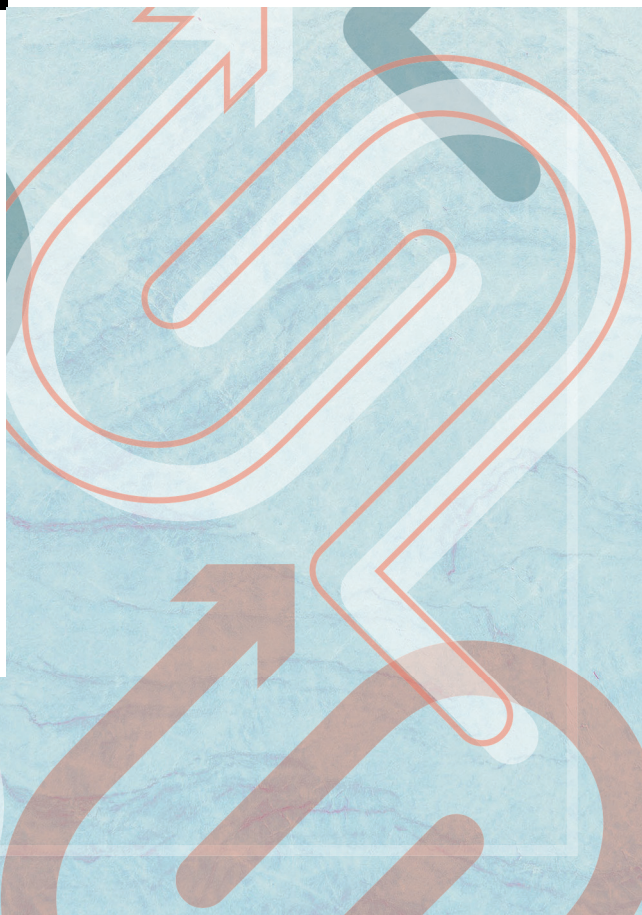




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Contents

Studies

- María Gabriela Miño, Raimundo Elías Gómez
Sustainable production models in rural Galicia: environmental challenges in community forest management 1–18
- Jan Neugebauer, Marek Vokoun, Jiří Rotschedl
Access to healthcare services for vulnerable populations in the Czech Republic 1–27
- Volodymyr Sarioglo, Anton Kuranda
Anticipation of female labour supply in rural area of Ukraine: A microsimulation approach 1–23
- Ella Libanova, Ihor Bystriakov
Ensuring spatial inclusion of the socio-economic development of urban-rural formations of Ukraine 1–20

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Sustainable production models in rural Galicia: environmental challenges in community forest management

Abstract

The article analyses the Common Forest Lands in Galicia, exploring their role in promoting environmental sustainability in response to challenges such as industrial forest monoculture, environmental degradation, and population ageing. Using a qualitative methodology that combines a literature review and field observations, the study details the historical, organisational, and productive characteristics of these communities, with a focus on their transition toward more sustainable production models. The work is structured into three main parts: first, it describes the historical and organisational context of Common Forest Lands; second, it examines the negative impacts of industrial forest monoculture in these territories such as biodiversity loss

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and increased wildfires; and third, it discusses the intergenerational factors influencing the adoption of sustainable practices, highlighting the importance of child and youth participation. The conclusions underscore the need for inclusive public policies that address structural barriers, promote economic diversification, and encourage intergenerational participation in resource management. This study contributes to the debate on sustainability and community governance, providing a theoretical and practical framework for future research on collective management models in rural contexts.

Keywords: sustainability, participatory governance, forest monoculture, intergenerational challenges

Introduction

The current global environmental crisis has critically challenged the dominant model of industrialised agriculture, which has historically prioritised short-term economic returns through large-scale monoculture systems. This approach, promoting intensive productivity, has been associated with phenomena such as massive deforestation, soil and water pollution, and accelerated biodiversity loss (Altieri, 1999; Mikkelsen, 2008; FAO, 2021). Moreover, the links between environmental degradation and the emergence of health crises, such as the COVID-19 pandemic, underline the urgent need to adopt sustainable production systems (Lajmanovich, 2020; Li et al., 2023). This global context involves more than reducing ecological impact; it requires a profound transformation across socio-economic and cultural dimensions. From an ecological perspective, it requires preserving biodiversity, restoring degraded ecosystems, and enhancing resilience to health and climate crises through diversified and locally adapted land use strategies (European Commission, 2020; Schneider et al., 2025). In socioeconomic terms, sustainable models promote territorial re-embedding of production, reducing dependency on extractive global chains by encouraging local economies, food sovereignty, and circular practices (UNEP, 2021). Finally, from a political and cultural standpoint, sustainability implies expanding democratic participation, valuing traditional knowledge, and addressing environmental injustices that disproportionately affect marginalised rural communities (Escobar, 2020). These perspectives converge in the idea that sustainability is not merely a technical objective but a collective process shaped by power relations, cultural values, and intergenerational responsibilities (Martín et al., 2024).

In Southern Europe, initiatives such as ecovillages, forest schools, and community agroecological projects stand out as examples of the ongoing search for environmentally respectful ways of coexistence, based on social economy and cooperativism (Pinto & Vilaça, 2023; Trillo Santamaría et al., 2024). In this context, agroecology emerges as a transformative alternative that seeks to integrate ecological management with social justice and economic viability (Gliessman, 2007). This approach highlights the importance of production systems adapted to local contexts and self-managed under policies that prioritise citizen participation, thereby ensuring greater long-term sustainability (Vega et al., 2023; Terán-Samaniego et al., 2025).

In models based on agroecology and sustainable land governance, the importance of autonomous self-management forms stands out. In this context, the Common Forest Lands of Galicia represent a paradigmatic case. This model of collective ownership, covering approximately 20% of the forested area of the region, combines community management with participatory governance, offering a favourable context for the promotion of more sustainable production methods (Marey-Pérez et al., 2006; Balboa et al., 2006; Zugazagoitia et al., 2024). However, these common territories face multiple challenges, particularly regarding the expansion of industrial forest monocultures within these community spaces, including large-scale plantations of species like eucalyptus, which threaten both biodiversity and the resilience of their ecosystems (Copena Rodríguez, 2018).

This case suggests that the transition to agroecological models, while maintaining a communal administration shared by the residents, is not devoid of barriers. This process, understood as a dynamic and gradual system, is conditioned by social, economic, technological, and political factors, in the relationships between the people who work and live in these community spaces, the state, businesses, and society (Van der Ploeg, 2010). In particular, the expansion of industrial forest monoculture poses numerous problems for Galicia with the intensification of forest fires and biodiversity loss (Díaz-Fierros Viqueira, 2019).

In this sense, the object of this research is to analyse the transition processes currently unfolding in these communal forests, with particular emphasis on the socio-environmental tensions they face and the role of community participation – especially among younger generations – in shaping sustainable futures. By exploring these dynamics, the study aims to understand how local collective governance interacts with ecological constraints, demographic shifts, and intergenerational knowledge systems. In line with this objective, the research is guided by the following questions: (1) What historical, social and organisational dynamics have shaped the communal governance of forestlands in Galicia? (2) How does the expansion of industrial forest monoculture affect the potential for transitioning towards more sustainable production models in these communal territories? (3) In what ways can the participation of children and young people contribute to building sustainable proposals within these communities? Following these questions, the central hypothesis underpinning this study is that transition cannot be achieved through legal reforms or ecological interventions alone. Rather, it requires the active engagement of younger generations in the governance of communal lands, fostering participatory approaches that integrate sustainability, social equity, and a strong sense of territorial belonging. Moreover, this research challenges prevailing approaches to territory, governance, and participation by emphasising that collective land ownership and use cannot be understood as a conclusive solution to power-related issues. The existence of collective tenure does not necessarily imply a constructive orientation toward more sustainable production systems (Wittman & James, 2022; Delgado, 2023). In this sense, the article contributes to current debates on sustainability and community-based governance by advancing an integrated perspective that links environmental challenges with intergenerational dynamics.

Following this argument, the article presents the Common Forest Lands in Galicia, examining their historical, organisational and productive dimensions, as well as the

challenges and opportunities they face in the transition towards more sustainable production models. Particular attention is given to the role of intergenerational relationships and the participation of children and young people as key elements in the construction of environmentally responsible and socially just alternatives. The following section presents the methodology proposed for this study.

Methodology

This study employs a qualitative approach combining extended case method analysis with critical document review to examine the socio-ecological transitions of Galicia's communal forests. Building on longitudinal engagement through ethnographic immersion in these territories, the research focuses on Gulpilleira (42°10'N, 8°41'W), a peri-urban community forest of 59.3 ha in the Municipality of Porriño (Pontevedra), strategically located 12 km from Vigo's metropolitan core and 25 km from the Portuguese border.

Ethnographic fieldwork (December 2021–January 2022) prioritised this case due to its hybrid positionality: adjacency to an industrial park hosting transnational corporations (automotive/logistics) and artisanal meat processing facilities, coupled with proximity to Santiago pilgrimage routes driving ecotourism development. This configuration facilitates analysing historical path dependencies in communal land management alongside relational socio-economic processes in Galicia's communal forests governance. Unlike the demographic collapse characterising Lugo/Ourense highlands (−14.2% population 2000–2020), Porriño exhibits counter-trend stability (+1.2% growth 2016–2022) (Instituto Geográfico Nacional de España, 2024), making it an extended case to examine how globalised production chains and rural gentrification reconfigure peri-urban social spaces (Sheppard & Pemberton, 2023).

While Gulpilleira Forest Land serves as the primary case for in-depth observation, the study does not focus exclusively on this community. Instead, it uses Gulpilleira as an entry point to examine broader patterns and tensions within Galicia's Common Forest Lands. This approach aligns with the extended case method, which seeks not to generalise from isolated observations but to theorise from within local processes by situating them in their wider historical and structural contexts (Burawoy, 1998).

In addition to fieldwork, the study incorporates a structured review of secondary data sources, including academic literature, legal frameworks, policy documents, and statistical reports related to Common Forest Lands and rural sustainability in Galicia. The review, focused on materials published between 2005 and 2025, prioritises peer-reviewed articles indexed in Scopus, Web of Science, Scielo, and Erih Plus. Relevant keywords were selected through a preliminary mapping of core concepts, including: “environmental management and development”, “sustainable management, Galicia”, “community forest, Galicia”, “forestry monoculture”, “paradigm modernity, environment”, and “forest fire, Spain”. These terms were used to identify and classify materials into three thematic clusters: (1) legal-institutional structures, (2) socio-ecological impacts of forest monoculture, and (3) community-based sustainability initiatives.

The documents were collected and organised using Mendeley, with an approximate total of $n=60$ sources analysed. Additionally, the review incorporates sociological literature by classical authors within the structural-constructivist tradition of Bourdieu, focusing on social inequalities and configurations, particularly in terms of class struggle and household strategies. This secondary data analysis complemented the ethnographic insights and contributed to a more comprehensive understanding of the structural dynamics shaping the Common Forest Lands governance in Galicia.

The following section examines the main structural, political, and organisational features of Common Forest Lands in Galicia, with a focus on their historical development and current configuration.

Organisational and productive characteristics of Galicia's common forest lands

The Autonomous Community of Galicia, located in the northwest of the Iberian Peninsula, spans a total area of 29,575 km² and has an approximate population of 2.7 million inhabitants (Instituto Nacional de Estadística, 2021). As a predominantly rural region, Galicia's primary economic activities include forestry, viticulture, livestock farming, and fishing (Meixide Vecino et al., 2021). These industries have shaped the socio-economic structure of the area, creating a context for the development of communal land management.

According to Traviesas (2017), forests in Galicia have historically played a crucial role in society, ecology, and production of the region. They were fundamental to the agrarian system, providing essential materials such as wood for tools, firewood for heating, stones for construction, and staple foods like chestnuts. Additionally, they enabled the expansion of cereal cultivation through the traditional land clearing practices, and supplied key resources for the production of organic fertilisers, thereby helping to maintain soil fertility (Sobrado Correa, 2023). The traditional agrarian system revolved around the communal forest, whose primary purpose was to provide grazing land for livestock and preserve local flora and fauna. This was reinforced by the trinomial relationship between forest, cultivated land, and meadows (Life in Common Land, 2022).

Currently, Galicia accounts for a significant proportion of Spain's deforestation. The northern region of the Autonomous Community is responsible for 25% of Spain's total timber harvests, primarily comprising eucalyptus, pine, and conifer species (La Voz de Galicia, 2019). It is worth noting, however, that not all forests used for extractive activities are private property. Communal forms of forest administration, such as Common Forest Lands, are managed by neighbours².

The Common Forest in Galicia represent a unique approach to land use that attempts to address ecological needs alongside socio-economic goals, acknowledging the challenges of balancing these priorities within a context of significant monoculture

² Local residents who habitually live and work on these lands. The name in Spanish is "comuneros".

practices. Emerging from pre-industrial times, these communal lands were established to provide critical resources for grazing, timber, and subsistence agriculture (Balboa et al., 2006). Unlike other European communal systems, these common lands maintained autonomy from municipal ownership, fostering collective responsibility in resource use. This model has evolved over centuries, adapting to modern challenges while retaining its foundational principles of shared governance and mutual support among members. This structure was unique in southern Europe, where communal governance allowed communities to collectively manage and sustain vital resources while fostering resilience against external pressures. This historical context shaped the social structure of these communities, embedding a *habitus* of shared responsibility and mutual support among residents.

During the 20th century, the Common Forest Lands experienced profound disruptions driven by socio-political changes. These situations did not occur in isolation but were part of broader shifts in land management policies across Spain, which emphasised industrialisation and economic growth at the expense of traditional communal systems. According to Del Arco Blanco and Anderson (2017), during the Franco regime, rural areas were subject to systematic state intervention, including land confiscations, which undermined traditional communal structures and replaced them with centralised, hierarchical forms of control aligned with authoritarian political aims. Communal lands were increasingly repurposed for monoculture plantations of fast-growing species such as eucalyptus and pine, driven by external economic pressures. These changes had far-reaching implications for both the ecological balance and the governance structures of the communities, as rural depopulation intensified with younger generations migrating to urban centres. Due to this historical context, an ageing population remained as the primary custodians of these lands, weakening the intergenerational transmission of traditional practices (Suárez García & Soto Fernández, 2017).

Following this period, Spain underwent a complex and gradual transition to democracy, initiated by the death of Franco in 1975 and consolidated with the approval of the Spanish Constitution in 1978. This historical framework not only restored democratic institutions but also recognised the territorial reorganisation of the state, laying the groundwork for the creation of Autonomous Communities (Candela Sevilla, 2018). Within this process, Galicia was granted autonomy in 1981, enabling the region to develop its own legislation on land use. In this period, the institutional recognition of Common Forest Lands under Galician law in 1989 marked a turning point. This legislation formalised their collective ownership as inalienable, indivisible, and imprescriptible, creating a legal framework that reinforced their governance structures (Xunta de Galicia, 1989).

It is worth noting that Spain's accession to the European Economic Community in 1986 initiated an ongoing process of legal and policy development at the regional level. This integration gradually required the adaptation of national and subnational frameworks to align with European standards, particularly in areas such as environmental protection, rural development, and land governance. The Forestry Law of Galicia (DOG 7/2012, June 8) established guidelines for the sustainable management of all forested areas in Galicia, with specific provisions aimed at Common Forest Lands. It emphasised fire prevention, reforestation efforts, and the economic utilisation of communal lands,

aligning with regional and European sustainability goals. Similarly, the Forestry Plan of Galicia (Xunta de Galicia, 2021) provided strategic objectives for the long-term development, encouraging active participation of Common Lands planning processes.

