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Anticipation of female labour supply in rural area of Ukraine: A microsimulation approach

Abstract

Women play a key role in rural areas. However, at the same time, they face a number of problems, including employment. Successful resolution of this issue will largely determine the efficiency of agricultural production, the availability of qualified personnel, the reduction of unemployment and social exclusion in rural areas, the improvement of living standards, and the overall development of rural areas. This will also affect the formation of social policy in these areas. To investigate this issue, the

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authors use a microsimulation approach that allows predicting potential gaps in the female labour supply by major occupational and qualification groups in rural areas in the medium term by studying rural households. Thus, the main goal of this article is to identify the main challenges and opportunities for balancing the supply of women's labour in rural areas. The results of the study provide the foundation for both the development of rural development strategies and the formation of social policy in particular. Based on a brief analysis of the status of women in the rural labour market in European countries, it can be argued that the issues raised in the article are relevant not only for Ukraine but also for other countries.

Keywords: social policy, female, microsimulation, rural area, labour supply

Introduction

Women are the driving force behind the maintenance, preservation and development of rural areas, both culturally and economically. The rural female labour force plays a key role in raising children and supporting the elderly (Shui et al., 2022). Female labour force participation (FLFP) is one of the most important factors affecting economic and social development, and plays a significant role in poverty reduction (Durman-Aslan, 2020). Not only do they contribute to the preservation of rich and diverse cultural heritage and the transmission of traditions but they also make up a significant share of the agricultural labour force and contribute to rural development in the face of a constant process of depopulation (PACE, 2011). According to ILO estimates, rural women constitute a quarter of the world's population. Women also amount to 41% of the global agricultural labour force (ILO, 2018).

However, the FLFP rate is relatively low in many countries. Therefore, it is crucial to improve understanding of the causes and consequences of insufficient FLFP and to develop appropriate policies to promote women's economic empowerment. Globally, women are still less likely to participate in the labour market than men, are more likely to be unemployed, and have a higher share of informal and vulnerable employment. Women also bear disproportionate responsibility for unpaid care and household work. As a result, women receive lower wages than men, with a gender pay gap of 23% (Durman-Aslan, 2020; European Parliament, 2019). Unfortunately, due to certain conditions prevailing in rural areas, such as unemployment, poverty, poor transportation, and lack of basic education, health, and care services, women in rural areas face serious challenges. As a result, many women, especially young women, tend to leave rural areas, which, together with demographic changes, further exacerbates the process of rural depopulation (PACE, 2011).

Recently, there has been growing interest in understanding the relationship between FLFP and economic development. FLFP can be influenced by a variety of factors, including environmental factors and country-specific macroeconomic policies, as well as structural shifts and changes in the business cycle. Indeed, first of all, women's propensity to participate in the labour market may be related to their level of education,

life expectancy, fertility rate, and unemployment rate. Their willingness to participate in the labour market can also be influenced by policies that help them reconcile work inside and outside the household, for example, better access to childcare, longer maternity leave, more care for minors or dependents, and greater flexibility in work arrangements are associated with higher FLFP. Secondly, FLFP can be strongly conditioned by structural transformation, which can shift the types of demand for workers. For instance, structural shifts from agriculture to industry are typically accompanied by a decline in FLFP rates, while a shift from an industrial to a more service-oriented economy is usually accompanied by an increase in the FLFP rate (Altuzarra et al., 2019). Rural areas are also undergoing significant transformation. Suburban areas are often subjected to chaotic development to provide living space for the urban population (Kowalewski et al., 2018; Śleszyński, 2024).

The published estimates reveal a rather stereotypical image of people in need of support: those with low education, loneliness, and a higher proportion of women. These characteristics have already been identified in many studies as factors of increasing risks of social exclusion in many dimensions of social life (Pokrzywa, 2019; Zwęglińska-Gałecka & Szczygieł, 2023).

The results of previous studies show that despite the increased attention to the issue of FLFP, rural women still face serious disadvantages compared not only to rural men but also to urban women. This emphasises the importance of further research in this area. The current transformation of rural areas across Europe is being influenced by economic restructuring, environmental change, the spread of information technology, migration, and other globalisation processes. The material conditions of rural life have undergone profound changes due to the transition to new information technologies and the rise of the service economy, which has led to a variety of new employment opportunities for women (European Parliament, 2019; Wiest, 2016). Increasing labour market participation is a major challenge that the EU faces, and boosting FLFP seems to be a promising area for this. Therefore, a clear understanding of what factors influence the evolution of women's participation rates in Europe is important for the successful design of policy measures aimed at increasing participation rates (Genre et all, 2010).

The issues raised are typical for Ukraine as well. As before, women are left alone with their socio-economic problems, which is the subject of comprehensive research (Sabluk, 2016).

Therefore, the issue of assessing the status of women, in particular, trends in rural women's participation in the labour market and employment, is currently quite relevant. The efficient use of human capital is perhaps the most important factor in economic growth. Today, the problem of many developed countries and Ukraine is population ageing, therefore, increasing labour force participation is very important.

The relevance of the topic is also due to significant transformations in the European rural space and events in Ukraine (military and European integration aspects). This creates certain challenges for women in rural areas, as well as a number of opportunities for participation in the labour market and increase FLFP rate.

Literature review

The situation and role of women in rural areas has long been a topic of attention (European Parliament, 2010; EUROSTAT, 2024b; Pini & Leach, 2011; FAO, 2014; 2021; Wiest, 2016). Researchers draw attention to the risk of poverty and social exclusion of rural residents and women, in particular in the context of sustainable rural development (Volosevych et al., 2015; Woods, 2017). Many authors also point out that the rural population is one of the groups most at risk of poverty and/or social exclusion (Kalinowski, 2013; 2022; Klimczak & Nowalska-Kapuścik, 2018). One in four rural residents in the EU is at risk of poverty or social exclusion, and one in five is at risk of poverty. Every 9th rural resident with unstable income is impoverished. They also point to the feminisation of poverty, both in urban and rural areas. These observations were partially confirmed by Eurostat data (EUROSTAT, 2024a; 2024b; Kalinowski & Rosa, 2021). The identification and explanation of the main and most characteristic demographic phenomena and processes in Poland, with a special emphasis on the specifics of rural areas and urban-rural relations, is reflected in Śleszyński (2018).

When it comes to the issue of women's employment, most sources address general aspects. It is noted that in recent decades, there has been a long-term trend of increasing women's employment in most OECD countries. Nevertheless, there are persistent differences in participation rates, which indicate that different countries are limited by country-specific institutional and social factors (Durman-Aslan, 2020; Richiardi & Poggi, 2014; Cipollone et al., 2014)

A review of the literature on the use of microsimulation approach to determine the supply of women in rural areas shows that multiple approaches can be taken, but most of them are used to analyse women's employment in general with no reference to rural areas (see: Emmenegger & Obersneider 2024; Ericson & Flood, 2012; Matteo & Ambra, 2014; Aaberge & Colombino, 2013; 2018). Dynamic microsimulation models are used to forecast medium- and long-term trends in labour force participation and employment for selected EU countries (Italy, Spain, Ireland, Hungary, and Greece) (Richardson et al., 2018). The analysis of the female labour supply is based on a detailed microsimulation model for Germany (STSM), which reflects the relevant regulations of the German tax and benefit system, taking into account childcare costs, which strongly influence women's labour supply behaviour (Haan, 2010). Numerous researchers have drawn attention to the interrelationships between the concepts adopted in the literature on remittances and female labour supply (Drejerska et al., 2023). The econometric analysis uses a dynamic discrete choice panel data model with random effects. The selection of employment state is estimated depending on the labour supply of the last period, household and alternative specific variables, as well as unobserved heterogeneity (Haan, 2010). In this context, Richardson et al. (2019) are interested in medium- and long-term forecasts of female participation and employment rates for a selected number of EU member states (Sweden, Italy, Spain, Ireland, Hungary, and Greece) and analyse the role that some key factors (demography, education, participation behaviour) and policy actions play in shaping future female labour market participation in the same selection of countries.

