor households returned to pre-pandemic levels and even exceeded them. The increase in households falling into the fourth interval in 2020 occurred simultaneously due to an increase in the income of low-income households and a decrease in the number of high-income households. The number of households in the top fifth interval decreased by almost 2%. Average household income increased across all intervals.

Table 2 presents the ranking of households according to the second subscale of social deprivation – the assets subscale.

Table 2. Ranking of rural households by a set of socially significant assets, 2019-2021

Index	Intervals on the asset subscale, by year														
	1			2			3			4			5		
	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
Share of households in the total sample, %	0.8	0.9	0.9	11.2	10.7	10	44.9	46.1	45.8	39.3	39.1	40	3.8	3.2	3.3
Share of individuals in the total sample, %	0.7	0.8	0.9	8.3	7.9	6.7	38.4	39	38.8	47.6	48.3	49.4	5	3.9	4.2
Share of households with a personal car in the total number of households in the	0	0	0	2.3	3.4	2.7	9.5	11.3	10.8	97.5	96.5	96.4	100	100	100

There were no significant changes in the ranking of households by asset subscale from 2019 to 2021. In 2020, the number of households in the third interval increased by 1.2%; in 2021, it decreased slightly. The number of households in the fifth interval in 2020 decreased by 0.6%. This indicates a decrease in the provision of households with socially significant assets. Perhaps these assets are sold to supplement household financial budgets or due to the impossibility of maintaining them. It should be noted that more than 50% of rural households did not have a car during the entire study period. Under the restrictions of the self-isolation regime, this is a significant factor in social isolation.

Table 3 presents the ranking of households on the third subscale of social stratification – the digital inclusion subscale.

Table 3. Ranking of rural households by digital inclusion, 2019-2021

Index	Intervals on the digital subscale, by year														
	1			2			3			4			5		
	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
Share of households in the total sample, %	4	2.8	2.8	28.6	27.5	26.5	17.3	17.4	16	33.9	34.8	35.4	16.2	17.5	19.3
Share of individuals in the total sample, %	1.8	1.4	1.2	18.9	16.9	17	16.8	14.8	12.5	43.5	44.3	43.6	19	22.6	25.7
Share of households with high-speed Internet access in the total number of households in interval, %	0	0	0	0.3	0	0	6.1	9.5	7.8	57.5	55	54.2	63.9	66.1	53.9

The number of households in the digital divide fell from 4% to 2.8% in 2020 and remained unchanged in 2021. These households do not have a computer, Internet access, mobile communications, or cable/satellite television. At the same time, the number of households with access to all digital resources and falling into the fifth interval of the scale increased by 1.3% in 2020 and by 1.8% in 2021. However, even in this fifth interval, not all households have access to high-speed Internet. This may be due to the underdevelopment of high-speed Internet infrastructure [13]. In table Figure 4 shows the stratification scale of Russian households. There were no significant changes in the social stratification of households from 2019 to 2021. Average income in 2021 increased significantly in all groups of households except those in the first interval.

Table 4. Rural deprivation of households in agrarian Russia, 2019-2021

Index	Stratification scale														
	1			2			3			4			5		
	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
Share of households in the total sample	1.4	1.3	1.4	29.5	26.8	25.6	47.9	50.9	51.7	16.6	17.9	16.7	4.6	3.1	2.6
Share of individuals in the total sample	0.9	0.8	0.9	24.8	20.4	19.1	51.2	54.2	57.7	17.9	21.1	19.5	5.2	3.5	2.7
Average income, thousand rubles.	7	7.2	7.8	11.3	11.8	15.1	16.6	17.4	21.2	24.9	25.9	36.8	35.9	35.9	47.2
Share of households with a personal car in the total number of households in the interval,	0	0	0	11.2	12.9	13.5	52.4	50.2	53.3	82.6	80.1	72.4	100	100	96.5
Share of households with Internet access in the total number of households in the interval, %	0	7.1	12.5	12.1	14.7	13.9	58.6	59.8	66.4	91.6	93.9	92.4	98.1	100	96.5

The number of households with access to the Internet increased in 2020 in all intervals of the stratification scale. In the first interval, only 7.1% of households had access to the Internet in 2020. In the context of the Covid-19 pandemic, this digital divide among households living in extreme poverty significantly increases their social isolation and increases social deprivation.

4 Conclusion

Amid the Covid-19 pandemic, the digital divide among households living in extreme poverty significantly increases their social exclusion and increases social deprivation. This confirms the continuing income stratification of urban and rural residents. More than 50% of rural households do not have a car. Under the restrictions of the self-isolation regime, this is a significant factor in social isolation. Low incomes and material deprivation do not

allow such households to change this situation. Not even all wealthy families have access to high-speed Internet. This may be due to the underdevelopment of high-speed Internet infrastructure.

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