The current organisational and intergenerational structure of Common Forest Lands reflects these historical legacies and contemporary innovations. As Copena Rodríguez (2025) describes, the evolution of these communal territories throughout the 20th century was deeply marked by socioeconomic transformations, institutional pressures, and community-based forms of resistance. Collective memory and local agency have shaped land use practices, challenging top-down forestry models and reaffirming the cultural and social significance of communal governance.

In terms of their present-day organisation, decisions about land use and resource management are made in participatory assemblies where the members exercise voting rights. However, significant differences exist across the provinces of Galicia. For example, Lugo and Ourense, characterised by more rural and interior landscapes, often focus on traditional uses such as grazing and small-scale forestry. In contrast, Pontevedra and A Coruña, with their proximity to urban centres and economic hubs, tend to explore more diversified activities such as agroforestry, renewable energy projects, and even ecotourism. These regional variations highlight how geographic and socio-economic contexts influence the practices and priorities of Common Forest Lands. This is particularly evident when examining the historical evolution of these communities and their adaptations to modern challenges.

In 2019, the Xunta de Galicia recorded a total of 3,326 Common Forest Lands, distributed across the four provinces of Galicia, covering approximately 23% of the territory. Some of these communities are located in rural areas, while others lie in peri-urban zones within towns or parishes. The majority of these Common Forest Lands are situated in the province of Ourense, which accounts for 38.17% (1,142 communities), and Lugo, with 30.61% (916 communities). These are considered the interior communities. The remaining communities, known as those of the Atlantic axis, are located in the provinces of Pontevedra, with 21.89%, and A Coruña, with 9.32% (Xunta de Galicia, 2025). This information reflects the diverse geographical and administrative realities of Galicia, shaping the management strategies and resource use patterns of Common Forest Lands in each province.

In summary, the contemporary configuration of Common Forest Lands embodies a complex interplay between historical legacies, socio-economic pressures, and environmental challenges. Beginning with the geographic and economic context of Galicia, these communities have historically adapted to changing socio-political landscapes. Following this, we will address the main issues associated with the expansion of industrial forestry monocultures in these communal territories.

Challenges associated with the industrial forest monoculture in these territories

Field observations in Pontevedra forest land revealed a complex interplay of socio-ecological challenges shaping the daily reality of these communities. One of the most

evident features observed during fieldwork was the presence of multiple abandoned dwellings, reflecting the demographic decline affecting the area. Signs of abandonment, such as overgrown vegetation, deteriorating façades, and uninhabited houses, were recurrent throughout the area and noticed during field work.

The demographic shift was particularly evident in the interactions within the community, where the majority of residents were elderly, often engaging in small-scale subsistence activities. Alongside this demographic situation, the ecological dimension of the land was equally revealing. The landscape was overwhelmingly dominated by extensive monoculture plantations of pines and eucalyptus, species introduced and favoured for their commercial value in the timber and paper industries. In fact, *Eucalyptus globulus* accounted for more than 45% of the total wooded surface in seven forest districts of Galicia, illustrating the extent to which this species dominates the regional forest landscape (Barrio-Anta et al., 2021).

However, it is important to note that the forest landscape of Galicia has not always been affected by such dominance. The introduction of eucalyptus to the region dates back to the mid-19th century, when it was first planted for ornamental and botanical purposes by elites on coastal estates (Ramil-Rego, 2019). Its significant expansion occurred progressively throughout the 20th century, especially as forestry policies and industrial demand began to promote fast-growing species. As Paül and Cidrás (2025) note, eucalyptus plantations multiplied under state-led reforestation programmes and changing rural dynamics, ultimately transforming the structure and ecological composition of Galician woodlands.

These industrial forestry practices have reshaped the natural environment, displaced native vegetation and altered local ecosystems. While these plantations provide economic benefits to some, they also contribute to biodiversity loss, increased fire risk, and soil degradation – issues frequently mentioned by long-time residents who have witnessed the transformation of the land over the years. These observations underscore the dual pressures of social and environmental change that affect the Common Forest Lands, highlighting the need for a more sustainable and community-centred approach to land use (De Diego Abad et al., 2020).

In this sense, the influence of public policies has also played a crucial role in shaping the development trajectories of these communities. While subsidies and grants have supported sustainable practices in some territories, in others they have favoured the expansion of fast-growing monocultures, driven by market incentives and forestry subsidies. This duality underscores the importance of designing policies that balance economic viability with ecological sustainability, ensuring that collective management remains resilient in the face of market and environmental pressures. According to Cidrás (2020), the political debate around eucalyptus expansion in Galicia reflects broader ideological divisions, with economic and social arguments often taking precedence over ecological concerns, leading to a lack of consensus in municipal decisions.

According to Burritt, Schaltegger, and Christ (2023), sustainable development involves meeting present needs without compromising the ability of future generations to satisfy theirs, while sustainable environmental management underscores the importance of conserving natural ecosystems through careful resource stewardship. In

this sense, the expansion of industrial forest monocultures has generated numerous challenges related to sustainable development and environmental management. One of the most significant problems associated with forest monocultures is the loss of biodiversity. García Rivas and Aguilera Fernández (2023) highlight that replacing diverse native ecosystems with single-species plantations disrupts ecological balance and eliminates essential habitats for numerous species. This impact, as Suazo and Torres (2023) suggest, weakens ecosystem resilience, making them more vulnerable to pests and diseases. Biodiversity is not only crucial for maintaining natural balance but also supports fundamental ecosystem services, such as pollination and climate regulation, which benefit both natural systems and human quality of life.

Additionally, water scarcity and soil degradation are direct consequences of forest monocultures. Eucalyptus and pine plantations, commonly used in these practices, consume large quantities of water, depleting local aquifers and reducing water availability for other uses. According to López Iglesias (2021), these plantations contribute to the drying of wetlands and the depletion of soil nutrients, thereby diminishing long-term agricultural potential. This adversely affects local communities that rely on diversified agriculture and water resources for their livelihoods, exacerbating social and economic inequalities in certain regions.

A particularly alarming issue is the increased risk of forest fires associated with industrial forest monocultures. Eucalyptus, due to its high oil content, is highly flammable, intensifying the spread of fires. Additionally, the accumulation of forestry debris, such as branches and leaves, serves as fuel, aggravating the intensity of fires. In regions like Galicia, recurring fires have highlighted the inherent dangers of this practice (De Diego Abad et al., 2020; Madrigal Olmo, 2020). These fires not only devastate natural landscapes but also affect air quality and generate greenhouse gas emissions, related to climate change.

Monocultures also produce significant amounts of waste, complicating environmental management efforts. Unused biomass, such as fallen branches and decomposing foliage, often accumulates, exacerbating pest infestations and contributing to carbon emissions if burned as waste. According to Alonso (2020), these inefficiencies contradict the principles of sustainable management, which advocate for waste minimisation and the circular use of resources.

The environmental and social impact of pulp mills, the primary industries associated with forest monocultures, is another critical issue deserving attention. These industries are often located near plantations, increasing pressure on water resources and exacerbating air and water pollution due to the chemical waste generated during paper production. According to Suazo and Torres (2023), pulp mills significantly contribute to environmental degradation by releasing large amounts of carbon dioxide and toxic substances during bleaching processes. Furthermore, these industries often create tensions with local communities due to their intensive use of natural resources and their adverse impacts on public health and livelihoods. This can be seen in the recurring tensions generated in society by the paper mill located in Pontevedra. Similar conflicts have arisen around the possibility of establishing another one in the province of Lugo, accompanied by rejection claims from environmental organisations such as Greenpeace.

Ultimately, the long-term viability of industrial monocultures faces numerous challenges, such as rising maintenance costs and declining productivity. Overexploited soils and degraded ecosystems require increasing financial investments to maintain yields, reducing long-term economic efficiency. According to Callaghan and Mitchell (2023), these trends highlight the incompatibility of monocultures with the principles of sustainable development and long-term environmental management. Furthermore, García Rivas and Aguilera Fernández (2023) propose that public policies must prioritise approaches integrating ecological, social, and economic criteria, encouraging diversification and sustainable forest management. Moreover, the socio-economic implications of forest monocultures must not be overlooked. The export-oriented economic model frequently marginalises local communities, disrupting traditional livelihoods and exacerbating inequalities. Fuenzalida Díaz and Arce (2019) emphasise that rural communities often face conflicts arising from the expansion of these practices, underscoring the need for more inclusive and protected policies.

In summary, while industrial forest monocultures may offer short-term economic benefits, their profound ecological and socio-economic costs, exacerbated by the impact of pulp mills, undermine their sustainability. Biodiversity loss, resource depletion, increased fire risk, and socio-economic dislocations call into question the viability of this model. In the future, it is imperative to adopt forestry practices aligned with the principles of sustainable development, integrating community participation and responsible resource management into policies and practices. Nature-based solutions, such as reforestation with native species and collaborative forest management, can provide more sustainable and equitable pathways for rural development. In this sense, in 2017, the Teis Common Land exemplified a collective decision-making process among commoners aimed at ecological restoration and sustainable land management (Campo Galego, 2017). Faced with a pine forest overtaken by invasive acacias, the community opted to replace it with a more ecologically diverse plantation of oaks, chestnuts, and other deciduous broadleaf species. Thus, we can consider that small changes through collective actions can improve the viability and ecosystems of community-managed forests, restoring their richness and diversity. These actions must also include the active participation of children and young people to ensure their continuity.

Next, we will address intergenerational issues, particularly the participation of youth and childhood in environmental care within the context of communal forest communities.

Intergenerational factors in the transition to sustainable production models

The transition to more sustainable production models is a global challenge that goes beyond technological innovations and regulatory frameworks. This shift requires a cultural transformation involving multiple generations, ensuring that the practices and values associated with sustainability are effectively transmitted and adapted to current contexts.

While large-scale reforms demand significant investment in infrastructure and governance, small-scale local initiatives also play a crucial role. As Vidal (2025) argues, these grassroots actions, despite their limited scope, can drive systemic transformation when integrated into broader networks of collaboration. Decentralised strategies foster socio-ecological resilience and serve as experimental spaces for alternative models, demonstrating that collective action is essential for an effective and equitable transition to sustainability. From a Bourdieusian perspective, these dynamics can be understood as the result of complex multidimensional and structural processes within the social space (Bourdieu, 1984, 1986; Wacquant, 2008; Hammersley & Atkinson, 2007; Gómez et al., 2025).

In Galicia, the rural context provides a significant example of how intergenerational transmissions occur. In these areas, children actively participate in activities such as animal care, subsistence farming, and selling goods at local markets. These practices enable them to acquire practical skills, reproducing daily life patterns and labour activities within their spaces of participation (Miño & Gómez, 2022). However, these dynamics are not free from structural limitations, as not all practices include sustainable environmental management, especially related to models of production (Miño et al., 2022). In this sense, cultural traditional practices, deeply rooted in local cultural identity, generate tensions between the preservation of traditions and contemporary demands for the environmental conservation (Cruz & Martínez, 2021).

In Galicia's peri-urban environments, the transmission of sustainable values faces different challenges. According to Wacquant (2023), social space is exposed to dynamics which limits the participation of disadvantaged sectors. In Galicia, programmes such as eco-schools aim to mitigate these inequalities, offering opportunities for children to engage in activities that promote environmental education and the conservation of natural resources (Souza, 2022). In this sense, educational programmes for children integrate practices such as managing gardens, recycling, and biodiversity conservation, fostering ecosystem preservation through the active participation of local communities. While valuable, these initiatives are not without challenges. Families with greater resources can integrate these activities into their daily routines, benefiting from more leisure time for family engagement, while those with fewer resources face barriers such as lack of time or transportation to the areas where these activities occur (Harvey et al., 2020). These limitations reflect how structural inequalities condition the adoption of sustainable practices and perpetuate disparities in the transmission of environmental values.

Moreover, the organisational movement of municipalities significantly influences the implementation of these programmes. In general, municipalities opt for recreational activities, organising events tied to cultural traditions, such as local festivals, which, although important for community identity, do not always integrate sustainability practices (Skar et al., 2016). For example, exposing local wildlife to fireworks and light pollution, particularly during Christmas and New Year celebrations. Although this may not appear to have an immediate impact, such factors also influence children's behaviour and their relationship with the environment. When activities are designed primarily for human enjoyment, without considering their impact on local wildlife, the implicit message can be that their immediate surroundings are not particularly important.

This implies that sustainable practices are not merely individual decisions but are conditioned by structural inequalities that influence which activities are deemed valuable and considered necessary for social life (Bourdieu, 1998). This theoretical framework highlights the importance of designing inclusive public policies that address these inequalities and promote equitable participation in sustainable activities. In this sense, Wacquant (1993) emphasises that struggles within the social space involve the constant negotiation of meanings and values. This is particularly evident in the transmission of environmental values across generations, where conflicts may arise over which practices to adopt in response to sustainability demands. These tensions underscore the need for intergenerational dialogue to reconcile cultural traditions with current sustainability requirements, ensuring that future generations are better prepared to face environmental challenges.

At the same time, recent studies have highlighted a growing interest among younger generations in environmental protection and sustainability-oriented initiatives, often expressed through grassroots movements, youth-led campaigns, and school-based projects (Kolenatý et al., 2022). This emerging engagement suggests that, despite structural constraints, young people are actively reimagining their relationship with nature and playing a key role in shaping more resilient and inclusive environmental futures. In addition, the Council of Europe's Recommendation CM/Rec (2024) underscores the importance of safeguarding the environmental rights of young people and ensuring their meaningful involvement in climate governance. It explicitly calls on member states to facilitate youth participation through diverse mechanisms, including public deliberation platforms, community-led environmental projects, and access to environmental litigation channels. By recognising young people not merely as beneficiaries but as active agents of change, this policy framework affirms the value of inclusive structures that enable intergenerational collaboration in addressing environmental challenges (Council of Europe, 2024).

On the other hand, Daly et al. (2024) suggest that public policy should shift toward a *post-paternalist perspective* – moving away from adult-centred models and instead empowering young people to take the lead in shaping environmental responses. In the context of Galicia's Common Forest Lands, this perspective invites a reflection on how youth involvement can contribute to reshaping intergenerational relations around environmental care. Rather than seeing such participation as isolated initiative, it is essential to understand it as part of broader social, cultural, and economic dynamics. Early engagement in communal activities, family support, and the availability of inclusive rural development policies all influence the extent to which young people can sustain meaningful environmental commitments over time.

In conclusion, the transition to more sustainable production models is deeply influenced by intergenerational factors that shape environmental practices and values. These dynamics should be understood as processes structured by social and cultural inequalities, which affect both opportunities and community trajectories. Through inclusive policies, educational programmes, and ongoing dialogue between generations, it is possible to promote a more equitable and accessible form of sustainability that integrates the lessons of the past with the needs of the present.