At the same time, microsimulation models developed on the basis of a static approach can also be useful in forecasting labour supply and demand in the short and medium term. In Ukraine, such a basic model was developed in 2015–2019 with the expert and technical assistance of the European Training Foundation (ETF). This model is based on the concept of mismatch, which is characterised by simultaneous existence of the labour demand and supply surpluses (Obadic, 2006).

An analysis of the literature shows that there are a number of issues that need to be addressed. First of all, it is the development of approaches to assessing and forecasting labour supply and demand for all countries. For Ukraine, there is also the problem of deteriorating labour market information due to the war and the long absence of a population census; the lack of official forecasts of labour supply and demand in rural areas.

Therefore, the problem of identifying ways to develop and ensure conditions for productive employment of women in rural areas remains an urgent one. The relevance, theoretical and practical significance, insufficient study, and the need to develop a forecast of women's involvement in the context of social policy and rural development have led to the definition of the research topic presented in the article.

The main hypothesis is that the use of microsimulation modelling allows to increase the efficiency of forecasting female labour force participation and this will enable introducing appropriate public policy instruments for promoting female economic empowerment. The model is simulated to analyse the impact of policy changes not only on mean behaviour but also on the entire distribution of target variables. This is especially important for both the period of green and digital transition and the recovery of Ukraine.

Female labour supply in rural area of the EU

Rural areas in Europe are extremely diverse in terms of social and economic structure, geography and culture. The rural women have different roles and occupations on farms and in family businesses, in off-farm employment, in the household and in the community. Their needs and interests also vary, especially according to their age, level of education, family size and composition, and the age of their children (PACE, 2011).

Women in rural areas of the EU are less than 50% of the total rural population, they represent 45% of the economically active population, and about 40% of them work on family farms. Their importance in the rural economy is even greater as their participation in the informal rural economy is not statistically recognised. It is estimated that approximately 14.6 million people work in agriculture in Europe. Of these, 41% are women, 78% of whom work as helpers, while the rest are owners or co-owners. Across Europe, most women working in agriculture are wives of the owner, which leads to the invisibility of their employment status. Despite the overall increase in women's employment in the EU between 2013 and 2017, including the predominantly rural areas, important differences between EU countries remain (European Parliament, 2019; PACE, 2011).

Despite the recent increase in women's labour market participation, the employment rate for women in Europe is still 11.5 percentage points lower than for men, with huge disparities between Member States (Richardson, 2019). Women are more likely than men to work in the overall informal economy, although there is no uniform pattern across Member States. Sweden is the leader in terms of the share of informal workers, followed by Spain, Germany, and France. As for informal employment in agriculture, the highest share of women is registered in Romania, Slovenia, Lithuania, and Croatia, and the lowest in Sweden, Malta, the Czech Republic, and Germany. The rate of self-employed women in rural areas is about 38% (European Parliament, 2019).

The situation of women in the labour market is also more precarious because most of them work part-time or on contracts for a limited period. The extent of the FLFP differences between rural and urban areas is enormous. Only in peripheral rural areas the employment of rural women is lower than that of urban women. This applies to peripheral rural areas in the Central East (especially Poland and Hungary), some southern Member States (Italy, Greece and Spain) as well as scattered rural areas in France, Belgium, Germany, and Ireland. These territories have low economic potential due to their distance from sources of goods and services as well as lack of agglomeration economies. As a result, there are few employment opportunities for women (European Parliament, 2010). Thus, over the past decades, especially after Poland's accession to the EU in 2004, the Polish countryside has changed significantly, with de-agrarianisation and increased multifunctionality being the key processes. This is happening alongside the progressive depopulation of peripheral areas and the dispersion of development, mainly, but not exclusively, around cities. And these processes are likely to deepen (Śleszyński, 2024).

Analysing economic activity of the population based on three indicators, such as employment and unemployment rates and the professional activity index, it was found that men have a higher share of economic activity than women, both in urban and rural areas. In the European Union, the share of professionally active women in rural areas is highest in Sweden (68.7%) and lowest in Italy (45.4%). Poland with an index of 51.5% ranks 12th (FAO, 2014).

In 2023, 69.7% of all women of working age (20–64) living in rural areas of the EU were employed. The employment rate for men living in rural areas was significantly higher at 81.0%, resulting in a gender gap of 11.3 percentage points. The gender gap in employment rates was wider for people living in rural areas than for the population as a whole (where the gap was 10.2 points), suggesting that women living in rural areas had a harder time finding work or that the necessary conditions were not in place for some women to move or re-enter the labour force.

European rural areas are characterised by gender-selective migration, as the number of women leaving rural areas exceeds the number of men. This process leads to serious demographic imbalances between and within regions, and hinders the sustainable economic and social development of rural areas (European Parliament, 2019).

Thus, the quality of rural life negatively affects lives of rural women only in peripheral rural regions. This refers to the availability of material support to develop

a satisfactory professional life, as well as support for self-realisation in accordance with modern role models and expectations. In accessible rural areas, some discomfort is perceived as a normal aspect of rural life, which is often overcome by private transportation, the development of telecommunications, and other modern forms of service delivery. In addition, analysing the situation of women, including in rural areas, their individual characteristics (age, education, marital status, etc.) play an important role, as they have the greatest impact on their ability to cope with challenges that limit their access to work and income. This explains why some women have more difficulty finding employment than others. Generally, women with tertiary education and without children are better able to access well-paid jobs, also in rural areas, and employment opportunities in rural areas (European Parliament, 2010).