Final discussion

The analysis of the Common Forest Lands in Galicia reveals both the strengths and limitations of this model in addressing contemporary sustainability challenges. This study highlights how these communities, based on collective ownership and participatory management, face significant pressures stemming from industrial forest monoculture, demographic ageing, and tensions between environmental conservation and local economic needs. From a Bourdieusian perspective, the dynamics of power and capital within these communities reflects broader structural challenges that limit their ability to implement long-term sustainable models. These difficulties are exacerbated by demographic ageing, where the loss of young human capital threatens the continuity and innovation of community management. This dynamics highlights the importance of integrating younger generations into decision-making processes and the transmission of sustainability-related values.

In this context, from an intergenerational perspective, the active participation of children and young people in community activities emerges as a crucial factor for ensuring the long-term sustainability of Common Forest Lands. Initiatives such as environmental education projects have proven effective tools for fostering ecological awareness and connection with the natural environment. However, these initiatives must be expanded and adapted to address inequalities in access and participation, ensuring that the most vulnerable communities also benefit from these opportunities. Additionally, inclusive public policies must be promoted, combining environmental conservation with social justice, enabling these communities to remain a viable and equitable model of resource management. Beyond actions focused on strengthening formal environmental education or encouraging outdoor play, it is equally important to consider how global cultural norms – often shaped by consumerism and oriented towards enjoyment – structure children's experiences and expectations about nature. These norms tend to prioritise entertainment over environmental awareness, reinforcing a relationship with the natural world that overlooks the wellbeing of ecosystems.

In conclusion, the analysis of Common Forest Lands underscores the importance of addressing tensions between cultural traditions and contemporary sustainability demands. These tensions emphasise the need for constant dialogue between generations and local stakeholders to reconcile these conflicting values. In this sense, public policies play a central role in the ability of Common Forest Lands to adapt to current challenges. While European and regional initiatives promoting sustainable forest resource management exist, further efforts are needed to ensure these policies are implemented effectively and equitably. This includes designing financial and technical support mechanisms that enable communities to overcome the economic and social barriers they face in transitioning to more sustainable models. Additionally, fostering collaboration between Common Forest Lands governance and other stakeholders – including researchers, ONG, and local businesses – is crucial for developing innovative strategies tailored to the specific needs of each community.

Finally, this study highlights the importance of integrating a sociological perspective into the analysis of Common Forest Lands, to understand the internal and external

dynamics shaping their functioning. This approach not only identifies the limitations of the current model but also proposes pathways for action that recognise and leverage the inherent strengths of these communities. The transition to sustainable production models requires an integrated approach that combines participatory management, economic diversification, and environmental education with inclusive policies and ongoing institutional support. Only through these joint efforts will it be possible to ensure the resilience of these communities, while simultaneously promoting environmental justice for the younger generations of Galicia's rural contexts.

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Access to healthcare services for vulnerable populations in the Czech Republic

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Abstract

Health care directly depends on the health policy system adopted in a given country. Social and economic determinants have a direct impact on well-being and ability to access health services. People at risk are referred to as a “vulnerable population”, and theories from Health Economics support the concept.

The study objective is to identify the potential risks associated with missing care for individuals from vulnerable populations. The study employs qualitative approaches, combining data collection, and analysis techniques to provide an overview of the relationship between vulnerable population groups, access to healthcare, and potential barriers. The chosen methods include literature and documentation analysis using the PRISMA-PICOT approach, as well as expert opinions.

The results show 10 potential groups of vulnerable populations relevant to the Czech environment. Due to its multidisciplinary nature, the categories are segmented according to economic, social, and health perspectives. The study also identifies relevant barriers leading to insufficient care. The most frequently cited barrier is the choice of setting, where rural areas are considered high-risk for the most vulnerable groups. In light of the existing literature, the study provisionally situates these global challenges within the Czech context as well. New terminology may bring more understanding and fundamental theories for new research strategies.

Keywords: health economics, barriers, population, Czechia, vulnerability

Introduction

Health economics, focusing on the economic aspects of healthcare, is crucial for managing both financial resources and the effectiveness and accessibility of healthcare services (Phelps, 2017). Health disparities refer to the inequalities in health outcomes and access to healthcare across racial, ethnic, and socioeconomic groups. These disparities manifest as differences in disease prevalence, health outcomes, or access to healthcare (Reilly, 2021). The Institute of Medicine defines health disparities as racial or ethnic differences in healthcare quality unrelated to access, clinical needs, or preferences (McGuire et al., 2006). Some studies expand upon the issue, recognising that the problem extends beyond access disparities to encompass the broader concept of vulnerable populations. Recent research has focused on defining vulnerable groups and analysing the significant impact of income inequality, which exacerbates health disparities and emphasises the importance of an individual’s circumstances (Chumo et al., 2023). The WHO, following recommendations from multinational corporations, has published a report on the social determinants of health that can influence social policy and the utilisation of public resources in Europe. Interventions target clinicians who are not sufficiently educated about the lives and concerns of vulnerable populations, including LGBTQIA+ people, immigrants, prisoners, and families of patients with illnesses considered “incompatible with life” (Julmisse & Cole, 2024; Vasanthan et al., 2024 Waisel, 2013).

Literature review

The literature review focused on two key areas: the variability of vulnerable populations and the barriers to healthcare access affecting these groups.

Vulnerable population

Research from 2005 to 2010 in the USA highlighted high mortality rates among vulnerable populations. Studies revealed multiple factors influencing healthcare outcomes and access, including the quality of care provided (Larson et al., 2007; Tabac et al., 2020). Existing research often lacks comprehensive approaches to understanding these complex interactions. While the cost of care has been identified as a frequent barrier, the quality of care is also significantly impacted (Sudore et al., 2006; Julmisse & Cole, 2024; Vanderbilt et al., 2013). Chronic diseases and comorbidities were prevalent, particularly among older Hispanics and Blacks (Vanderbilt et al., 2013). The need for holistic approaches, considering biological, psychological, and social factors, has been emphasised. Vulnerable populations have been progressively defined to include various age groups, individuals with chronic diseases, newborns, young children, pregnant women, racial and ethnic minorities, individuals with disabilities, and the LGBTQIA+ community (Rami et al., 2023; Sklar, 2018; Bourgois et al., 2017). A very typical diverse group is the 2SLGBTQIA+ community, which is characterised by a wide range of standard and non-standard examinations, such as monitoring hormonal conditions or preventive measures due to gender changes (Christo et al., 2024; Lampe et al., 2024; Shi & Stevens, 2021).

Potential barriers for vulnerable people

Vulnerability, stemming from factors like low socioeconomic status or chronic illness, is associated with a higher incidence of preventable diseases, barriers to accessing timely healthcare, and increased social isolation. These barriers include physical limitations (accessibility of facilities and transportation), financial constraints, and psychological barriers (e.g., health illiteracy, distrust of healthcare systems). Socioeconomic status (SES) is a significant factor in determining access and quality of care (Murata & Kondo, 2020; Wayne, 2012). To monitor barriers, the baseline position of equal access was defined as “the possibility for everyone to use the same health services.” The standard indicator chosen was *delayed or missing care*, which is defined as: “postponing a visit to a specialist, even if specific or non-specific symptoms of a disease are evident” (Caraballo et al., 2020; Mahajan et al., 2021).

As we mentioned, there is an evident link between access to healthcare and proper healthcare. Some studies show that it has a significant impact on people from rural areas. Vulnerable people, such as those with mental health issues or the elderly, are at a high risk of not receiving care. The reason, known as a barrier, can be the lack of transport, knowledge, or money. Some people are also dependent on others and, without them, they cannot access healthcare facilities or call an ambulance if necessary (Caraballo et al., 2020; Mahajan et al., 2021; Murata & Kondo, 2020).

Methodology

This study employed a qualitative methodology that integrated content analysis of relevant texts and expert opinions.

Objectives

The study aimed to identify global vulnerable groups, select those relevant to the Czech Republic, and examine barriers to healthcare access.

Study design

This study followed a seventeen-step process outlined, combining studies from authors Muka et al. (2020), Page et al. (2021), and Scheidt et al. (2019). This involved defining a clinical question, developing a search strategy, conducting a literature review, selecting and assessing studies, synthesising data, reporting findings, fostering discussion, establishing conclusions, and peer-reviewing the survey.

For the relevant data and next step, we used expert opinions from 9 persons (3:3:3 ratio). The primary objective was to validate the data, select the appropriate information, and make it applicable to the Czech environment. The experts were chosen from the fields of economics, sociology, and healthcare to clarify the gathered data and update the existing theories.

Data collection and analysis

The clinical question focused on identifying vulnerable populations in the Czech Republic and the barriers to accessing their healthcare. The research incorporated data from the Web of Science database using specific keywords (barriers, access, healthcare, vulnerable, population, needs), Boolean operator *and*, and inclusion/exclusion criteria related to publication date (2025–2019), journal quality (Q1–Q3), and article type (Social Science Citation Index -SSCI was included, but reviews, conference contributions, etc. were excluded). Expert opinions were used to refine the analysis.

Our clinical question was defined as: *What are the vulnerable populations and what are their barriers in accessing health care relevant to the Czech Republic?*. The research question focused on socio-economic factors as much as definitions and other factors related to Health Economics or linked to access to healthcare. Within the section, both the relevance to the topic and the quality of the accepted study were checked. Data synthesis, reporting, searching for contributions to stimulating our discussion, and concluding were also carried out. In the initial phase, a total of 438 studies were found. A typical selection of the PRISMA flow diagram includes the duplication (n=0) and language (n=59) selection. We then proceeded with the title (n=112) and abstract (n=100) checks. We identified 191 articles for full-text reviews. The final

phase involved excluding irrelevant publications (n=179) through a full-text review. Most of the scanned papers were excluded due to differences in settings, objectives, perspectives, irrelevant theoretical frameworks, or participant fields. After selection, 12 relevant studies related to the research and our clinical question were included. The final step involved creating initial groups of vulnerable individuals and identifying potential needs and barriers, with input from selected experts.

For better understanding and data verification, we conducted a control investigation using statistical documents available on the UZIS website and a qualitative investigation involving experts from sociology, health professionals, and economists, as mentioned. This section helps eliminate irrelevant groups and provides an overview of representatives located in the Czech Republic. After a qualitative investigation, the data were summarised, the contexts combined, and the group of vulnerable persons relevant to the Czech Republic was created. We also add specific barriers and needs that the individuals must face.

The final part of the study involved presenting our theories to the specialists and conducting simple semi-structured interviews with them. A total of 5 healthcare facilities, five social facilities, and six research facilities covering economic, health, and social fields were approached, who were to propose competent persons and send their CVs to the project team. Three persons were selected for each research field (economics, sociology, and healthcare) by simple random selection. From the other participants, a list of recorded probands was obtained through simple random selection in cases where contact with the primary selected experts was not possible. Subsequently, all selected were contacted by telephone by the project manager and invited to a meeting in a neutral environment at a specified time. Before the interview began, the experts were informed that they should always express their agreement or disagreement with the presented result and provide a comment explaining their stance, supported by the best possible evidence from their practice. This interview was conducted verbally, and to facilitate a more efficient recording of the results and understanding, a record sheet was created for each expert (see: Appendix 1).

Their opinions were recorded, and we primarily focused on the relevance provided by groups of people and the potential barriers they presented. Their opinions should reveal the reliability theories and verify whether they apply to the Czech Republic. Direct quotes are marked in italics. For this part, we provide diverse perspectives from across the Czech Republic. Experts represented academic institutions, Private sector companies, Non-profit organisations, and Public/State facilities.

All the data were summarised at the end of the results section for better understanding of the problematic areas (Table 2).

Results

Our results were categorised into three perspectives: economic, sociological, and healthcare. All the results demonstrate a theoretical framework that we identify through data analysis and expert opinions. From this perspective, potential barriers related to the specific view were also taken into consideration.

The second part is focused on experts' opinions, and for a better understanding of the background of the chosen one, we ask about characteristic information (Table 1).

Table 1. Experts' characteristics

Expert no.	Territorial diversity	Institutional diversity	Sectoral diversity
E1	Prague	Private sector Company	Personal finances and behavioural economy
E2	Jihlava	Academic institution	Economic sciences
E3	Czech Budweis	Non-profit organisation	Macroeconomics and welfare economics
S1	Prague	Public/State facility	Family and children support
S2	Ostrava	Academic institution	General social sciences, social support for selected groups of people
S3	Czech Budweis	Non-profit organisation	Support for people with administration processes and illnesses
H1	Prague	Public/State facility	General Physician
H2	Brno	Public/State facility	ICU nurse
H3	Jihlava	Academic institution	Public health and nursing sciences

Economic perspective

Based on the analysis of economic factors and vulnerable populations, four large groups of individuals or families were identified.

The first group is the low-income population, which means that individuals in this group may face financial barriers to accessing healthcare. In this case, the low personal or family budget is attributed to a low income (Martell & Roncolato, 2023; Neugebauer et al., 2024). Unfortunately, this phenomenon is exacerbated by other factors, such as the inability to buy a ticket, which reduces the possibility of seeking adequate healthcare. Some studies also suggest that these stereotypes are traditional and are passed down from generation to generation, or may be related to the lower educational attainment often found among low-income individuals (Santana et al., 2021). The Czech Republic is somewhat different; however, low-income individuals or families are also affected. The barrier is also evident in the money income, as it is in the Czech Republic as in other countries (Neugebauer et al., 2021).

The second group comprises immigrants and refugees with diverse socio-economic and cultural backgrounds (Kuran et al., 2020; Martell & Roncolato, 2023; Santana et al., 2021). The economic value can be a blind spot here; however, they are aware of the real value of the money in the Czech Republic, and they do not have any mental deficits. The variations in the economic system and values in other countries or communities make this group of people vulnerable. This means that differences in the healthcare and financial systems in the Czech Republic can be confusing for refugees and immigrants, making it difficult to understand all the associated obligations (Lovětínská & Vokoun, 2023).

The third group consists of pregnant women and fetuses. All people are aware of the various priorities and life-changing mechanisms that begin during pregnancy (Aisyah et al., 2024). There is a potential impact on specific needs during gestation, as economic status can change rapidly. In the Czech Republic, social services, and financial support are available for mothers and their children before and after the child is born. It is not typical for all European or other countries to have this kind of support. Based on the income changes, the parents, primarily mothers, are part of the group's vulnerable population from an economic perspective (MoLSA, 2024; Neugebauer et al., 2024).

Social vulnerability

Social vulnerability is linked to social factors and vulnerable groups. This means that there can be a change in social role or some differences in social status, which makes people vulnerable (Neugebauer et al., 2024).

The first group consists of individuals with a temporarily or permanently altered social role, such as pregnant women, pensioners, those unable to work, or those receiving social benefits for care, e.g., disability pensions (Kasi & Saha, 2023; Häfliger et al., 2023). This group of people is changing the role they already have; however, they do not possess the necessary knowledge or abilities to handle the new function. That is the primary reason why many cases of missing care are described.

The second group consists of people intentionally or unintentionally experiencing homeless life. Aisyah et al. (2024) describe the socio-economic trap that countries with a universal system face. From this perspective, homeless people may face challenges accessing social support and resources, creating a cycle of vulnerability. Individuals involved in the sex industry or who use drugs may face specific social stigmas and barriers that affect their access to healthcare and social support. Homeless people can be treated as acute patients, and in the Czech Republic, they will get this kind of care for free (covered by state insurance). However, it does not address social status, which can lead to social vulnerability (Kuran et al., 2020; MoLSA, 2024; GHIC, 2024).