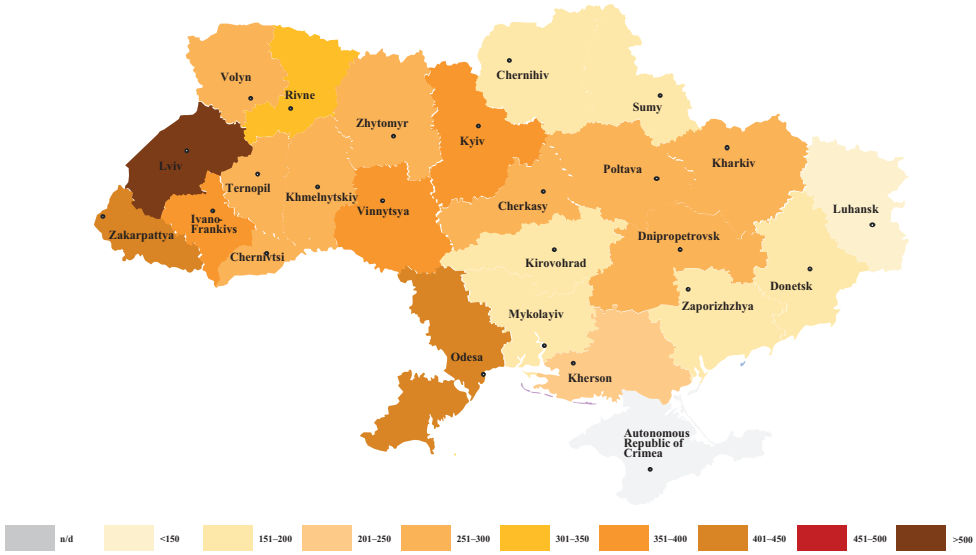
Globalisation, the emergence of communication technologies and the shift to the service sector have fundamentally changed the relationships that make up rural areas in modern Europe (Woods, 2017). Taken together, the simple categorisation of places as urban or rural does not adequately reflect social reality. Urbanisation, characterised by the growth of metropolitan populations and the spread of urban lifestyles, has often been associated with a blurring of the urban-rural dichotomy (Woods, 2009; Zenner, 2010). On the other hand, socio-economic disparities between urban and rural areas are growing. While Europe's metropolitan regions have had the fastest population growth in the last 20 years, the development of Europe's rural population reveals huge disparities between growing and shrinking regions. As the effects of globalisation affect rural areas in different ways, various social realities can be observed, ranging from: prosperous areas able to attract people and capital to rural areas, focused on the tourism industry; to remote places characterised by unfavourable accessibility, or areas with persistent infrastructure problems, unable to cope with negative demographic and economic development. In the "globalized countryside," gender and class relations are changing and shaping new rural realities (Pini & Leach, 2011; Wiest, 2016).

Female labour supply in rural areas of Ukraine: the main challenges

The main factors affecting the supply of female labour in rural areas of Ukraine include demographic (population size, distribution, and reproduction), socio-economic (labour market participation and unemployment, level of regional development, as well as state of social infrastructure, etc.).

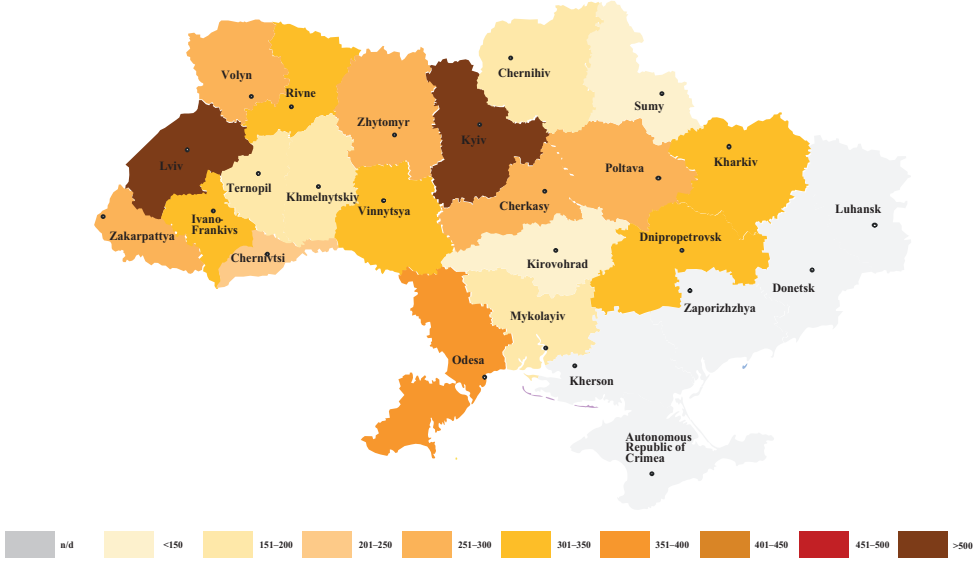
As of January 1, 2022, the rural population in Ukraine amounted to 12,542.9 people, of whom 52% were women. Moreover, the rural population of working age (16–59 years) amounted to 7,281.8 people, of whom 49% were women. Regionally, the largest number of women is represented in rural areas of Lviv, Zakarpattia, and Odesa (Figure 1). In 2023, according to the Household Socio-Economic Status Survey (HSESS), the rural population in Ukraine amounted to 11,674.6 people, with the largest number concentrated in Lviv and Kyiv regions (Figure 2). This may be due to the displacement of the largest share of the population as a result of military operations in these regions. Thus, the number of women in rural areas in Lviv region in 2023 increased by 8.7% compared to 2021; in Kyiv region, respectively, by 43.2%.

Figure 1. Women in rural areas, 2021



Source: Own work based on Ukrstat data (2022, 17)

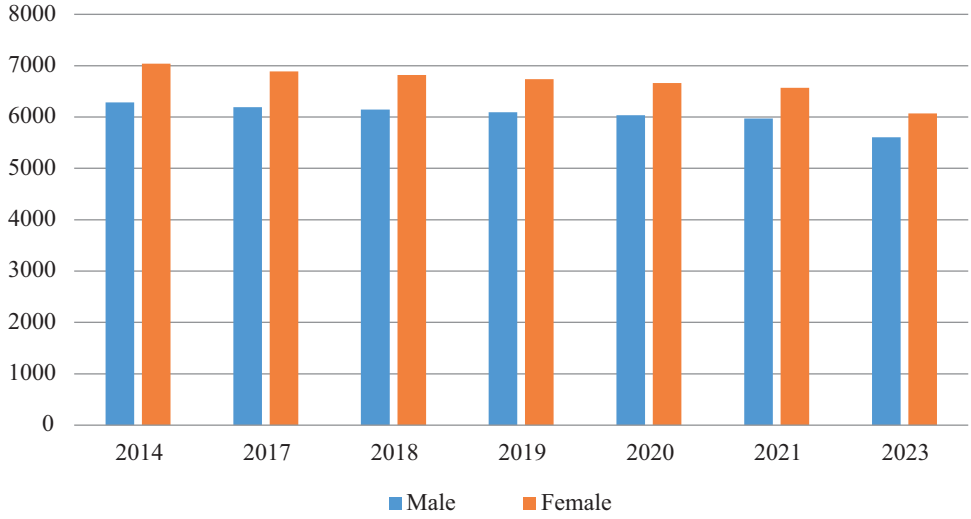
Figure 2. Women in rural areas, 2023



Source: Own work calculated based on data from the HSESS

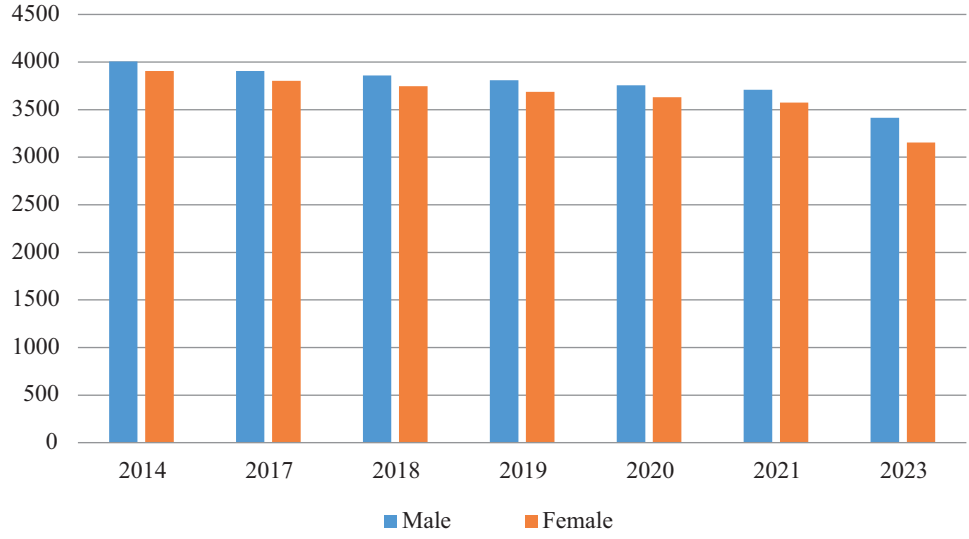
Between 2014 and 2023**,** the number of women in rural areas decreased by 14% (Figure 3), and the number of women of working age by 19 % (Figure 4).