The third group comprises individuals from 2SLGBTQIA+ communities who have specific healthcare requirements and needs tailored to their respective community (Martell & Roncolato, 2023). Here, it is necessary to include all relevant group members. All members of this group, like those in other groups, face discrimination from the broader society. This is because their sexual orientations or gender identities may differ from the majority (Martell & Roncolato, 2023; Neugebauer et al., 2021; 2024). There are still countries where any other deviations are abandoned, and if any preferences, such as homosexuality or bisexuality, occur there, the person will be restricted immediately. This also makes the group vulnerable (Kuran et al., 2020; Yang et al., 2023).

The fourth group consists of mentally disadvantaged persons who are part of the social system, and, as part of integration, jobs are created for such underprivileged persons. It also includes social support for mentally disabled people. Many people from this group are unable to visit healthcare facilities because they lack knowledge on

how to assess their healthcare status and also do not know how to access the facilities (Neugebauer et al., 2021; 2024). It means the social system can offer support but if there is no active administration, and this group is very sensitive and vulnerable (Kasi & Saha, 2023).

The fifth group comprises individuals in custody, whose healthcare access is governed by specific regulations due to their restricted freedom (Kuran et al., 2020; Hyer et al., 2021). They have their own rules governing access to healthcare and medicine, and physicians and nurses work under their control, performing only the necessary tasks as described. It also leads to missing care or improper treatment methods. From a social perspective, they often lack regular access to healthcare facilities, which results in increased vulnerability (Neugebauer et al., 2024).

The last group consists of immigrants who are part of the social system but sometimes face various socio-cultural barriers, resulting in unequal access to healthcare (Kuran et al., 2020). We also mention this group in the economic section. In this case, it focuses more on sociology than on income or financial factors. Social vulnerability in this context refers to individuals having different social approaches to the community and varying knowledge of when to visit the hospital and how healthcare in the Czech Republic operates (MoLSA, 2024; Neugebauer et al., 2024).

Health vulnerability

Health vulnerability is primarily linked to health factors and the health conditions of vulnerable groups (Kasi & Saha, 2023).

The first category comprises individuals of critical age, specifically newborns, young children, and seniors (65 years and older). These age groups are considered vulnerable, mainly because it is not possible to safely recognise specific needs in young children due to limited communication and a higher incidence of injuries due to age. Similarly, polymorbidity—the co-occurrence of at least two chronic diseases—and the development of geriatric syndromes occur in older individuals (Bastani et al., 2021; Häfliger et al., 2023; Kasi & Saha, 2023; Lee et al., 2021).

The second group consists of chronically ill people who, due to their health condition, are forced to leave the standard system and focus more on the options that are available in connection with their health condition (Kasi & Saha, 2023). From a health perspective, they cannot travel elsewhere like other people, because their chronic illness can progressively worsen and rapidly change the health condition of the person. The primary solution to the daily situation is to seize the opportunities and choices. This means that people still have a chance to travel or relocate elsewhere, but they must calculate the likelihood of reaching a healthcare facility as soon as they need it (Neugebauer et al., 2024).

The third group consists of pregnant women who should follow the treatment regimen for the duration of the pregnancy, go for regular check-ups, and, in some cases, may be hospitalised (Bastani et al., 2021; Häfliger et al., 2023). Their health condition has changed, and they have responsibility for their own lives as much as for their child's life. Pregnant women are under a hormonal boost, a body-changing

process, and a different mental status. All these factors make them vulnerable from a health perspective (Neugebauer et al., 2024).

This is also related to the fourth group, i.e., women in their sixties. The principle is very similar to that of postpartum women who face postpartum anxiety, fears, lactation psychoses, secondary injury, poor wound healing, etc. (Häfliger et al., 2023). However, in this case, many women are trying to face this problem on their own because they are shy, afraid, or do not want to be seen in this light by their friends or family members. It is more about the mental condition than the body condition, but as a psycho-somatic circle, it can lead to additional problems that make them vulnerable (Neugebauer et al., 2024).

The fifth group consists of 2SLGBTQIA+ people who have specific care needs, especially trans women and trans men who choose to change their gender, which includes hormone therapy and surgical solutions (Kuran et al., 2020). All the changes people want lead to different types of treatment, preventive care, and lifestyle. This group of people also includes the non-majority sexual preferences. Most people around the world know what it means to create a lot of prejudices that can also lead to missing care, delayed care, or self-care treatment with illegal medications. In some cases, people have anonymously mentioned that they are afraid of going to a healthcare facility for testing or treatment, and instead, they order medications from other countries and treat themselves at home (Grigoryan et al., 2006; Stüdemann et al., 2024).

The last group consists of immigrants who have different care demands and cultural specifics, such as religious customs, the requirement that a woman be examined by a woman in the presence of her husband, etc. (Bastani et al., 2021; Kasi & Saha, 2023). Not only are the specific cultural preferences included in this group, but also a variety of different behaviours, lifestyles, chronic diseases, vaccinations, and languages are the main barriers that can lead to varying care and make them vulnerable (Neugebauer et al., 2024; Lovětínská, 2024).

Expert opinions

Selected experts from the economic section reveal possible vulnerable groups and agree with our theory. They all subscribed to the low-income population, immigrants, and refugees. Subject 2 described it: *Let's say that the low-income population means all people who have a salary below the average. I also think that we have a middle class of people here who are also not able to exist with their real budget.* The last group was created based on Subject 3, who believes that pregnant women are also vulnerable: *I want to mention pregnant women too because their financial situation will change rapidly compared to their previous lifestyle, I mean their work. Here, there can be a significant problem with income, social support from the country, and disparities in healthcare. They take care of the child first of all.* This means that we have identified the first three vulnerable groups from an economic perspective. Subjects 1 and 3 also speak about the depth of the problems. They consider the financial situation to be primarily associated with poor economic knowledge and lack of information about passive income, creating money, or how to save money using banks or other institutions:

Several studies describe that Czechs are very unhealthily informed about money and banking. In support of Subject 3, we find the answer in the history of the Czech Republic: *People in the Czech Republic do not trust the system because in history there were many people who tried to invest and were robbed.*

The economic barriers that people face only exacerbate the vulnerable areas that their current situation brings. This means that for people with low incomes, all aspects related to extra payments are a barrier. An example is given by Subject 2: *Of course, the barriers will include not only the fee that one has to pay for treatment but also the fee for medicines, bus, train or other transport, etc.* For immigrants, it is very similar, as stated by Subject 3: *If they have no savings, they have to earn money like every other citizen, with the added problem of the language barrier and the possibility that Czech residents will unfairly defend them due to their ignorance of local conditions.* Subject 3 also adds: *For pregnant women, there is a transition from work to a different regime, as I have already said. Mothers will provide healthcare for their children rather than themselves. But I have already said that.*

Experts from the social environment agree on the list of vulnerable people. According to Subjects 4, 5, and 6, this group includes: people with changed social roles, homeless people, the 2SLGBTQIA+ community, the mentally disabled, and people in custody. Subject 4 describes the situation: *When you think about it, you will find a common feature in all the groups mentioned, which is that they are fundamentally different from the majority society. This means that, e.g., pregnant women will ask the social system for support, homeless people do not support the social system, and people serving sentences are also financed from the social package.* Subject 6 adds that it is necessary to include immigrants who are learning about the social system: *Immigrants are a classic case of people who find themselves in a different environment and are, therefore, very vulnerable to the social system. They do not know what support we have available and what they can use to access healthcare facilities or order social services. The Czech Republic, or rather our social system, is now encountering precisely these aspects due to the influence of Ukrainian refugees.*

Barriers will be reflected mainly in the vulnerable field, i.e., in the area of changed roles or different values that they mean for the social system. As Subject 5 states: *A typical barrier from a social point of view will be, e.g., a low level of knowledge of the system, the inability to participate in the social system or the absolute absence of the system in the necessary area.* Subject 4 adds that: *The current discourse is the LGBT group. They have a diverse range of needs and represent deviant behaviour within the social system, which necessitates a tailored approach to social and health services. Or immigrants who move to rural areas and do not know the Czech language. If they do not come across a person in these areas who speaks, e.g., the Russian language, they will have a hard time getting any help.*

All selected experts from the health environment agree that from their point of view, the following belong to the vulnerable group: people of critical age (newborns, young children, and seniors), the chronically ill, pregnant women, women over sixty, the 2SLGBTQIA+ community, and immigrants. Subjects 7, and 8 support the opinion of Subject 9: *From my point of view, this is a clear example of when a patient is more at risk than others. Every person who seeks health care is currently vulnerable. However, look at it from a different perspective. We can see many other aspects, such as gender changes, deviations, chronic (e.g., oncological) diseases, and pregnant women as well. Then we*

have seniors and other age groups who cannot help themselves or only partially.

The barriers, however, include, in particular, the consequences that lead to vulnerability. As Subject 7 states: *We can give a classic example where a senior or a pregnant mother will not be able to use local transport to get to a health facility. The same applies to individuals of different ages or those with chronic illnesses. Transport and distance from the facility can greatly complicate the situation.* Experts also agree that barriers include language and specific examinations. Subject 9 adds: *Consider that many people with sexual differences need specific health services, and by that, I don't mean only testing but also medications or examinations. If they are in rural areas and perhaps want to be hidden from society, they can hardly ask someone else for help. This leads to people arriving late or not paying attention to prevention.*

Table 2. Vulnerable groups and their barriers

Vulnerable group	Economic barriers	Social barriers	Health-related barriers
Low-income populations	Financial constraints, inability to afford healthcare, medicines, transportation; limited access to information about financial resources.	Stigma related to poverty; potential lack of social support networks.	May delay or forgo necessary care due to cost; potentially poorer health outcomes due to inability to afford preventative measures.
Immigrants and refugees	Unfamiliarity with the Czech economic and healthcare systems; language barriers; difficulty finding employment; potential discrimination in hiring; lack of savings.	Cultural differences; potential discrimination; lack of understanding of social norms; social isolation; language barriers hinder access to information and services.	Language barriers hindering communication with healthcare providers; different cultural health beliefs; potential lack of access to culturally sensitive care.
Pregnant women	Potential loss of income due to inability to work; increased expenses related to pregnancy and childcare.	Altered social roles; potential stigma surrounding pregnancy; pressure to prioritise the child's health over their own.	Specific health needs related to pregnancy; potential for complications; need for consistent prenatal care; mental health concerns.
Individuals with altered social roles	Dependence on social benefits (e.g., disability pensions); potential loss of income.	Stigma related to their condition (e.g., disability); social isolation; lack of opportunities for social interaction.	Specific health needs related to their condition; potential for comorbidities; need for specialised care.
Homeless individuals	Lack of income; difficulty finding employment; limited access to financial resources; unable to afford housing, food, and healthcare.	Social stigma; isolation; lack of social support; potential for discrimination; limited access to social services; distrust in the system.	Exposure to harsh environments; increased risk of illness and injury; lack of access to hygiene and sanitation; mental health issues; substance use disorders.

Vulnerable group	Economic barriers	Social barriers	Health-related barriers
2SLGBTQIA+ community	Potential discrimination in employment leading to lower income; difficulty accessing healthcare benefits.	Discrimination; stigma; lack of understanding from healthcare providers; potential lack of access to LGBT-affirming care; societal bias.	Specific health needs related to gender transition or sexual orientation; mental health issues; fear of discrimination leading to delayed care.
Mentally disadvantaged individuals	Difficulty finding employment; dependence on social benefits; potential exploitation; lack of financial literacy; lack of knowing their healthcare needs.	Social stigma; discrimination; lack of social support; difficulty navigating social systems; potential for abuse or neglect; difficulty visiting healthcare facilities.	Cognitive impairments hindering understanding of health information; difficulty communicating their needs; increased risk of physical and mental health issues.
Individuals in custody	Restricted access to financial resources; dependence on the prison system for healthcare.	Restricted freedom; limited access to social support; potential for abuse or neglect; social isolation; restricted rules to governing how to access healthcare.	Limited access to healthcare; potential for inadequate medical care; mental health issues; risk of infectious diseases.
Seniors (65 years and older)	Possible loss of income from pension, possible health difficulties, increased health concerns, high price of health care.	Restrictions of freedom; limited access to social support; potential for abuse or neglect; social isolation; restricted rules to governing how to access healthcare.	Limited access to healthcare; potential for inadequate medical care; mental health issues; risk of infectious diseases.

Discussion

We identified that health economics plays a pivotal role in understanding and addressing the complexities of healthcare access and equity among various demographics. The disparity in health outcomes among different racial, ethnic, and socioeconomic groups highlights the critical need for targeted research and interventions. We can support our results by the authors Folland et al. (2023), who recommend focusing more on the problematic part of citizens, such as older adults or those who are chronically ill. Their arguments recommend staying near the healthcare facility or making the transport there as easy as possible. Some information also highlights the lack of care in countries with diverse social and healthcare systems. All new policies can make the health and social system more flexible, but healthcare professionals also disagree with these new changes (Neugebauer, 2023). Some healthcare access options are supported; however, they can be costly in some cases (Gordon et al., 2020).

Vulnerabilities are not monolithic. They vary significantly depending on localised contexts, which requires tailored approaches to address these differences. Our study highlights the perception of vulnerable populations as a significant global issue that extends beyond the borders of the Czech Republic and Europe. Folland et al. (2023) describe how health economics also addresses access to healthcare for the general population; however, it is essential to recognise that it is the specific population deemed vulnerable that requires the most attention. The initial spectrum of differences and needs in healthcare for different types of people, depending on their primary diagnosis, was described as early as 2013. Although this is closely related to medicine, it is essential to recognise that healthcare is an integral part of the state's economy (Waisel, 2013). Some political and legal anchoring can be found as early as 2004 when the author Ruof (2004) described the basic components and legal perspective on the whole issue.

Another area of discussion is the barriers faced by vulnerable groups. These can be divided into physical, financial, psychological, and socio-cultural dimensions. Physical barriers, such as the accessibility of health facilities and transportation problems, disproportionately affect populations living in rural areas or those with mobility issues. Financial constraints, which are often intertwined with the cost of healthcare, remain a significant barrier. Psychological barriers, including health literacy issues and distrust in the healthcare system, exacerbate the challenges faced by marginalised communities. In particular, for some vulnerable groups, such as pregnant women or those in detention, the specificities of their situation further define barriers to access. For example, expectant women require consistent prenatal care but may have difficulty navigating the healthcare system, especially if they encounter cultural or geographical challenges. People in detention often face systemic barriers that lead to inadequate health interventions, illustrating the role of institutional structure in maintaining health inequalities (Mec & Čermáková, 2024).

According to Folland et al. (2023), health economics also affects these places, which are often not geographically defined. Still, the system adopted and the current situation make these people vulnerable. For instance, in many provinces, they may face difficult transport, which is supported by our results. Gordon et al. (2020) also note that people from rural areas, mountainous regions, or island states are particularly vulnerable. We can also focus more on the data presented, which is more broadly divided into economic domains.

From an economic perspective, low-income populations often face challenges associated with systemic factors that limit their access to health care. Immigrants and refugees may also struggle with unfamiliarity with the health care system and socioeconomic factors unique to their background, which contribute to their vulnerability (Folland et al., 2023). Socially, changes in social roles can place individuals in precarious positions. As an illustration, older populations and those receiving social assistance may struggle with the perceptions and knowledge needed to access necessary healthcare. Discrimination and stigma also play a significant role, particularly among marginalised sexual and gender minorities. This multidimensional perspective underscores the need for more inclusive and culturally competent health practices (Lovětínská & Vokoun, 2024; Alcendor et al., 2023; Andrews & Davies, 2022).

Socially, changes in social roles can place individuals in precarious positions. For example, older populations and those receiving social assistance may struggle with the perceptions and knowledge needed to access necessary healthcare. Discrimination and stigma also play a significant role, especially among marginalised sexual and gender minorities (Neugebauer et al., 2024). This multidimensional perspective highlights the importance of more inclusive and culturally competent health practices. However, the issue itself may have a deeper basis if we focus on the influence of individual neurotransmitters and their projection into the overall economic field. Rotschedl et al. (2024a) thus provide space for neuroeconomic thinking on the entire concept and offer insights into biological predispositions, situating them within the context of economic decision-making. Typically, an economic issue may arise regarding one's financial security or that of one's family, and borrowing funds from institutions may be necessary. This, in turn, may be related to the subsequent financial collapse and being categorised as vulnerable from an economic perspective (Rotschedl, 2022; Popescu et al., 2025). Within the framework of these analyses, various age predispositions can also be observed, which confirm age differences as a possible factor leading to vulnerability (Rotschedl & Mitwallyova, 2021). This is closely related to specific needs because health vulnerability manifests itself in several different populations, especially among newborns, children, the elderly, and people with chronic diseases. Many studies document other types of options but all systems have their pitfalls. Rotschedl et al. (2024b) agree that a consistent upgrade of pension systems in many countries could help reduce the economic vulnerability of this group of people. Cultural factors also significantly impact access to healthcare. Immigrants from diverse backgrounds may hold specific cultural beliefs that influence their health-seeking behaviour, underscoring the importance of cultural competence in healthcare provision. This has been confirmed in numerous studies, including those examining increased migration due to conflicts (Lovětínská, 2023).

Conclusion

This comprehensive analysis of the complexities surrounding vulnerable populations in the context of healthcare access reveals a multifaceted tapestry of interwoven economic, sociological, and health-related factors that engender significant barriers. The results unequivocally illustrate how these barriers manifest across various demographic groups, highlighting the urgent need for targeted interventions and policies that address the unique challenges faced by these communities.

From an economic perspective, our findings highlight how low-income populations, immigrants, and pregnant women navigate the healthcare system amid financial constraints that limit their access to essential services. The research indicates that economic vulnerability is not merely a matter of individual circumstances. Still, it is deeply rooted in systemic inequalities, which perpetuate cycles of poverty and inhibit health-seeking behaviours. The insights from experts reinforce this notion, emphasising the need for greater financial literacy and access to resources that can empower these populations to make informed decisions about their healthcare.

Sociologically, the data illuminate the transformations in social roles that make certain groups, such as the elderly, the homeless, and individuals within the 2SLGBTQIA+ community, especially vulnerable to marginalisation. The nuances of social vulnerability reflect the broader societal dynamics at play, where discrimination and stigma significantly shape health outcomes. By acknowledging the experiences of these groups, we not only confront the barriers they face but also recognise the critical importance of fostering inclusive practices within the healthcare system that respect and accommodate diverse identities and needs.

In terms of health vulnerability, our exploration reveals the unique challenges posed by varying age demographics, individuals with mental illnesses, and those requiring specific treatments for chronic conditions or identity transitions. The findings underscore the need for healthcare models that are adaptable and responsive to the evolving conditions and needs of vulnerable populations, highlighting the importance of early detection, preventive care, and personalised health interventions. This focus is especially relevant for women, particularly during pregnancy or later stages of life, when mental and physical health intersect in complex ways.

Moreover, our discussion suggests that the intersections of these vulnerabilities are not confined solely to local contexts but rather reflect a broader, global issue that transcends borders. The dynamics of migration and the influx of diverse populations necessitate a healthcare approach that is culturally competent and responsive to a variety of needs. This approach must actively engage with and dismantle the barriers that contribute to health disparities, with a focus on community engagement and education to mitigate the risks of continued inequities.

Therefore, addressing the complexities of healthcare access and equity for vulnerable populations requires a holistic and inclusive framework. Policies must integrate economic, social, and health aspects while ensuring they reflect the voices of those they intend to serve. Continuously adapting our understanding of vulnerability through an interdisciplinary lens that encompasses health economics, sociology, and cultural studies will lead to innovative solutions that enhance healthcare accessibility and improve outcomes. The commitment to recognising and empowering vulnerable groups establishes the foundation for a more equitable and just healthcare landscape, where every individual can navigate their health journey free from the shadows of systemic barriers. In doing so, we will not only improve individual health outcomes but also foster healthier communities and, ultimately, a more compassionate society.

Recommendations for policymakers

The pursuit of equitable healthcare is a fundamental human right and a crucial aspect of social justice. In the Czech Republic, healthcare policies must focus explicitly on reducing disparities that affect vulnerable populations. By adopting a comprehensive approach that integrates equity-focused policies, intersectoral collaboration, community engagement, data-driven decision-making, and adaptability, policymakers can effectively address and mitigate barriers to healthcare access.

An equity-focused approach is fundamental to reducing disparities in healthcare access and outcomes. Policies should specifically target vulnerable populations, such as immigrants, low-income individuals, and the LGBTQIA+ community, ensuring complete and fair healthcare coverage. Intersectoral collaboration is vital, as effective solutions require seamless integration across social services, education, housing, and healthcare sectors. For instance, cooperation between healthcare and housing services can significantly improve health outcomes for homeless individuals by addressing broader health determinants.

Community engagement is another crucial principle. Engaging vulnerable communities in policy development ensures that the initiatives are culturally appropriate and aligned with their specific healthcare needs. Such engagement fosters trust and enhances the efficacy of health programmes. Additionally, healthcare policies should be informed by robust data collection and analysis, which helps to uncover access barriers and health outcomes for different groups. For example, the use of disaggregated data can identify specific health disparities and guide targeted interventions, driving informed and effective decision-making processes.

Flexibility and adaptability in policy design ensure that strategies remain relevant and practical in response to evolving needs. Regularly reviewing and updating policies based on current evidence and changing circumstances enables healthcare initiatives to maintain their impact and relevance.

Addressing economic barriers involves expanding financial assistance programmes to increase funding for initiatives that help low-income individuals cover their healthcare costs. Subsidies for insurance premiums and transportation are practical examples that can improve access to essential medical services. Promoting financial literacy through specialised programmes can empower vulnerable populations to manage their finances effectively and utilise available healthcare resources efficiently.

Addressing social barriers requires strengthening anti-discrimination laws to protect these populations from exclusion in healthcare settings. Cultural competency training for healthcare providers enhances their ability to serve diverse populations effectively, ensuring they are sensitive to cultural differences and the needs of these populations. Expanding community health worker programmes provides culturally sensitive outreach, particularly for underserved communities, and bridges gaps between healthcare providers and patients.

Moreover, addressing language barriers by increasing the availability of interpretation services and providing multilingual health information enhances communication and health literacy, thereby improving healthcare access. Supporting social support networks through community centers and peer support groups strengthens these populations' social frameworks, facilitating better health outcomes.

Addressing health-related barriers is equally crucial. Expanding access to primary care by increasing the number of providers in underserved areas, along with utilising mobile clinics and telehealth services, can significantly enhance healthcare accessibility. Care coordination programmes help individuals navigate complex healthcare systems, ensuring they receive necessary and timely services.

Ensuring access to specialised services for specific groups, such as mental health care for refugees and gender-affirming services for transgender individuals, addresses

unique health needs. Furthermore, promoting preventive care initiatives can lead to the early detection and treatment of health issues, thereby reducing long-term disparities. To improve understanding and engagement, the development of accessible health information and assistance for individuals with low health literacy is paramount.

Targeted recommendations focus on specific vulnerable groups. For immigrants and refugees, providing culturally sensitive healthcare services with bilingual staff and multiple language accessibility is vital. For homeless individuals, increasing street medicine programmes and integrating healthcare with housing offers a comprehensive approach to addressing their needs. The LGBTQIA+ community benefits from access to gender-affirming and mental health services, alongside robust anti-discrimination policies.

Implementation and monitoring are critical to the success of these initiatives. Establishing a multi-stakeholder advisory group ensures diverse perspectives are incorporated into policy development and implementation. Sufficient resource allocation is necessary to support these recommendations effectively. Measurable performance indicators enable the tracking of progress and assessment of the impact on healthcare disparities. At the same time, regular evaluations ensure that policies remain effective and responsive to changes, fostering continuous improvement.

By implementing these comprehensive recommendations, policymakers can make significant strides toward improving healthcare access and outcomes for vulnerable populations in the Czech Republic, thus creating a more equitable and just healthcare system for all.

Study limitations

This study has a few limitations that we identified during the data collection, analysis, and interpretation of our results. The first is a small sample size. We selected nine experts to identify potential vulnerable groups and their associated barriers. More people involved can provide more precise definitions of the whole barriers and vulnerable groups, and it should be easier to describe all the selected variables in detail. More people can also represent the diversity of opinions within the Czech Republic.

Furthermore, the non-random selection of experts may have introduced selection bias, as the experts who agreed to participate may have had particular views or experiences that differed from those of the experts who declined. Therefore, the findings from the expert opinion component should be interpreted with caution and considered exploratory. Future research should aim to include a larger and more diverse sample of experts to ensure greater representativeness and generalisability of the results.

Finally, the study focuses specifically on the Czech Republic, and the findings may not be directly transferable to other countries with different healthcare systems, social policies, or cultural contexts. We also used a single point in time, and it cannot establish causality or determine the direction of relationships between variables.

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*Attachments***Appendix 1. Record sheet for Experts (English version)****Healthcare Disparities and Vulnerable Populations Non-Standardized Survey****Introduction**

Thank you for participating in this critical research study. This questionnaire aims to gather insights into the experiences and perceptions related to different vulnerable populations facing disparities in healthcare access and quality. Your honest responses will contribute valuable data to improve health equity and inform policy development.

Instructions

- Please read each question carefully.
- Answer as accurately and honestly as possible based on your experiences or perceptions.
- There are open-ended questions where you can share detailed opinions or examples.
- All responses are confidential and will be used solely for research purposes.

Data Privacy Notice (GDPR Compliance)

Your participation is voluntary. The data collected will be stored securely and anonymized to protect your personal information and identity. You have the right to withdraw your consent at any time, and your data will be deleted upon request. Your responses will be processed following the General Data Protection Regulation (GDPR). For further information about data protection, don't hesitate to get in touch with Mgr. Jan Neugebauer, Ph.D., MBA, project coordinator.

Additional information

This research is part of a larger study that monitors **disparities in healthcare access for vulnerable populations**. During this part, the researcher in front of you will ask you the same questions as you can see on this list, and we ask you to fill in the information on this paper and add your comments verbally or in written form. Feel free to take a moment to think about the question or add more details during the interview to the previous parts. All your information can be crucial to understanding the issue in-depth from your perspective.

Let us thank you for your cooperation!

Part 1: Personal and Demographic Information

Please provide the following information to help contextualize your responses.

1. Age: _____

2. Gender:

☐ Male

☐ Female

☐ Other

☐ Prefer not to say

3. Location (City/Country): _____

4. Profession/Role relevant to healthcare or social services (if applicable):

5. The field you represent in the study:

☐ Economic field

☐ Healthcare field

☐ Social field

Part 2: Knowledge and Perceptions of Vulnerable Populations

2.1 Which groups do you consider to be vulnerable to healthcare access and quality? (Select all that apply)

- ☐ Low-income/poverty-stricken individuals
- ☐ Racial and ethnic minorities
- ☐ Elderly adults
- ☐ Children and adolescents
- ☐ Persons with disabilities
- ☐ LGBTQ+ community members
- ☐ Immigrants and refugees (including undocumented)
- ☐ Homeless individuals
- ☐ Incarcerated populations/detainees
- ☐ People with chronic illnesses (e.g., diabetes, HIV/AIDS)
- ☐ People with mental health disorders
- ☐ Women, especially in underserved contexts
- ☐ Rural populations
- ☐ Domestic violence victims
- ☐ People with substance use disorders
- ☐ Pregnant women in vulnerable settings
- ☐ Others (please specify): _____

2.2 In your experience or observation, which of these groups face the most significant barriers in accessing quality healthcare? Please specify and describe possibilities or reasons.

Open space for answer:

Part 3: Practical Experiences and Opinions

3.1 Based on your interactions or observations, what are the main challenges vulnerable populations face regarding healthcare access?

Open space:

3.2 Have you observed or experienced any specific disparities in healthcare outcomes among these groups? Please specify.

Open space:

3.3 What strategies or interventions have you seen or think could improve healthcare access for vulnerable populations?

Open space:

Part 4: Personal Reflection

4.1 If you have worked directly with vulnerable groups, please share a brief example of a significant challenge or success you experienced.

Open space:

4.2 In your opinion, what are the most critical priorities for healthcare systems to reduce disparities among vulnerable populations?

Open space:

Thank you for your valuable contributions.

For the project team

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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 al., 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 (Voloisevych 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).

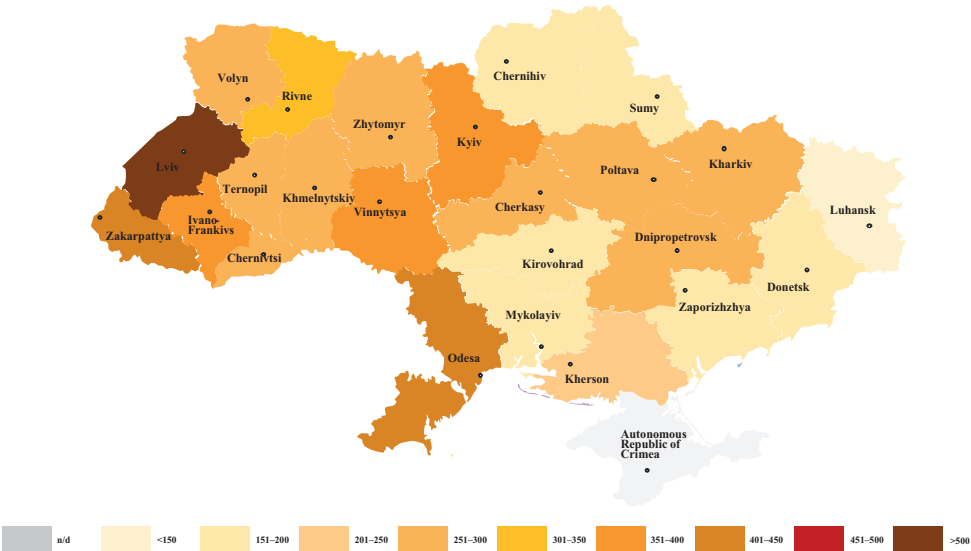
Globalisation, the emergence of communication technologies and the shift to the service sector have fundamentally changed the relationships that make up rural areas in modern Europe (Woods, 2017). Taken together, the simple categorisation of places as urban or rural does not adequately reflect social 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.).