Figure 3. Resident rural population



Source: Own work based on data from Ukrstat (2023a, 15) and calculated based on data from the HSESS

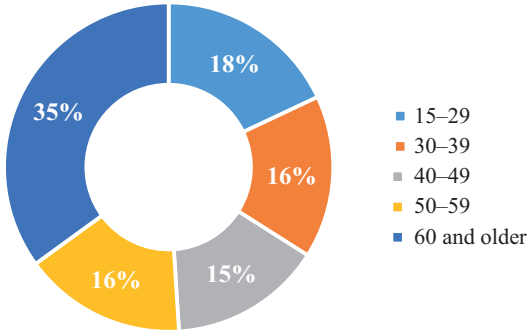
Figure 4. Rural population aged 16–59



Source: Own work based and calculated on data from Ukrstat (2023a, 15) and the HSESS

As for the age group, more than 35% are women over 60, 18% are aged 15–29, 16% are aged 30–39 and 50–59, 15–29, and 15% are aged 40–49 (Figure 5).

Figure 5. Females in rural areas, by age groups, 2023



Source: Own work calculated on data from the HSESS

An analysis of the household situation is important for assessing and forecasting the supply of women's labour. The average household size in rural areas is larger than in urban areas – 2.7 persons in 2021 compared to 2.5 persons. Since the start of the full-scale invasion, household size has declined markedly, primarily due to large-scale outward migration. In 2023, there were 2.5 people in rural areas versus 2.2 people in urban areas.

The main characteristics of a rural household in 2021 and 2023 are shown in Table 1.

Table 1. Main characteristics of rural households in 2021 and 2023

	All households		Households headed by female		Households with land area					
			0.5 ha and less		0.51–1.00 ha		1.01 ha and more			
	2021	2023	2021	2023	2021	2023	2021	2023	2021	2023
Average land area of the household in ha	1.24	1.11	0.93	0.82	0.27	0.20	0.70	0.71	4.16	7.07
Share of households, by female heads of households	52.7	72.7	-	-	55.5	75.6	54.6	75.9	43.8	76.8
Average age of household heads in years	59	53	-	-	58	53	61	54	60	57
Female	62	53	-	-	60	53	63	52	64	57
Male	57	52	-	-	56	54	58	58	58	56

Source: Own work based and calculated on data from Ukrstat (2022c) and the HSESS

Another factor affecting the employment and supply of female labour is the characterisation of households in terms of children. As practice shows, the employment rate is particularly high among women with higher education and who are either childless or have one or two children. Moreover, this disproportion is highest among women with the youngest child under the age of 6, and much lower for those whose youngest child is over 11.

In Ukraine, the share of households with one child is the largest. It should be noted that in 2023, compared to 2021, the share of households with one child decreased, while the share of households with four and three children increased significantly (Table 2).

Table 2. Households with children in rural areas, basic features, percent

	2021	**2023**
All households with children	100.0	100.0
Distribution of households with children by number of children within it		
One child	77.4	51.9
Two children	19.0	32.3
Three children	3.3	10.9
Four children and more	0.3	4.9
Distribution of households with children by number of adults within it		
One person	4.4	14.4
Two persons	38.5	51.7
Three persons and more	57.1	33.9

Source: Own work based on data from Ukrstat (2022a, 23) and calculated based on data from the HSESS

In the structure of cash income of households living in rural areas, on average per month per household in 2021, 53% – wages, 23% – pensions, scholarships, benefits and subsidies provided in cash; 10% – financial assistance from relatives, other persons and other cash income; 9% – income from the sale of agricultural products; 5% – income from entrepreneurial activities and self-employment (Ukrstat, 2023d, 67).

In the structure of agricultural production for farms of all categories, 78% are crop products and 22% are livestock products (Ukrstat, 2023d, 219). Agriculture is one of the most important sectors of the economy in terms of providing rural residents with jobs and income opportunities. Out of the total number of all working people in Ukraine, one in six is employed in a sector that combines agriculture, forestry, and fisheries. There are no clear gender differences in formal employment in agriculture. However, much of the work performed in rural areas is informal, and the agricultural sector is characterized by a high degree of informality compared to the number of available jobs in the formal economy. In general, men are more likely to work in the informal economy but when it comes to informal work in agriculture, the employment rate for women is much higher than for men: half of all working women and just over a third of all working men are employed informally. These figures indicate that there is more diversity for men even in informal work (which also includes construction work), and the limited opportunities available to rural women. Employment in agriculture also includes unpaid work in private households (FAO, 2021).

It is worth noting that women's labour prevails in the main sectors of agricultural production. The importance of rural women in ensuring the implementation of technological processes is high in many administrative-territorial regions, including

crop and livestock production, construction, and auxiliary farms. Only where the level of mechanisation of production processes is higher, the share of men working is higher, and where manual, low-productivity labour prevails, the vast majority of women are employed (Sabluk, 2016).

There are obvious imbalances in the labour market, where a large proportion of them are employed in jobs other than their specialty, or work in the simplest jobs, or have no opportunity to find a job at all. In addition, the labour potential of rural women is overused, and women are always overworked and exhausted in the household.

One of the most important factors affecting labour supply is migration abroad. According to the United Nations High Commissioner for Refugees, as of January 17, 2023, almost 7.98 million Ukrainian refugees were abroad, while circa 4.9 million internally displaced persons were registered within the country. Significant volumes of migration movements had a significant impact on the country's ability to ensure sustainable economic development. The gender and age structure of Ukrainian refugees is characterised by specifics. According to a survey of refugees conducted by the United Nations High Commissioner for Refugees in May–November. 2022, women accounted for almost 85% of respondents. The overwhelming majority of refugees in Bulgaria, Hungary, Moldova, Poland, Romania, and Slovakia belonged to the age groups 35–59 years (47%) and 18–34 years (25%). These are the most productive age groups of the population, and their migration outflow would significantly limit the possibility of increasing the supply of labour.

As for internally displaced persons due to the hostilities, only 13.07% of women lived in rural areas, and 12.92% of women lived in urban-type settlements with a population of 3,000 to 15,000 before displacement. Most of the migration came from urban areas (86.93% of respondents), while women from rural areas were less active in internal migration due to the war (only 13.07% of IDP women came from rural areas). Only a small number of women moved to villages (7.47%), small towns (9.00%), and urban-type settlements (5.09%). Thus, as a result of internal forced migration processes in Ukraine, there is a movement of labour from rural areas, cities with a population of more than one million, small towns and urban-type settlements to large cities with a population of 100 thousand to 1 million people (Huliaieva, 2023).

An important factor limiting the possibility of increasing the supply of labour is the need to replenish the mobilisation reserve for military operations. According to the monthly survey of enterprises "Ukrainian Business in Time of War" conducted by the Institute for Economic Research and Policy Consulting in December 2022, the most important problems faced by businesses during the war were the lack of labour due to conscription and/or departure of employees (Sudakov & Lisogor, 2023).