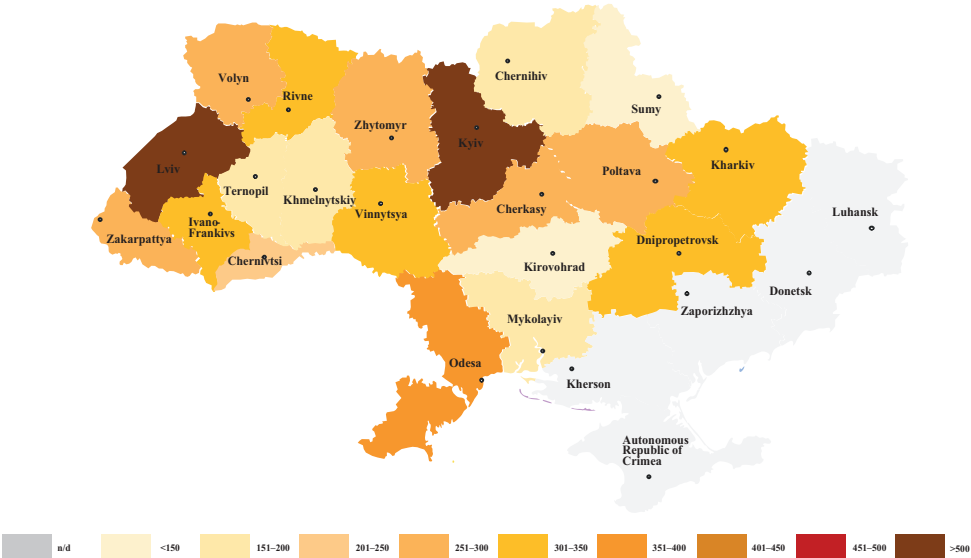
As of January 1, 2022, the rural population in Ukraine amounted to 12,542.9 people, of whom 52% were women. Moreover, the rural population of working age (16–59 years) amounted to 7,281.8 people, of whom 49% were women. Regionally, the largest number of women is represented in rural areas of Lviv, Zakarpattia, 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)

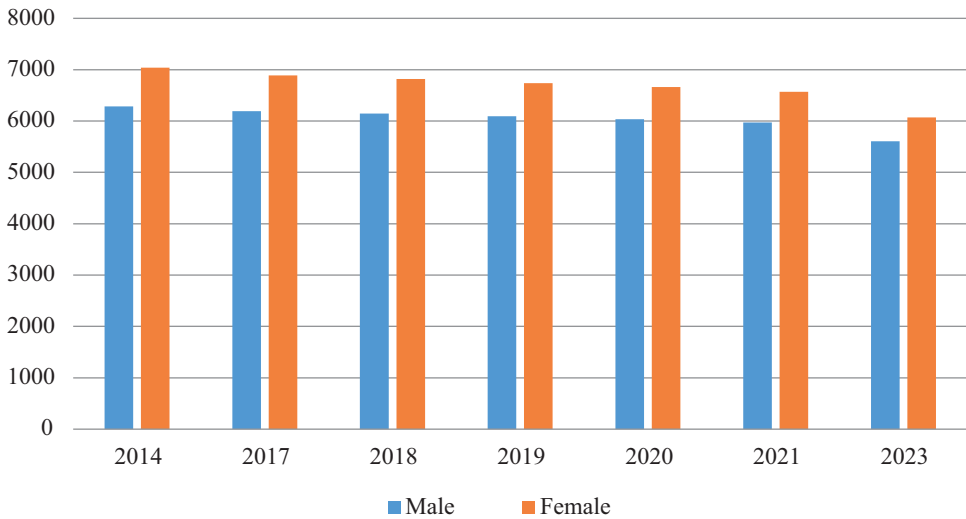
Figure 2. Women in rural areas, 2023



Source: Own work calculated based on data from the HSESS

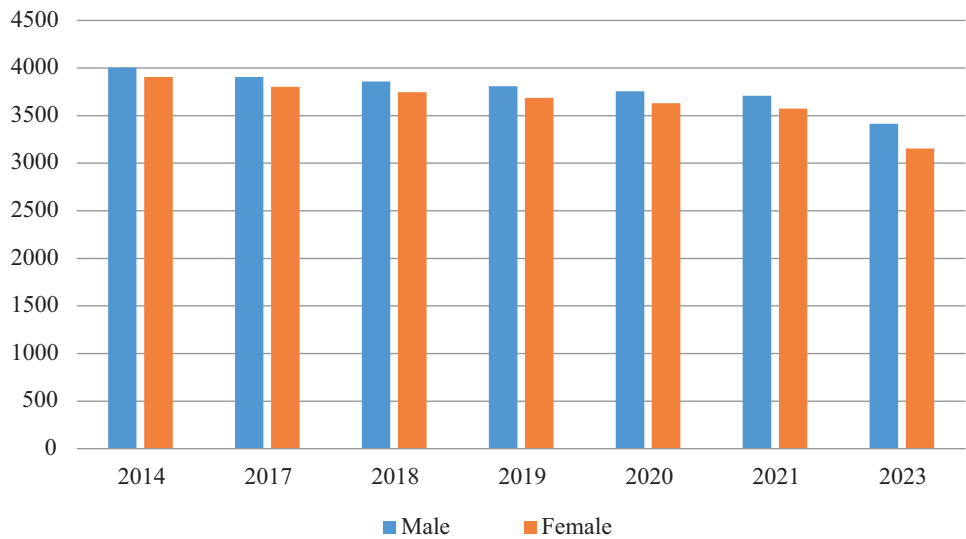
Between 2014 and 2023, the number of women in rural areas decreased by 14% (Figure 3), and the number of women of working age by 19 % (Figure 4).

Figure 3. Resident rural population



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

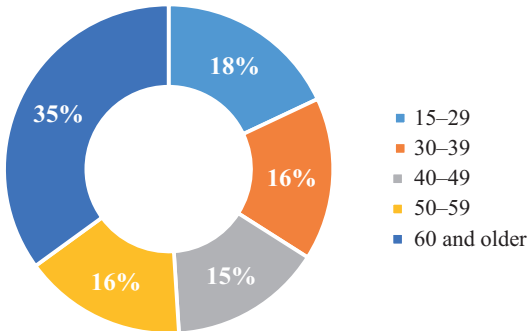
Figure 4. Rural population aged 16–59



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

$$W_i = 0.798 + 0.402 \cdot x_{li}; \quad F = 157.3 \quad (1)$$

(36.8) (12.5)

2019

$$W_i = 0.830 + 0.377 \cdot x_{li}; \quad F = 138.6 \quad (2)$$

(38.6) (11.8)

2023

$$W_i = 0.783 + 0.305 \cdot x_{li}; \quad F = 57.6 \quad (3)$$

(23.1) (7.6)

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_{li} is a dummy variable that determines the presence of higher or incomplete higher education ($x_{li} = 1$ if a woman has higher or incomplete higher education; $x_{li} = 0$ 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:

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

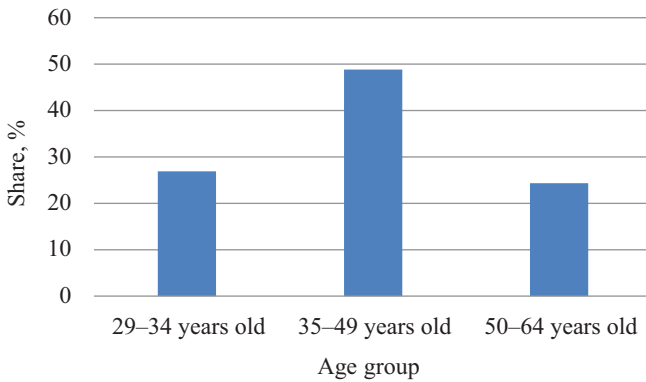
where $E_{ISCO4-9}^{ISCED5-8}$ is the number of employed women in educational levels 5–8 (according to the first character of the International Standard Classification of Education, ISCED, 2011) and occupational groups 4–9 (according to the first character of the International Standard Classification 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.

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Ensuring spatial inclusion of the socio-economic development of urban-rural formations of Ukraine

Abstract

The purpose of this article is to analyse the formation of a new vision of socially oriented development, focusing on the improvement of the agricultural sector within the framework of the urban-rural space organisation, as a prerequisite for solving social problems and ensuring the sustainable development of rural areas. The principles of organisation of natural and economic activity in the urban-rural entity are disclosed. The development trends of inclusive types of spatial natural and economic systems are determined. A socially oriented model of the functioning of an inclusive urban-rural economy is proposed. The focus is on some systemic issues. First, the

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category of “inclusion” is revealed, seemingly known as a process of increasing the degree of participation of all citizens in society, but it largely concerns the issues of insufficient mental preparedness of the population to be included in active social and economic processes. Secondly, the issue of reconstruction of the urban-rural organisation of economic activity is identified as essential on the agenda. Here, managers and stakeholders are charged with several tasks. Thirdly, a social problem that needs to be overcome. The focus is on the problem of difficult perception of the concept of space by the population as a system of interaction of interested parties (stakeholders). Fourth, problematic issues and means of overcoming them, while determining the ways of development of urban-rural formations, should take into account the trends in the cluster organisation of specific spatial, natural and economic complexes.

Keywords: socio-economic development, inclusion, urban-rural formations, post-war recovery of Ukraine, convergence of urban and rural population

Introduction

Today, the key challenge facing Ukraine is to ensure conditions for the postwar recovery of the country's population. It largely involves the restoration of agricultural activity. Of course, this issue is multifaceted, but given the deep knowledge of specialists in this field, we can state that the solution of complex problems on the way to improving the situation is still far from complete. To a large extent, this is due to the fact that the process of finding ways to solve them is based on outdated methodological approaches, while achieving positive changes requires updated views and methods in managing reproduction processes of the rural living space.

Here, we should focus on other systemic issues. First, the category of “inclusion” needs to be clarified, which is seemingly understood as a process of increasing the degree of participation of all citizens in society; however, in our case, it largely concerns the lack of mental preparedness of the population to engage in active social and economic processes. Secondly, the issue of reconstructing the urban-rural organisation of economic activity is a significant one on the agenda. This raises several challenges for managers and stakeholders. Third, a social problem that needs to be overcome is the very difficult perception of the concept of space as a system of interaction between stakeholders. To a large extent, people's lack of confidence in their abilities and strengths, against the backdrop of prolonged shocks, requires special social psychological rehabilitation. Fourthly, the problematic issues and means of overcoming them, when determining the ways of development of urban-rural formations, should take into account the trends in the cluster organisation of specific spatial natural and economic complexes, which are known to significantly affect the social organisation of territorial communities.

Thus, the four key methodological positions outlined above also determine the substantive features of the researches presented in this article, starting with the literature review, conceptual positions of the researches, as well as discussion issues,

methods of implementing the authors' proposals, and relevant conclusions for further research.

Literature review

Based on the above, the authors of the article focused on those literary sources that reflect, to a greater extent, the views of foreign scholars, in particular, those related to the analysis of European trends in the subject area of this work.

As for the understanding of "inclusion", the fundamental point here is that there are three main directions of its interpretation. The first is associated with economic concepts of an inclusive economy. The second reflects the social and psychological components of the inclusion phenomenon. The third direction has a spatial aspect, taking into account mainly the territorial and production component. All of these issues go hand in hand, sometimes implicitly. Nevertheless, they must be kept in mind at all times.

Thus, in the context of "inclusion", the authors focused on the works of numerous authors (Allen et al., 2016; Bansal, 2014; Goel & Vishnoi, 2022; Kim et al. 2018; Sun & Tu, 2023; Varghese & Viswanathan, 2018; Zhu et al., 2018). The analysis of these works reveals a the emphasis on financial inclusion, which is primarily associated with a person, in particular, a person living in rural areas. Financial inclusion, indeed, aims at bridging the income gap between rural and urban areas. However, this requires a significant increase in the importance of improving financial inclusion, in line with the creation of an inclusive financial system, the concept of which was officially put forward by the UN in 2005. Overcoming inequalities in financial inclusion requires the use of high information technologies that enable active communication between stakeholders within the framework of corporate sustainability, innovative management of urban spatial development, etc.

As for the second issue, i.e., the reconstruction of the urban-rural space for organising economic activity, scientists involved in spatial development and planning are largely involved. The key for the purposes of this article is the point of view of specialists related to the decentralisation of the spatial organisation of economic systems (Cattaneo et al., 2022; Feltynowski, 2024; Goel et al., 2021; Heffner, 2015; Hofmann et al., 2023; Kłodziński, 2014; Kłodziński & Zarębski, 2016; Li et al., 2024; 2014; Liu et al., 2021; Liu, 2021; Śleszyński, 2024; Stanny et al., 2016; Zarębski, 2015), which makes it possible to ensure the coadaptation of rural and urban development processes. If we take a closer look at the outlined works, we can define a comprehensive approach encompassing the peculiarities of the population's life organisation, its multi-vector functioning, both of individuals and communities in general, as a principle. First, it advocates a bottom-up management paradigm. That is, the sustainable development of urban-rural territories, relying on innovative communication technologies, sets a new interpretation of the inclusion of spatial development, showing that "rural" and "urban" territories are not only highly interdependent, but also, actually, create a personal reality of life that requires the development of separate strategies, foresight projects and master plans to determine the means of ensuring their own forms of functioning.

The concept of integrating not only urban space into rural space, but also vice versa, rural forms of organising life into urban space, is also important. In other words, a theoretical framework is proposed that reveals how to overcome the relevant social dichotomy of “urban-rural”. Moreover, the introduction of empirical research on this issue is an appropriate step towards expanding what is referred to as previous “urban” approaches by focusing on the junction of peripheral functional zones of rural and urban purposes. Within this theoretical framework, scholars, which is very important for the Ukrainian context, redirect attention to such essential positions as flows and connections, institutions and behaviour, lifestyles and livelihoods. In principle, such an understanding of the organisation of the space of life can become an effective point of responsibility for ensuring the potential sustainability of development per se.

In this regard, the proposal for a continuous reconfiguration of material flows, practices, contexts of meaning and spatial structures in the concept of urbanisation becomes very attractive. The definition of a rurbanity as a separate space makes it possible to harmonise the practices of organising economic activity, including social, economic, and environmental components, with a corresponding reassessment of the attributions associated with them.

The third question is very interesting for the authors of this article, which concerns the peculiarities of perception by socialised individuals and their groups, taking into account not so much the spatial-territorial aspect of the issue as the space-relationships of stakeholder interactions. Moreover, realising that the means of organising the territory, the choice of strategies for their development, objectively, follows the qualitative characteristics of harmonising the relations and interests of stakeholders. In this area, it is advisable to pay attention to some of the views of scholars set forth in a number of publications (Amcoff & Westholm, 2007; Anioł, 2019; Cesarski, 2014; Cocklin et al., 2002; Hedlund & Lundholm, 2015; Michoń, 2013; Olmedo & O’Shaughnessy, 2022; Rickardsson, 2021; Solana-Solana, 2010).

The ideas of Western scholars who emphasise the need to form a decentralised system of management of the development of relations between stakeholders at the level of self-organisation, which is mainly associated with a developed system of functioning and interaction of formal and informal institutions, are of fundamental value to the authors of the article.

However, the question of how the dynamics of general social processes affect the formation of stakeholder relations is important here. In this regard, two demographic trends are influential, namely rural depopulation and repopulation. As rural restructuring has established itself as a popular area of research in recent years, it can be seen that there are trends in the empirical support for the process of rural restructuring. Nevertheless, scholars have concluded that contemporary rural restructuring should be distinguished from the previous restructuring that shifted from agriculture to manufacturing. This is what is called the neo-endogenous approach. Its essence lies in the fact that the emphasis is on local and territorially integrated rural development, involving different actors within the framework of (local) democratic processes, as well as the valorisation of local resources through (social) entrepreneurship and innovation.

As rural decline is a constant phenomenon in many parts of Europe, neo-endogenous rural development is gaining support as a conceptual and policy approach.

Within this framework, rural social enterprises are identified as potential key actors, contributing to the development of territories. Studies also show that mobilising the social commitment of business entities and their collective nature and achieving common results is a lever for both developing joint dynamics with stakeholders and harmonising relations between different spatial formations.

In addition, such organisations can apply exogenous forces by buffering their impacts with locally oriented solutions that meet the needs of their rural communities. Thus, rural community-based social enterprises can play an important role in neo-endogenous cooperation, where an institutional framework that takes into account the diversity of rural areas and is able to balance cooperation between different rural development stakeholders is a precondition for increasing their competitiveness.

Regarding the fourth issue, which is about determining the ways of development of urban-rural formations, it is interesting to look at the differentiated approach to taking into account local conditions. But unlike those already mentioned, here we focus on trends in the cluster organisation of specific spatial natural and economic complexes. In other words, we take into account the influence of the environment, including its natural and economic components, on the organisational forms of activity of the population (communities). This refers to the aspect of clustering of natural and economic systems (complexes). In this regard, the authors of the article focused on a number of publications (Bian et al., 2025; Henderson & Wang, 2005; Henderson & Loreau, 2021; Hoen, 2002; Li et al., 2019; Ma et al., 2020; Petrovici & Poenaru, 2025; Rocha et al., 2019; World Development, 2015). Carefully analysing the approaches of these specialists, we should emphasise that clustering, as a process, can be carried out at different depths of cooperation, both vertically and horizontally. That is, the well-known thesis should be tied to the conditions of a particular situation under consideration or projected.

Although there are many methods for studying the links between economic sectors, most methods analyse only the links between a particular sector and all other sectors, or the impact of all sectors on the economy as a whole. However, for the authors of this article, the views that promote spatial clustering of livelihoods are of interest. Of course, cluster analysis can be useful for analysing the situation in urban-regional formations, as it can significantly contribute to the processes of harmonising relations between stakeholders who are closely related to each other.

In our case, it is essential to identify the factors that influence the choice of clustering type. Although we have partially mentioned them before, we would like to emphasise their importance once again. Firstly, it is the information component of the era of the digital economy. This force is important not only from the standpoint of promoting economic and social development, but also of transforming a different type of perception of reality, which certainly gives an influential impetus to the search for new tools for regulating relations between the urban and the rural areas. The key point is to identify the general trends in the spatial and temporal evolution of the links between the digital economy and the processes of urban-rural integration. That is, focusing on the study of spatial spillover effects and dual impacts of the digital economy and urban-rural formations, from the perspective of understanding the complexity of their relationships to promote coordinated development.

Secondly, the issue of inequality in the use of land resources, as well as the migration problem between two economically diverse spatial formations, remains important. Different practices and behaviours related to our external society support the question of the future sustainability of the population and the natural environment. It is clear that unequal access to resources and differences in technological progress change the outcomes of land management (i.e., conservation) and social behaviour (i.e., migration). Any socio-environmental management practice must be fair to diversity in land access, population, livelihoods and development in society. In this process, it is believed that diversifying livelihoods in rural areas, creating market-oriented institutions, and strong social capital contribute to increasing resilience and strengthening urban-rural communities.

Finally, three conditions for the sustainable development of urban-rural space become important: the introduction of innovative forms of economic activity that can respond to potential urban demand; local entrepreneurship that can create and expand these new activities; and social capital that can support entrepreneurship in new activities with access to credit, labour, foreign markets, and innovation, etc. Third, based on cluster analysis, a typology of urban-rural formations was conducted, taking into account the differences and patterns of demographic, economic, and spatial transformations. The typology not only confirms the complexity of suburban development but also provides a crucial basis for studying the socioeconomic forces that shape these areas. Since urban-rural formations show considerable heterogeneity, their formation processes, dynamics, relations with major cities, and trajectories vary considerably and depend on specific contexts.

Here we discuss what we call unevenly distributed spatial figures that form the suburban feature of development. By expanding the features of “spatial differentiation” that objectively emerges from the logic of spatial deployment, we challenge urban-rural dichotomies and emphasise the intercultural dynamics of change in discontinuous and historically rooted suburban areas. The article contributes to the development of results in the field related to the definition of specific types of suburban spatial formations, from the point of view of the dominants in the ordering of internal innovative variations.

In general, cluster policy incentivises all regions to promote employment growth, innovation, and entrepreneurship. Nevertheless, research has largely focused on cluster economic performance, but less on social cohesion characteristics, which are important when economic growth is created with deprivation, poverty, and inequality. Therefore, studying the dynamics of urban-rural clusters by developing theoretical models based on dynamical systems is becoming a timely issue for Ukraine.

Results

Methodological positions

The principal methodological position of the authors of the article, unlike, in particular, several researchers in Ukraine (Pavlov et al., 2024), is to consider European integration approaches from the perspective of improving social forms of governance

in Ukraine. It is known that social governance means the management of any social systems and processes, as opposed to biological, technical, technological, and other forms of governance. While the latter mostly refer to spontaneous forms of governance, social governance largely concerns conscious forms of governance. First of all, social governance involves preliminary selection of targets and means of achieving them in accordance with specific conditions and interests of the stakeholders. Here, the factor associated with taking into account the level of development of the social system, which is known to differ significantly by spatial features, becomes noteworthy. Of course, a distinctive feature of the level of development is the ability of a community to act within the framework of self-regulation and self-management. The higher the level of development of a social system, the lower its dependence on external forms of influence and management. The difficulties faced by Ukraine, particularly in the agricultural sector, have their own specifics in overcoming the problems of implementing self-organisation skills. Realising this, we conclude that it is advisable to start working with the mentality of the average citizen of the rural space. According to such views, the idea of inclusion of the rural population should be implemented not only from the standpoint of organising individual forms of activity, but also from the standpoint of its inclusion in urbanised structures. In other words, the process of convergence of rural and urban populations is being intensified. In this case, we assume that this process should significantly contribute to the development of economic relations. It is logical that it should be started in the urban-rural space.

This also applies to the organisation of urban-rural space, both as a prerequisite for intensifying the processes of interaction between rural and urban areas (convergence) and improving infrastructure, information, energy, and other types of its support, including the regulation of financial relations. This refers to the underestimation of the value of rural space as such, when spatial rent is transferred beyond its borders and hinders activities aimed at improving the lives of the rural population.

In conclusion, it is under these conditions that we hope for possible positive shifts towards a significant improvement in the conditions of rural development and the solution of the country's complex demographic problems that lie ahead. It should be emphasised that these methodological positions require an updated institutional environment for spatial development management. It should be focused on removing the contradictions that characterise the process of realisation of social, economic, and environmental interests of business entities, with the actual dominance of financial ones. It should be recalled that at present the institutional setting of environmental and economic interests is characterised by a limited motivational basis for their realisation, which is determined by the temporary presence of an institutional vacuum or "institutional traps". In conceptual terms, the institutional environment should develop in the direction of ensuring, first of all, the conditions for the reproduction of socio-ecologically oriented forms of management in the relevant space with a target orientation towards creating a quality of life.

Targets that provide impetus for further development of ensuring the rational use of territorial resources, their reproduction and improvement of the quality of the environment include overcoming the general imperfection of the legislative framework for the system of applying modern financial incentives that encourage economic

activity in the desired direction. And here we see the increasing role of the state as a guarantor, intensifying the processes of modernisation of economic activity and its transition to an innovative, socio-ecologically oriented path of development. This role consists in the formation of various institutional forms, including updated organisations and institutions, legislative documents, legal norms, etc., that would adequately respond to the needs of economic, social, and environmental development of specific spatial formations where the standard of living of the population is formed. Of course, the institutional environment should be dynamic, as economic activity itself is dynamic, always taking advantage of the surrounding urban and rural space. At the same time, it should contribute to the formation of an integral economic system based on harmony between public and private individual interests of business entities. In this regard, a significant role should be given to the harmonisation of relations between the government, business and society, and in particular to the search for new mechanisms and instruments of partnership, as well as to the formulation of innovative proposals for their creation. Here, the institution of property, and in particular the formation of combinations of property rights, becomes one of the defining institutions. The economic justification of sustainable spatial development is, thus, in the plane of sound management actions related to the institutional matrix of a particular spatial formation by establishing equilibrium property relations between business entities.

We also hope that, based on the European experience, we can look to the future with hope for a significant improvement in the situation. Once again, we emphasise the importance of implementing the practice of EU countries in the development of the spatial planning system as a specific social construct that characterises the use of certain methods of social cooperation in institutional contexts, in time and space, aimed at managing collective actions regarding the use of urban and rural space.

Model concepts

Model concepts of the urban-rural space largely correspond to the process of municipalisation of relations, due to the growing general understanding of the importance of hidden, previously unclaimed socio-cultural potentials in the development of society. The transformation of their targets is becoming typical for Ukraine. Thus, where previously economic interests dominated, now socio-cultural features are becoming predominant, in the context of which economic interests are being realised. This tendency is largely implicit, but it can still be captured by using special research methods of metasystem analysis. In this regard, in the context of the ongoing reforms in Ukraine, there is a need to find sources of social energy. Such “transformations” of life as the introduction of developed forms of the market, new technologies, etc., are only superstructures in relation to the essential forms of life that have existed in Ukraine since ancient times. Attention should now be paid to how this or that overbuilding structure will be supported by these activities, that is, the search for their unity and harmony becomes necessary. Of course, in this area we should look for sources of creative social energy, without which real transformations are impossible. It is about identifying the essential nodes of interaction between the “new” and the

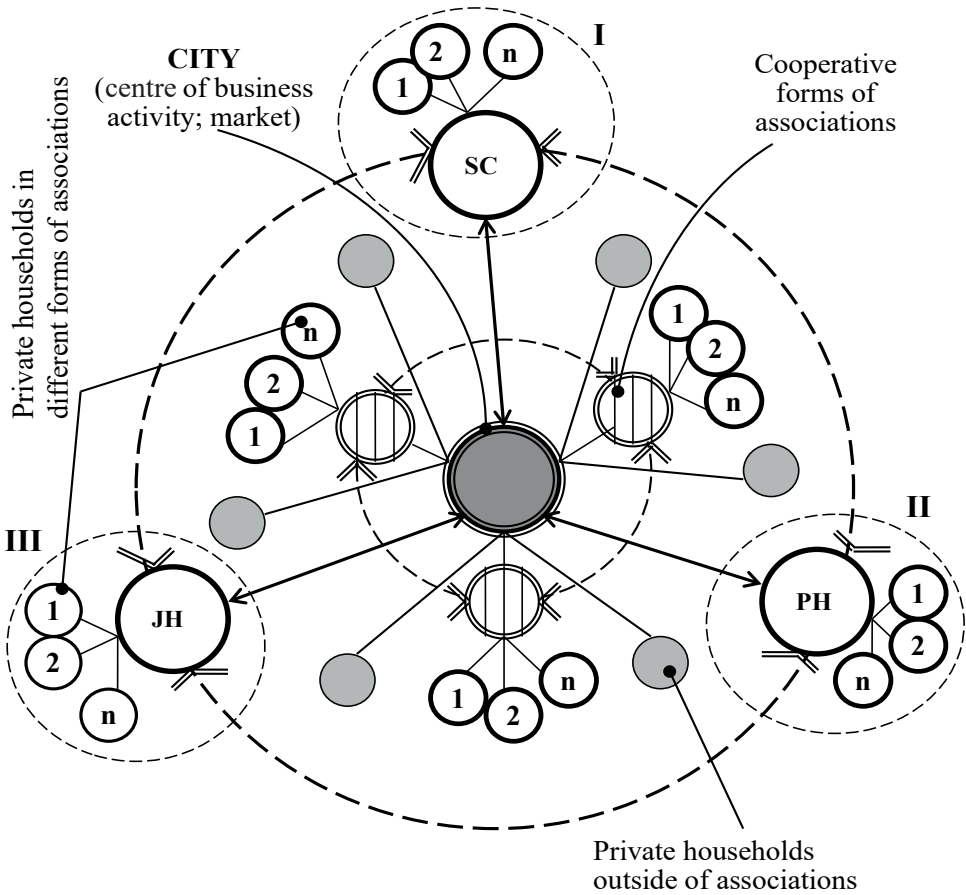
“old”, behind which a system of basic values rooted in the depths of national life is hidden. Here we mean archetypal constructions that have been formed over thousands of years by different generations, thus creating the face of a people with a very specific type of personality. In this regard, comprehensive research on the identification and development of mechanisms of self-development, which, taking into account the activation of both individual actors and reference social groups, are capable of ensuring the synthesis of artificial and evolutionary and natural foundations of development, becomes extremely necessary. This kind of interaction requires the establishment of appropriate constructive relations and connections between holders of different positions, which primarily concerns the relationship between different subcultures arising on a demographic, professional or ethnic basis. From this point of view, it is the mechanism of development of relations based on related but distinct subcultures that should underlie the new subjective organisation of the urban-rural space. In this regard, in Ukraine, the formation of this living space should be based on the principle of reviving the cultural and historical paradigm of the territory, which primarily involves a cultural reconstruction of the relations between different socio-cultural entities.

According to the above-mentioned problem, studies that, in fact, the focus on the “peripheral” level of governance, where the actual human problems that need to be addressed urgently, become important. For Ukraine, such a turn in the methodology of organising space is quite new, since in the pre-reform period, the deductive approach – from the general to the private – dominated, while now, on the contrary, the inductive approach – from the private to the general – is dominant. The new methodology aims at solving the problems of an individual and a specific territorial community. However, critically assessing the current state of affairs in this area, it should be noted that approaches that do not correspond to the spirit of the times on which the system of life space management is built are still generally preserved. It should be borne in mind that this phenomenon is associated with a certain inertia of territorial development itself.

The material basis for the progressive spatial development of the economic system is the intensification of the processes of interaction between the rural and the urban. While the urban is innovative, the rural, on the contrary, is conservative; such interaction ensures the semantic completeness of economic activity. The generating function of the urban, in ensuring reproduction processes, is the interaction of the economic pair “production – consumption”. The rural areas play an important role in this system. Today, in the context of the war in Ukraine, its importance in ensuring survival in extreme, critical historical situations is especially felt, since its production processes are based on renewable energy.

Therefore, special attention should be paid to the object of management, which is the economic relations that arise in the course of achieving the paired targets of urban and rural development. The main thing here is not to achieve a separate goal, but to ensure a balance in the interaction of objects of innovation and conservation functions from different sectors of economic activity (social, economic, environmental). In this formulation of the issue, it is possible to put a real barrier to the destructive power of techno-spheric processes characterised by an unbridled exponential growth of destructive loads. This emphasises the importance of strengthening spatial economic systems of rural development, or more generally, the agrosphere.