The shortage of personnel in the sector is exacerbated by the weak capacities of the education system, both in terms of quantity and quality. According to expert assessments, the training of personnel in agricultural blue-collar occupations (tractor driver, agricultural production, agricultural machinery operator, agricultural machinery repairman, zootechnician), as well as in the most common occupations in the economy (driver, welder, repairman, electrician for repair and maintenance of electrical equipment) is not ready to perform production tasks without significant additional practical training. Meanwhile, vocational schools (with a few exceptions)

face the problems of both outdated equipment and a lack of students. In general, despite some positive trends, the agricultural sector is currently facing significant challenges and obviously needs support, especially in the segment of small farms. According to most of the experts interviewed, the sectors that will develop most dynamically in post-war Ukraine are agriculture with an emphasis on organic farming and processing (Razumkov Center, 2024).

An analysis of the situation of women in rural areas shows that the main challenges include: social insecurity; rural women bear a disproportionate burden due to the combination of employment and unpaid domestic work; focus on low-skilled, low-productivity and low-paid jobs, and others.

Microsimulation approach for anticipation of female labour supply in rural area

An important effective approach to the study of socio-economic and demographic processes is statistical, mathematical and simulation modelling. In recent years, in Ukraine, as well as in many other countries, the attitude of experts, specialists and even politicians to the ways of using information obtained by applying modelling methods has been changing significantly. A particularly promising area of modelling for social research is micromodelling, which is based on microdata – usually primary data (at the level of individual households or individuals) from population censuses, representative sample surveys of the population (households), and administrative data, including data from population and household registers. Micromodelling, in particular microsimulation modelling, has such advantages as the ability to track and display the results of social policy for specific socio-demographic groups, taking into account the real structure of the population and beneficiaries of social programmes, which can be used to predict the results of policy changes and its individual measures, the consequences of implementing different scenarios for different population groups, etc. At the same time, modelling at the micro level puts forward much higher requirements for information base.

In most countries, datasets for micromodelling are based on official (state) statistics. In Ukraine, such data are the results of state sample surveys of household living conditions (HLCS) and labour force surveys (LFS). Since the State Statistics Service of Ukraine (SSSU) stopped conducting these surveys during the war due to martial law, this study uses data from the sample survey of socioeconomic status of households (HSESS), conducted at the end of 2023 with the participation of specialists from the Institute for Demography and Life Quality Problems of the National Academy of Sciences of Ukraine (IDLQP) under the coordination of the Ministry of Social Policy of Ukraine and with the technical support of UNICEF. The methodology of the HSESS was as close as possible to the methodology of the state sample surveys – HLCS and LFS. It seems appropriate to provide a brief description of these data sources.

The HLCS has been conducted in Ukraine since 1999 on a quarterly basis. The survey measures a wide range of household characteristics that reflect their socio-

demographic composition, sources and amount of income, property status, household members' level of education, etc. The sample size is about 8,000 households, which makes it possible to estimate most indicators at the regional level. The microdata of this survey are distributed by the SSSU in the form of separate files for households and individuals. A certain disadvantage of this survey is the undercoverage of wealthy population, which is also typical for other countries. This somewhat skews the estimates of indicators towards people with medium and low labour income and forces us to build models on more aggregated data.

The LFS in its current form has also been conducted since 1999 on a quarterly basis. Its main purpose is to measure the economic activity of the population, employment, unemployment, and characteristics of the economically inactive population according to the International Labour Organization methodology. The LFS records the gender, age, and level of education of respondents, as well as their occupation by education and employment. Given the large size of the LFS sample (about 300,000 people per year), this survey is the main source of representative data on the balance of labour supply and demand, taking into account its professional and qualification characteristics. The disadvantages of the LFS survey include the lack of data on the income of employed persons. The LFS, like the HLCS, has problems with coverage of wealthy segments of the population. Also, the survey does not publish panel data on changes in population characteristics between adjacent quarters and years.

The sample survey of the HSESS was aimed at assessing various aspects of household life, namely, socio-demographic characteristics of households; living conditions of households; sources and level of household income; household expenditures; economic activity of household members; and the level of satisfaction of basic household needs in 2023. The HSESS was conducted in all regions of Ukraine, except for the temporarily occupied Autonomous Republic of Crimea and Luhansk region (in Donetsk, Zaporizhzhia, and Kherson regions – only the territories controlled by the Government and where conditions for safe conduct of the survey existed). A total of 8,023 households (18,837 household members) participated in the survey, which were distributed by type of settlement (urban and rural areas) across all regions of Ukraine, taking into account the requirement to ensure an acceptable level of data reliability. Data were collected through personal interviews using CAPI technology, and modern methods of statistical data processing were used to process them.

It should also be noted that the lack of up-to-date data on the size, composition, and distribution of the population in Ukraine (due to the absence of data from the 2010 and 2020 censuses), and during the war, also due to large-scale population movements both within the country and abroad, significantly reduces the quality of information that can be used in planning sample surveys and grossing up their results to the population. To mitigate this problem, the HSESS used estimates of population size, structure and distribution obtained by UNFPA in cooperation with several international and national organisations, including IDLQP, for the purposes of formulating COD-PS 2024 indicators and planning humanitarian programmes in Ukraine. These estimates enabled the selection of territorial units and weighting of the survey results.

On the basis of the microdata, a number of statistical models were built at the micro level, which made it possible to estimate, in particular, the dynamics of the contribution of education to women's labour income. The results confirmed the positive impact of education on rural women's incomes (see models (1) – (3)). But they also showed a decrease in the effect of education over time.

The following models characterize the relationship between rural women's labour income and their level of education. The models are based on the HLCS data from 2010 and 2019, and on the HSESS data from 2023:

2010

$$W_i = \underset{(36.8)}{0.798} + \underset{(12.5)}{0.402} \cdot x_{1i}; \qquad F = 157.3 \qquad (1)$$

2019

$$W_i = \underset{(38.6)}{0.830} + \underset{(11.8)}{0.377} \cdot x_{1i}; \qquad F = 138.6 \qquad (2)$$

2023

$$W_i = \underset{(23.1)}{0.783} + \underset{(7.6)}{0.305} \cdot x_{1i}; \qquad F = 57.6 \qquad (3)$$

In formulas (1) – (3), W_i is the relative salary of the woman (relative to the average salary for all rural women who worked and reported a certain level of salary); x_{1i} is a dummy variable that determines the presence of higher or incomplete higher education ($x_{1i} = 1$ if a woman has higher or incomplete higher education; $x_{1i} = 0$ if a woman has any lower level of education); F is the Fisher's criterion. Under the regression coefficients in quotation marks are t-statistics, the values of which, together with the value of Fisher's criterion, indicate that the models are sufficiently adequate.

It should be noted that the models presented here are somewhat simplified and can be further complicated by taking into account regional breakdowns, age groups, etc. However, for the purposes of this publication, preference was given to greater transparency of estimates and analysis and greater generalisability of conclusions. According to the data, rural women with higher or incomplete higher education in 2010, *ceteris paribus*, earned on average 50.4% more than women without such education, in 2019 – 45.4% more, and in 2023 – only 39.0% more. Given the prevalence of higher education institutions in Ukraine and social norms regarding education, it should be assumed that the trend towards a decrease in the "return" on education in rural areas will continue, especially for women due to urbanisation, the transition to commercial agricultural production, a decrease in the number of children in rural families, etc.

The results of the modelling using micro-level data also provided an opportunity to estimate the differences in the scale of demand and supply of rural women's labour in the labour market, as well as their balance. As is well known, the imbalance in labour supply and demand leads to the possibility of a simultaneous shortage of workers in specific occupations and/or qualifications and an excess supply of workers with

irrelevant professional and qualification characteristics. This situation reduces the efficiency of women's employment in rural areas and leads to a decrease in their income and incentives for their households to supply labour. Based on the modelling, the article assesses and forecasts the vertical mismatch of qualifications, i.e., the level of mismatch of educational and qualification characteristics of the labour force by the level of qualification and employment. As is well known, it is the assessment of indicators of over- and under-education of the labour force, in particular, the index of vertical mismatch of workers' qualifications with the needs of jobs, that is important when studying the balance between labour supply and demand. The vertical mismatch is simultaneously an indication of an excess supply of highly skilled labour and a shortage of demand for it.

The Vertical Mismatch Index for Rural Women (*VMI*) is calculated as the ratio of the number of employed women aged 20–64 with higher education working in occupations that do not require this level of education to the employed population of this age with higher education. Thus, the *VMI* reflects the discrepancy between educational levels and occupations for the employed and is calculated using the following formula:

$$VMI = \frac{E_{ISCO4-9}^{ISCED5-8}}{E^{ISCED5-8}} \times 100\%,$$

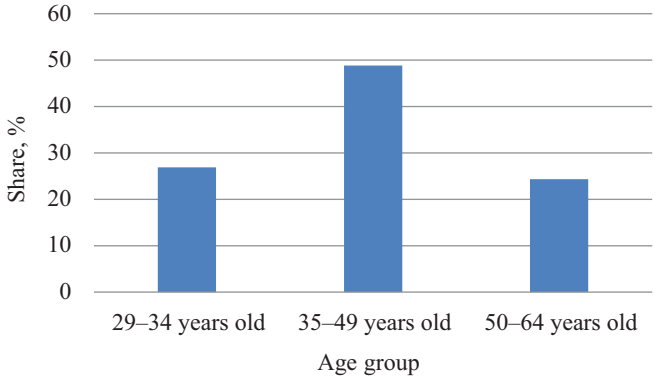
where $E_{ISCO4-9}^{ISCED5-8}$ is the number of employed women in educational levels 5–8 (according to the first character of the International Standard Classification of Education, ISCED, 2011) and occupational groups 4–9 (according to the first character of the International Standard Classification of Occupations, ISCO, 2008); $E^{ISCED5-8}$ is the number of employed women with higher education aged 20–64.

Estimates of the *VMI* for rural women show that it is somewhat lower than the *VMI* for rural men, while it is much higher than for urban women. Thus, the *VMI* estimated for rural women in Ukraine as a whole in 2017 was about 23.7% (rural men – 42.4%; urban women – 18.6%).

According to the calculations based on the 2023 HSESS data, the *VMI* for rural women reached 42.3%, which is an increase of almost 1.8 times. At the same time, the estimated number of employed women working in jobs that do not require their existing level of education is about 367,100 people. The main qualifications of these women were obtained in the following areas of education: economics – 42.5%; pedagogy – 22.9%; medicine – 8.6%; law – 7.1%; technical sciences – 5.8%; culture – 4.9%, agriculture – 4.8%; natural sciences – 3.4%.

On base of analysing the age structure of women working in jobs requiring lower educational qualifications than they have it was found that the situation of excessive supply of labour by these qualifications, especially in the areas of economics, pedagogy, and medicine, will remain in rural areas for about 15 years, given the rate of retirement of the labour force by age. For example, Figure 6 shows the age structure of women with an educational qualification in economics who work in jobs requiring lower qualifications.

Figure 6. Age structure of women with an educational qualification in economics and working in jobs requiring lower qualifications



Source: Own calculations based on data from the HSESS

The microsimulation modelling of the dynamics of labour supply and demand in Ukraine was carried out on the basis of the procedures developed in the IDLQP. In particular, it was found that in Ukraine, the demand for labour in the last years before the war was determined by about 80% of the retirement of workers by age. Given the peculiarities of the age composition of female workers in rural areas, it should be concluded that the problem of vertical skills mismatch will be relevant in the future. In the next 5 years, this problem may increase due to the reform of the primary and secondary education systems, as well as the health care system, in the direction of consolidating institutions and moving them to the community district centres. In addition, the situation is worsening due to the demographic crisis caused by the war and the generally low mobility of labour in Ukraine.

Discussion

The results confirm the need to take into account trends in the supply of labour by women, especially in rural areas, when developing socio-economic policies. To ensure the effective use of the results of forecasting imbalances in supply and demand in the decision-making process, it is necessary to have a clear and understandable interpretation of the forecast results: to inform key stakeholders about the risks and challenges associated with overqualified labour force in Ukraine (using virtual platforms, websites of various organisations to inform the public); to consolidate the work of researchers, intensify expert discussions to achieve coherence and coordination with key stakeholders.

It is also important to strengthen coordination between the relevant ministries, cooperation between different stakeholders (employers and educational institutions) to create a system for forecasting skills demand, and to identify areas for the development of a vocational education system in Ukraine focused on the future needs of the labour market.

The Ministry of Economy of Ukraine and the Ministry of Social Policy of Ukraine, using the results of medium-term forecasting of labour supply and demand, should develop effective measures to prevent the growth of structural unemployment resulting from the deficit of structural demand, as well as to reduce the vertical mismatch of labour force qualifications. Particular attention should be paid to the situation in rural areas, given that trends indicate an aggravation of the problem of overqualification of the labour force, especially for women.

Conclusions

The results of the study show that, in general, modern tools for assessing and forecasting labour supply and demand and using such estimates in the development and evaluation of socio-economic policies are underdeveloped, even in developed countries. At the same time, the use of microsimulation modelling methods and data from various sources is a promising direction for the development of tools.

The issue of assessing the status of women, including trends in rural women's participation in the labour market, is currently quite relevant for Ukraine. On the one hand, the challenges of the war have increased the burden on rural women, and on the other hand, new opportunities are being created to increase their involvement in the labour force. At the same time, even before the war, there was a tendency for an excess supply of skilled female labour in rural areas, which worsened during the war. Thus, the value of the vertical mismatch index for rural women in Ukraine as a whole was about 23.7% in 2017, and in 2023 it increased almost 1.8 times to 42.3%. The number of employed women working in jobs that do not require their existing level of education in 2023 amounted to about 367.1 thousand people. The main qualifications of these women were obtained in such areas of education as economics (42.5%) and pedagogy (22.9%).

The peculiarities of the age composition of female workers in rural areas indicate that the problem of vertical skills mismatch will be relevant over the next 15 years, as evidenced by the results of microsimulation modelling. The problem may even increase due to the reform of the primary and secondary education systems and the healthcare system towards consolidation of institutions, the demographic crisis associated with the war, and, in general, the low mobility of the labour force in Ukraine.

Further research will be aimed at detailing forecast estimates of labour supply and demand in rural areas by occupation and qualification groups. Attention will also be paid to the development of reasonable proposals for central authorities on labour market policy.