In this regard, the authors focused on the identification of the market model of the formation of a multi-structured agricultural enterprise in the urban-rural space (Figure 1). The type of activity is a rather complex system of relations and forms of interaction between various subjects and objects. However, there is a certain topological basis in these relations that reflects the well-known general scheme of the process of streamlining the market-oriented economic system. In this scheme, the basic elements are private households, which form the basis of all types of agricultural associations. However, unlike traditional approaches, here the private household is considered primarily as a category that has the properties of self-deployment and self-growth. Private households, which as primary business entities can be organised into different structures by type of ownership – state, collective, private, and others, but at the same time, bring with them a special cultural connotation.



I; II; III – large economic associations:
SC – state corporations, JH – joint-stock holdings; PH – private households

Figure 1. Conceptual scheme of the functioning of the urban-rural spatial formation

The scheme shows possible types of associations in the form of state corporations (SC), joint-stock holdings (JH), private households (PH), and other forms of cooperative associations. Today, as we know, private households play a significant role in agricultural production, but they are unfortunately not integrated into a common holistic system with other forms of management. One detail that has arisen in relations with the market, or rather the phenomenon of the “intermediary”, attracts special attention. Here, it is important to analyse the “intermediary” as an economic (business) category. A close look at the behaviour of the “intermediary” reveals its aggressive position, with its hypertrophied role in the system of economic relations. The “intermediary” most often usurps one of the most important systemic functions for its selfish purposes – the regulation of relations between business entities. Having seized a free management niche that should rightfully belong to the state in the person of territorial authorities or other social entities as representatives of the interests of society as a whole, the “intermediary” intercepts free business entities at the market and appropriates the main share of the rent received from agricultural activities through shadow mechanisms. Moreover, since the unregulated private way of appropriating this rent currently dominates, its role in shaping the economy of urban-rural formations is practically reduced to zero, as the process of its reproduction is interrupted at the stage of redistribution. This circumstance leads to the fact that it is impossible to maintain reproductive cycles in certain territories on their own; the economic process remains incomplete. In order to fill this gap, it is necessary to create special institutions that ensure the development of the infrastructure of the territories, promote the accumulation of capital in the hands of the producer, and ensure a fair redistribution of income in favour of the development of the territorial community. Thus, without disrupting the system of independent interaction of business entities in the market, we can talk about the process of regulating market relations by territorial governance structures. Here we discuss the harmonisation of market systems of varying degrees of orderliness. Namely, a market with a high degree of spontaneity, when private households enter the market on their own. The second type ensures the interaction of private households with the market through various forms of association. It can be characterised as a semi-ordered type of interaction. The third type is categorised by the fact that a block of institutional ordering appears in market relations, with appropriate infrastructure support. The distinguished types of market relations largely determine the peculiarities of the spatial organisation of economic systems. The format options can be quite diverse, but if we want to form a highly developed agrosphere in social and production terms, then in this case we should rely on the third, institutional type of market relations. This is understandable, since the development of an efficient infrastructure requires significant costs and specialised knowledge, which can only be realised within a highly developed economic system. Since all types of economic systems usually exist simultaneously on the territory, the problem is to find a certain proportion in their combinatorics that is appropriate to the specific conditions and ensures the required efficiency.

In general, the conceptual urban-rural territorial-spatial model, as a holistic entity that sets a special regime of interaction between business entities in market conditions at the regional level, acquires a rather structured form, as shown in Figure 1.

Based on the content of the proposed scheme, virtually all of its elements individually, as well as the system as a whole, require their spatial ordering. The trigger for the need for such an ordering may be the process of organising the market system. The extent to which it is actively carried out determines the depth of the economic system as a whole.

Cluster organisation

The definition of urban-rural spatial formations allows us to consider them as relevant territorial clusters within which it is convenient to carry out a set of measures to streamline economic activity, including the factor of harmonising the interests of stakeholders involved in the process.

The conditions for achieving this type of harmonisation in Ukraine are certainly different. Thus, it is possible to speak about the need to differentiate urban-rural formations in order to develop an appropriate justification for tools to improve the efficiency of managing the integrated development of the agrosphere. In this case, the methodology of targeted point management methods that take into account the specifics of the formation of economic systems of the respective urban-rural territories becomes essential.

Given the different forms of ownership of resources and means of production, additional institutions for managing urban-rural formations need to be introduced. However, institutions should be viewed from two perspectives. Firstly, as a system of certain links between stakeholders, conditioned by external conditions of survival, which constitute the framework of the community to ensure its sustainability and reproduction as a social integrity. Secondly, it is a system of governing bodies that manage the development of urban-rural formations. From this perspective, an urban-rural cluster is a space within which relations between business entities interacting on certain agreements are regulated. In other words, an urban-urban spatial cluster is a complex, primarily institutionalised, multi-level set of relations between stakeholders interacting in a specific territorial environment and aimed at creating a comfortable living environment.

It is advisable to differentiate between urban-rural spatial formations based on the general picture of the socio-ecological and economic conditions that have historically developed and will be reproduced to some extent in the future post-war state of Ukraine. The analysis of the situation in this case makes it possible to distinguish them based on possible scenarios of development and assessment of the business environment for urban-rural formations, including forecasting the behaviour of possible partners or actions of competitors, in different market segments in which clusters act as a seller or buyer, primarily at the national level.

It is clear that forecasts of the development of urban-rural spatial formations are impossible without tracking current information on the relevant processes. For this purpose, there is an effective method involving monitoring of the socio-economic and regulatory environment. In addition, the method of creating a system of reserves is of interest, which is close to insurance. Thus, the identification and assessment of influ-

ence factors allows determining the areas where management resources should be in focus, and vice versa, the areas from which part of the resources can be released.

A preliminary expert assessment of the territory of Ukraine according to the structure of factors that have developed in the regions of Ukraine and the peculiarities of economic activity in them makes it possible to identify 15 regional types of influence on the formation of urban-rural spatial clusters (Figure 2). In particular, the factors of influence that were taken into account include the peculiarities of natural resources, the ecological situation, the social characteristics of regional population groups, the cultural component and, of course, the dominant type of economic activity. Conventionally, they can be linked to the names of cities that characterise certain typical factors of influence. These are: Kyiv, Lviv, Uzhhorod, Volyn, Khmelnytsky, Cherkasy, Kharkiv, Donetsk, Zaporizhzhia, Dnipro, Odesa, Mykolaiv, Kherson, Simferopol, and Yalta types.



Figure 2. Scheme of differentiation of the territory of Ukraine by complex signs of factors influencing the development of urban-rural spatial clusters.

Uzhhorod type includes the Zakarpattia region. Lviv type includes the Lviv, Ivano-Frankivsk, and Chernivtsi regions. Volyn type includes the Volyn and Rivne regions. Khmelnytsky type includes the Ternopil, Vinnytsia, and Khmelnytsky regions. Kyiv type includes the Kyiv, Zhytomyr, and Chernihiv regions. Cherkasy type includes the Cherkasy and Kirovohrad regions. Dnipro type includes the Dnipro region. Kharkiv type includes the Kharkiv, Sumy, and Poltava regions. Donetsk type includes the Donetsk and Luhansk regions. Zaporizhzhia type includes the Zaporizhzhia region.

Kherson type includes the Kherson region. Mykolaiv type includes the Mykolaiv region. Odesa type includes the Odesa region. Simferopol type includes the internal part of the Crimean Peninsula. Yalta type covers the coast of the Crimean Peninsula.

Despite the fact that the presented scheme of differentiation is based on the basic characteristics of the pre-war period of Ukraine, we believe that it largely reflects the principle of the approach to clustering the urban-rural division of the space of activity in the agricultural sector. Moreover, since Ukraine's economic system is characterised by a high level of resilience. We hope that in the postwar period it will largely recover and take on its historically inherent contours.

Discussion

In order for the process of clustering of the urban-rural space to move forward, it is necessary to generally organise the very targets of transformations. This implies that transformations in the agricultural sector should aim not only at the formation of cost-effective agricultural production, but also at creating a basis for the reproduction of national and cultural traditions as a pillar of Ukraine's statehood as a whole. Then the "costly" nature of activities in the agricultural sector becomes clear and justified. From an economic point of view, this is due to the fact that agricultural products are consumed by all members of society without exception, and the responsibility for maintaining the natural resource indispensable for this product is shifted to the producer alone, which is not fair. From a social point of view, a somewhat dismissive attitude to the agricultural sector threatens to lose the national identity of the people living on their own land. Considering the agricultural sector as a national treasure, its supra-economic nature is immediately apparent, and thus, the role of the subjective component in its management increases. Simply put, it is not the economic paradigm of management that comes to the fore, but the human being in many of her or his manifestations (spiritual, cultural, economic, etc.). Then the inadmissibility of "shock" measures to regulate agrarian relations and restructure the means of agriculture becomes obvious. An alternative to the "shock" of the reform process should be the tactics of evolutionary transformations while maintaining the strategic course. It should be remembered that the agricultural sector as a system is characterised by extreme conservatism and inertia, so, from a methodological point of view, it should be considered in different spatial and temporal coordinates than industrial production. The adjusted image of the general goal of reforming the agricultural sector of Ukraine's economy automatically determines the set of tasks that need to be solved. The specifics of the tasks, in turn, are determined by a set of external and internal factors of social, economic, environmental, and cultural nature. We believe that focusing on the spatial aspect of clustering the organisation of the agricultural sector through the recognition of urban-rural formations is one of the effective steps towards improving the situation in general.

Managing the accessibility implementation process

Since we are considering a living socio-economic model rather than a mechanistic one, it is natural that a person plays a decisive role in it, as she or he is the cause and effect of her or his actions. As it follows, the main components of the movement in the process of transformation are the will of a person, or rather the totality of the interaction of wills, as well as ideas about the need for essential changes that should take place. In such a semantic construction, in order for a grassroots positive reflection on transformation to take place, the subject of governance must have, first, an understanding of the need, and, second, trust in the initiators of transformational events. In the harsh conditions of a general systemic crisis and lack of trust, this is not easy. The point here is not words and promises, but concrete actions aimed at improving people's lives. However, these actions should not be philanthropic. The peasant, as it has happened many times in history, needs real freedom. It is clear that freedom that is not supported by a set of socio-economic attributes of protection can turn into its opposite – another enslavement. Thus, the process of fading away of agrarian reforms, which is currently observed, is determined precisely by the farmers' bewilderment, their complete insecurity, and sense of uselessness. Thus, there are socio-economic and psychological prerequisites for the need to formulate a special protective policy for the agricultural sector. In our opinion, the first step should be taken toward the primary unit of the agricultural sector – the private household. Significant legal support for people is needed to make them feel more confident and independent from the harmful effects of the deepening crisis. In particular, this concerns the creation of dynamic programmes for short- and medium-term periods to support the development of personal subsidiary plots, gardening, horticulture, and animal husbandry. An amendment to the Law of Ukraine on Private Peasant Farming to enshrine measures to support them and to provide for preferential conditions for their activities would be highly desirable. Another effective force that should act as an initiating point for increasing the overall activity of the agricultural sector is cooperation. And here, first of all, effective small-scale cooperation of the innovative cluster type should play its role, allowing for taking into account the interests of individual independent producers related to improving the quality of management and logistics. The focus on small-scale cooperation is aimed at creating and sharing storage and processing facilities, developing infrastructure in a given area, pursuing a coordinated pricing, sales and supply policy, various types of mutual support, including financial support, and protecting their regional markets. In a more detailed form, it is the formation of credit unions with the status of non-profit organisations from solvent agricultural producers, and later cooperative investment banks focused on servicing small and medium-sized enterprises. The purpose of such cooperative banks is to combine banking activities with mutual lending funds. Other priority areas should be those focused on the development of local integration links between agricultural production and processing enterprises and the trade sector and consumer centres, as well as the development of market infrastructure for the food sector in the territory. The process of formation of regional agricultural markets is of fundamental importance. This is where all kinds of state support for the development of local

marketing systems, that is wholesale food markets, auction trading, food or agricultural exchanges serving certain territories, etc., becomes important. At the national level, the priority should be to create institutional prerequisites for enhancing the participation of financial capital in the reform and development of the agricultural sector. It is well known that the difficulty lies in the fact that due to the low concentration of capital in the agricultural sector, its participation in banking and industrial capital is rather limited, and moreover, there are no guarantees that large capital will not suppress small-scale production and the trade network of farmers. That is why specific financial and credit institutions are needed to help smooth out the existing contradictions. Such institutions include, first of all, cooperative investment banks.

The issue of property, in particular land ownership, is within the competence of the national level. This is the cornerstone of the accusation of different views, the irreconcilability of which leads society to a split, and, very dangerously, to the separation of society and the state, to undermining the statehood in general.

To summarise, it should be emphasised that in order to intensify creative processes in carrying out reconstructive actions in the agricultural sector, it is advisable to organise consulting structures on a non-profit basis that would be able to combine the intellectual potential of specific territories, including scientific, entrepreneurial, and managerial components. At the same time, considering models of reforming the agricultural sector, it should be borne in mind that in the difficult socio-economic conditions in which Ukraine is currently operating, the only correct recommendations and proposals are those that contribute to a real turn of the management system towards the worker, who is directly connected to the land over which so many debates are being held.

Conclusions

Following the European trends in spatial development, we pay attention to the dominance of the social aspect of problem-solving. First of all, it aims to change the traditional approaches to the development of territories, making the process more interactive and inclusive. Given this context, it is advisable to pay attention to the management of urban-rural spatial clusters by introducing advisory approaches that involve the intensification of multi-level communications between all participants in the process (stakeholders).

We emphasise that today, the urban should play a special role, which will be determined by its systemic function, focused on ensuring the development of a holistic economic reproduction process of the urban-rural space. Under such conditions, a high level of resilience of the economic system is ensured by supporting the principle of managing paired objects in the “rural-urban” system. Since the initial energy that ensures the closedness of reproductive processes in economic relations lies in the plane of human interaction with the earth, the primary element in the rise of the agrosphere should be personal subsidiary plots, which, in fact, concentrate the entire metaphysics of the economy. It is in this cell that the fullness of the variety of forms of economic relations that unfold in space and time, depending on the conditions determined by life itself, is located. Ultimately, it is the human being who is the focus of both the

problems and the means to solve them. That is why it is so important and necessary to take measures that promote a real turn to a socially oriented system of governance, that is, facing the worker directly connected to the land, which is the subject of such an extensive debate.

Recognition of the urban-rural space as a special territorial cluster provides real opportunities to improve the quality of management decision-making to reconcile public and private interests, as well as to strengthen citizens' trust and responsibility for shaping the future of their living space. In addition, the defined object of spatial planning, as a process that takes into account not only economic and geographical aspects but also social ties between people and groups, focuses the community's attention on targeted guidelines for actualising levers of influence on the development of the quality of the living environment, and business on finding effective means of interaction with the authorities and the community.

The implementation of an urban-rural spatial model of agricultural development in Ukraine requires comprehensive changes to overcome the dominant principle of a centralised management system and to further increase the level of public participation in ensuring the inclusion of economic activity. The ongoing decentralisation process in Ukraine is currently creating the preconditions for greater involvement of the public and business in decision-making processes.

In this vein, in order to intensify the process of convergence of rural and urban social systems, we should promote the development of public activity, increase transparency of governance, create platforms for discussing problematic issues, introduce modern technologies of social organisation of the community, etc. Thus, although the challenges are significant, trends toward the integration of the social approach are already evident, and Ukraine has the potential to implement it.

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