Regarding the main instruments of state policy at this stage, in the lack of sufficient statistical information, it is advisable to:

– facilitate further research, including sample surveys, in rural areas with the involvement of all key stakeholders (line ministries, research institutions, business representatives, etc.);
– expand the list of indicators for conducting relevant research, taking into account EU methodology and practice;

- create a centre for modelling socio-economic processes on basis of the Institute for Demography and Life Quality Problems of the National Academy of Sciences of Ukraine with a section dedicated to rural areas;
- create a platform for sharing knowledge and experience on female labour force participation modelling and forecasting;
- facilitate the exchange of knowledge with international structures and EU institutions to develop a joint methodology for conducting research in this area.

References

Aaberge, R. & Colombino, U. (2018). Structural labor supply models and microsimulation. *International Journal of Microsimulation, 11*(1), 162–197. https://doi.org/10.34196/ijm.00177

Aaberge, R. & Colombino, U. (2018). *Structural labor supply models and microsimulation*. IZA – Institute of Labor Economics. https://docs.iza.org/dp11562.pdf

Aaberge, R. & Colombino, U. (2013). Using a microeconometric model of household labor supply to design optimal income taxes. *Scandinavian Journal of Economics, 115*(2), 449–475. https://www.jstor.org/stable/43673634

Altuzarra, A., Gálvez-Gálvez, C. & González-Flores, A. (2019). Economic development and female labor force participation: The case of European Union countries. *Sustainability, 11*(7), 1962. https://doi.org/10.3390/su11071962

Bourguignon, F. & Spadaro, A. (2006). Microsimulation as a tool for evaluating redistribution policies. *Journal of Economic Inequality, 4*(1), 77–106. https://doi.org/10.1007/s10888-005-9012-6

Cipollone, A., Patacchini, E. & Vallanti, G. (2014). Female labour market participation in Europe: New evidence on trends and shaping factors. *IZA Journal of Labor Studies, 3*, 18. https://doi.org/10.1186/2193-9012-3-18

Drejerska, N., Kalinowski, S., Kocira, S., Kocira, A., & Sobczyński, T. (2023). Cash transfers and female labor supply – how public policy matters? A bibliometric analysis of research patterns. *Quality & Quantity, 57*(6). https://doi.org/10.1007/s11135-022-01609-0

Durman-Aslan, M. (2020). *Female labor force participation in Turkey: The role of the intergenerational links*. https://shs.hal.science/halshs-02900982v1

ECORYS. (2010). *Study on Employment, Growth and Innovation in Rural Areas (SEGIRA)*. https://op.europa.eu/en/publication-detail/-/publication/9b098438-6636-4aff-99a0-611d8ac1206f

Emmenegger, J. & Obersneider, M. (2024). Dynamic microsimulations of regional income inequalities in Germany. *International Journal of Microsimulation, 17*(1), 69–101. https://doi.org/10.34196/ijm.00304

Ericson, P. & Flood, L. (2012). A microsimulation approach to an optimal Swedish income tax. *International Journal of Microsimulation, 5*(2), 2–21. https://www.microsimulation.pub/articles/00069

European Commission. (2021). *A long-term vision for the EU's rural areas – Towards stronger, connected, resilient and prosperous rural areas by 2040* (COM(2021) 345 final).

European Parliament. (2010). *Personal and social development of women in rural areas of Europe* (IP/B/AGRI/IC/2010_089).

European Parliament. (2019). *The professional status of rural women in the EU* (Policy Department for Citizens' Rights and Constitutional Affairs, Directorate General for Internal Policies of the Union, PE 608.868).

Eurostat. (2024a). *Gender differences in the labor market*. http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Urban-rural_Europe_-_women_and_men_living_in_rural_areas#Gender_differences_in_the_labour_market

Eurostat. (2024b). *Urban-rural Europe – Women and men living in rural areas*. http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Urban-rural_Europe_-_women_and_men_living_in_rural_areas

FAO. (2014). *The situation of women in rural areas and their participation in the labour market*.

FAO. (2021). *Gender aspects, agricultural and rural development – Ukraine, updated edition*. Series of Materials on Gender Assessment in Countries – Europe and Central Asia. Budapest. https://openknowledge.fao.org/server/api/core/bitstreams/e251881c-8162-4e53-8a54-528ca7c345e1/content

FAO. (2022). *Ukraine: Impact of the war on agriculture and rural livelihoods in Ukraine – Findings of a nation-wide rural household survey, December 2022*. Rome. https://doi.org/10.4060/cc3311en

Genre, V., Salvador, R. & Lamo, A. (2010). European women: Why do(n't) they work? *Applied Economics, 42*(12), 1499–1514. DOI: 10.1080/00036840701721547

Haan, P. (2010). A multi-state model of state dependence in labor supply: Intertemporal labor supply effects of a shift from joint to individual taxation. *Labour Economics, 17*(2), 323–335. https://doi.org/10.1016/j.labeco.2009.05.004

Huliaieva, L. (2023). The impact of war on the employment of internally displaced women in Ukraine. *Economy and Society, 51*. https://doi.org/10.32782/2524-0072/2023-51-33

International Labour Organization (ILO). (2018). *Rural women at work: Bridging the gaps*. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_protect/@protrav/@ilo_aids/documents/publication/wcms_619691.pdf

Kalinowski, S. (2013). Selected aspects of the economic situation in rural households with precarious income. *Problemy Polityki Społecznej, 23*, 73–84. https://www.problemy-politykispolecznej.pl/pdf-123077-51235?filename=Selected%20aspects%20the.pdf

Kalinowski, S. (2022). Ubóstwo i wykluczenie na wsi. In J. Wilkin & A. Hałasiewicz (Eds.), *Polska wieś 2022. Raport o stanie wsi* (pp. 153–170). Wydawnictwo Naukowe Scholar. https://www.skalin.pl/wp-content/uploads/2023/01/Wies_2022_druk__1_.pdf

Kalinowski, S. & Rosa, A. (2021). Sustainable development and the problems of rural poverty and social exclusion in the EU countries. *European Research Studies Journal, 24*(2), 438–463. https://doi.org/10.35808/ersj/2136

Karabarbounis, M. (2024). How female labor supply shapes aggregate labor market dynamics. *Federal Reserve Bank of Richmond Economic Brief, 24*(04).

Keane, M. P. (2011). Labor supply and taxes: A survey. *Journal of Economic Literature, 49*(4), 961–1075.

Klimczak, J. & Nowalska-Kapuścik, D. (2018). The spatial dimensions of households' resilience. *Problemy Polityki Społecznej, 41*, 73–89. https://www.problemypolitykispolecznej.pl/The-spatial-dimensions-of-households-resilience,122640,0,2.html

Kowalewski, A., Markowski, T., Śleszyński, P. (Eds.) (2018). *Studia KPZ, 182*. Polska Akademia Nauk Komitet Przestrzennego Zagospodarowania Kraju. http://journals.pan.pl/dlibra/journal/123401

Лібанова, Е. (Ред.). (2019). Людський розвиток в Україні. Оцінка та прогноз рівня життя населення. НАН України, Ін-т демографії та соціальних до сліджень імені М.В. Птухи. https://idss.org.ua/arhiv/monografia__2019.pdf

Mitton, L., Sutherland, H., & Weeks, M. (2000). *Microsimulation modelling for policy analysis: Challenges and innovations*. Cambridge University Press. https://assets.cambridge.org/97805217/90062/sample/9780521790062WS.pdf

Mosthaf, A., Schnabel, C., & Stephani, J. (2014). Low-wage employment versus unemployment: Which one provides better prospects for women? *IZA Journal of European Labor Studies, 3*(1). https://doi.org/10.1186/2193-9012-3-21

Narazani, E., Figari, F., & Vuri, D. (2023). EUROLAB: A multidimensional labor supply-demand model for EU countries. *International Journal of Microsimulation, 16*(3), 49–76. https://microsimulation.pub/articles/00288

Obadic, A. (2006). Theoretical and empirical framework of measuring mismatch on a labour market. Zb. rad. Ekon. fak. Rij. Vol. 24 sv. 1, P. 55-80. https://www.researchgate.net/publication/27190887_Theoretical_and_empirical_framework_of_measuring_mismatch_on_a_labour_market

PACE (2011). *Rural women in Europe*. Doc. 12460 January 06, 2011.

Peter, H. (2010). A multi-state model of state dependence in labor supply: Intertemporal labor supply effects of a shift from joint to individual taxation. *Labor Economics, 17*(2), 323–335. https://doi.org/10.1016/j.labeco.2009.05.004

Pini, B. & Leach, B. (2011). *Reshaping gender and class in rural spaces*. Burlington, VT: Ashgate. https://doi.org/10.1111/ruso.12005_4

Pokrzywa, M. (2019). Wielowymiarowe wykluczenie klientek pomocy społecznej w Polsce. *Zeszyty Pracy Socjalnej, 24*(2), 111–122. https://doi.org/10.4467/24496138ZPS.19.008.11085

Центр Разумкова. (2024). Трудові ресурси для повоєнного відновлення України: стан, проблеми, шляхи розвязання. Київ: Аналітична доповідь Центру Разумкова. https://razumkov.org.ua/images/2024/10/16/2024-Pyshchulina-TRUDJVI-RESURS-UKR-SAIT.pdf

Richardson, R., Pacelli, L., Figari, F., Paulus, A., & Sutherland, H. (2018). Female labor force projections using microsimulation for six EU countries. *International Journal of Microsimulation, 11*(2), 5–51. https://doi.org/10.34196/ijm.00180

Richardson, R., Loughran, T., O'Donoghue, C., & Sologon, D. M. (2019). Understanding low female labor force participation: A policy evaluation using microsimulation. *International Journal of Microsimulation, 12*(2), 52–68. https://doi.org/10.34196/ijm.00201

Richiardi, M. & Poggi, A. (2014). Imputing individual effects in dynamic microsimulation models: An application to household formation and labor market participation in Italy. *International Journal of Microsimulation, 7*(2), 3–39. https://doi.org/10.34196/ijm.00099 https://www.microsimulation.pub/articles/00099

Саблук, Г. (2016). Особливості регулювання зайнятості жінок села в системі ринку трудових ресурсів. Економіка АПК, *8*, 53–60. http://nbuv.gov.ua/UJRN/E_apk_2016_8_11

Shui, Y., Zhang, Y., Zheng, Y., & Zhang, Q. (2022). Employment transfer of rural female labor and family welfare effect in mountainous areas: An empirical analysis based on panel data. *Land, 11*(12), 2134. https://doi.org/10.3390/land11122134

Śleszyński, P. (2018). Identification and evaluation of demographic processes in Poland with special regard to the rural areas. *Wieś i Rolnictwo, 3*(180), 35–67. https://doi.org/10.53098/wir032018/02

Śleszyński, P. (2024). External and internal determinants of rural development in Poland: Lessons for regional and local planning. *Wieś i Rolnictwo, 2*(203), 17–39. https://doi.org/10.53098/wir.2024.2.203/01

Spielauer, M. (2001). *Microsimulation modeling of population, economic growth, and social security systems*. International Institute for Applied Systems Analysis, Interim Report IR-01-026/July. https://pure.iiasa.ac.at/id/eprint/6494/1/IR-01-026.pdf

Spielauer, M. (2011). What is social science microsimulation? *Social Science Computer Review.* https://doi.org/10.1177/0894439310370085

Sudakov, M. & Lisogor, L. (2023). *Labor market in Ukraine 2022–2023: Status, trends and prospects*. State Employment Service of Ukraine, Federation of Employers of Ukraine, Ministry of Education and Science of Ukraine, European Bank for Reconstruction and Development, Solidarity Fund PL. https://solidarityfund.org.ua/wp-content/uploads/2023/04/ebrd_ukraine-lm-1.pdf

Ukrstat. (2018). *On approval of the methodology for forming sample populations for conducting sample surveys of the population (households) in 2019–2023: Living conditions of households, economic activity of the population and agricultural activity of the population in rural areas*. Order of the State Statistics Service of Ukraine dated 01.03.2018 No. 39. https://zakon.rada.gov.ua/rada/show/v0039832-18#Text

Ukrstat. (2022a). *Children, females and family in Ukraine*. State Statistics Service of Ukraine. https://www.ukrstat.gov.ua/druk/publicat/kat_u/2022/zb/10/zb_djs_2022.pdf

Ukrstat. (2022b). *Labor force of Ukraine*. State Statistics Service of Ukraine. https://ukrstat.gov.ua/druk/publicat/kat_u/2022/zb/07/zb_RS_2021.pdf

Ukrstat. (2022c). *Main agricultural characteristics of households in rural area in 2021*. State Statistics Service of Ukraine. https://ukrstat.gov.ua/operativ/operativ2018/sg/opsgd/arch_oschd_u.htm

Ukrstat. (2022d). *Statistical yearbook of Ukraine*. State Statistics Service of Ukraine. https://ukrstat.gov.ua/druk/publicat/kat_u/2022/zb/11/Yearbook_21_e.pdf

Ukrstat. (2023a). *Agriculture of Ukraine*. State Statistics Service of Ukraine. https://ukrstat.gov.ua/druk/publicat/kat_u/2023/zb/09/S_gos_22.pdf

Ukrstat. (2023b). *Females and males in Ukraine*. State Statistics Service of Ukraine.

Ukrstat. (2023c). *Population of Ukraine*. State Statistics Service of Ukraine.

Ukrstat. (2023d). *Statistical yearbook of Ukraine*. State Statistics Service of Ukraine. https://stat.gov.ua/sites/default/files/2024-02/Збірник%20Статистичний%20щорічник%20України%202022%20рік.pdf

Ukrstat. (2024). *On approval of forms of state statistical observation "Agricultural activity of the population in rural areas"*. Order of the State Statistics Service of Ukraine dated 28.08.2024 No. 215. https://zakon.rada.gov.ua/rada/show/v0215832-24#n16

Volosevych, I. et al. (2015). *Comprehensive study of the situation of women living in rural areas*. Kyiv: VITE. https://gender.auc.org.ua/wp-content/uploads/2021/01/069_Komplexne_dosl_dzhennya_stanovischa_zh_nok_yak_prozhivayut_u_s_l_s_k_y_m_stsevost_2015_.pdf

Wiest, K. (Ed.). (2016). *Women and migration in rural Europe: Labor markets, representations and policies*. Palgrave Macmillan. https://doi.org/10.1007/978-1-137-48304-1

Woods, M. (2009). Rural geography: blurring boundaries and making connections. *Progress in Human Geography*, 33 (6). https://doi.org/10.1177/0309132508105001

Woods, M. (2017). *Globalization and rural areas*. https://doi.org/10.1002/9781118786352.wbieg0189

Zwęglińska-Gałecka, D. & Szczygieł, O. (2023). Suburbanization of poverty? Analysis of attitudes of social assistance beneficiaries in rural areas of the Masovian Voivodeship. *Problemy Polityki Społecznej. Social Policy Issues, 63*(4), 1–24. https://doi.org/10.31971/pps/169030