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Socioeconomic factors associated with the economic empowerment of rural women in European Union countries

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Abstract. This article focuses on rural women's economic empowerment and influencing socioeconomic factors. Economic empowerment is not a spontaneous process in the life of rural women. Still, it requires a lot of effort and is affected by various conditions and factors to be a full member of society. The article aims to identify socioeconomic factors related to the economic empowerment of rural women in European Union countries. The analysis was based on Eurostat data for the years 2013-2022. Results disclosed that special attention in the process of economic empowerment should be focused on rural women with low income, experiencing poverty and social exclusion. Correlation and regression analysis revealed that the economic engagement of women at risk of poverty or social exclusion in rural areas is mainly affected by rural women's age and educational attainment, employment and unemployment status, and income level. According to the results, higher education, special policy tools, and

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local community support can be considered as measures to facilitate women's economic empowerment in rural areas.

Keywords: economic empowerment, rural women, European Union, Lithuania, Poland.

JEL Classification: I24, J16, Z13.

1. INTRODUCTION

Women play a key role in European Union (EU) societies, but their economic empowerment is still diverse (Wei et al., 2021; Nguse et al., 2022; Adeleye et al., 2024) and not always perceived properly. The need to understand the extent to which socioeconomic factors determine the economic empowerment of rural women provides prerequisites for analyzing the importance of education in a woman's life. Women's economic empowerment is an issue of human rights and social justice (Kabeer, 2009). Literature studies reveal that the issue of women's empowerment in society is important in several aspects: what benefit empowerment brings to rural women and society; what factors are important in strengthening the empowerment of rural women (Sell and Minot, 2018); how the empowerment of rural women in selected countries enables them to become/be full members of society. Moreover, empowering women and girls as economic actors is crucial to achieving inclusive and sustainable development (Sergejeff and Di Ciommo, 2023). These issues are typical to various countries, but especially those that are less developed (Nguse et al., 2022); where the role of women in the life of the country is recognized - but nothing is changed in their favour, where more women than men live; where groups of older women predominate; when women are still able and willing to work, but their involvement and participation in society is limited (e.g. due to retirement age).

Economic empowerment means that women may want to engage in various activities, but it is difficult due to different objective and subjective factors. In our study, we examine the position of rural women, given that there is a lack of consistent research specifically focused on rural areas. In addition, the rationale for the notion of research was the general conclusions of previous studies, which clearly emphasized why it is important to monitor and evaluate the empowerment of women, including rural women (Demetriades, 2009; Women..., 2016; Poverty..., 2022; OECD, 2022; Bhattacharyya, 2023). Women are key actors (agents) for local development. It is important to emphasize that rural women's empowerment is essential to achieving women's rights despite living places and increasing their well-being (Bali, 2006). Studying women's empowerment indicators can be useful for social policy planning and programming, especially adopting it to local levels, and can help drive change in data collection. Women's participation in social processes is a fundamental condition of national development, and economic empowerment has the potential to create more competitive and sustainable economies (Khan et al., 2017). Researchers point out that women's economic empowerment offers a primary way out of poverty (Bieri and Sancar, 2009; Kabeer, 2009; Wei et al., 2021). The given arguments show why research on rural women's economic empowerment is not inexhaustible. Accordingly, this problem is not very pronounced in the entire EU. Still, in many countries, it is recognized that it is particularly for rural women who do not fully participate in social and economic activities. The challenge in rural areas is the invisibility of women's work in agriculture and the under-representation of women in farm ownership and agricultural decision-making (Franić and Kovačiček, 2019). Rural women's situation requires separate attention and evaluation of their economic empowerment due to territorial restrictions and the associated usually smaller involvement in society.

Research aim is to identify socioeconomic factors related to the economic empowerment of rural women in EU countries. The research objectives: 1) to examine the concept of women economic

empowerment in the context of rural development; 2) to determine the links between socioeconomic factors of rural women economic empowerment.

2. LITERATURE REVIEW

2.1. The concept of women empowerment and its types

The concept of empowerment is described using various approaches, depending on the context and relevance of empowerment. It has different meanings in separate socio-cultural, economic, and political contexts. Also, the choice of how to describe empowerment depends on different actors: researchers, policymakers, institutions, NGOs, gender equality activists, women themselves, etc. The most general attitude to women empowerment concerns constructs of agency, choice, opportunities, resources, and power (Sadan, 2004; Costa et al., 2023). Various literature (Demetriades, 2009; Mandal, 2013; Sell and Minot, 2018) reveal that women empowerment concept has several closely related words used by different authors e.g. gender-responsive, gender-sensitive, women power status, authorize, delegation, self-strength, self-control, self-reliance, personal choice, capabilities, independence, own decision-making power – what highlight changes related to gender equality over time. Sadan (2004) described various notions of empowerment, including its relations with power, seeking aims, authority, personal development, social and economic activities, engagement, etc. In this context, he discussed that women's empowerment is important when it reflects the geographical community, local area, and its development; also, it means women's recognition and importance in their personal growth and activities, as well as in the residential environment and public life. Women's isolation and separation from real social and economic life diminishes their human rights and personality. Demetriades (2009) defines women empowerment as concrete measures that focus on objective data such as the percentage of women in professional, technical, managerial, and administrative jobs, the number of women in parliament, and the number of decision-making ministerial posts held by women. This notion reflects different levels: community, local, region, or country. Allahdadi (2011) pointed out that women's empowerment means having the necessary ability to undertake several tasks, both individually or in groups, so that they have further access to and control of society's resources. The report about women empowerment (Women..., 2016) states that women empowerment is not just a tool for helping prevent poverty. Still, it should be all about women's dignity, status, and well-being, where more responsibilities are given to women to participate/be active in economic and social activities. Raj et al. (2017) pointed out that women's empowerment is associated with transformation, which changes their situation from worse to better so that they gain independence and freedom of self-determination, recognized as an essential part of empowerment. Later, Raj et al. (2021) added that the concept of empowerment frequently used in the literature refers to an observed status of a person or a group instead, which, in turn, could reflect the underlying empowerment process of change. Costa et al. (2023) pointed out that the question of women's empowerment is the most relevant one for low- and middle-income countries. Bhattacharyya (2023) described that women's empowerment means establishing their status in terms of self-esteem, the right to choose access to opportunities and resources, the right to control their own lives, and social empowerment. Also, he pointed out that empowerment is like a self-supportive mechanism starting from decision-making and ending with overall well-being. UNESCO (2023) suggested that the term empowerment is based on a sense of participation, increasing self-esteem, enabling the establishment of networks, and recognizing having a role in life.

Insights from the literature reveal that women empowerment is described by some types that need more attention. Various scientists recognize that the empowerment of women, including rural women, can be categorized into five main types: social, educational, economic, political, and psychological (Mandal,

2013; Yıldırım and Koroğlu, 2024). This enables to rethink and identify what indicators are typical or mostly recognized as empowerment indicators.

Following Lennie (2002) the significant types of empowerment can be summarized into groups such as: a) community empowerment; b) organizational empowerment; c) political empowerment; d) psychological empowerment. Women empowerment issues later has been divided into *five* components (Women..., 2016): women's sense of self-worth, their right to have and to determine choices; their right to have access to opportunities and resources; their right to have the power to control their own lives, both within and outside the home; and their ability to influence the direction of social change to create a more just social and economic order, nationally and internationally. Furthermore, Roy et al. (2018) explored it in *seven* domains: economic empowerment, household empowerment, participation in the political and social sphere, health, involvement in fertility-related decisions, media, and leisure time/time allocation. Other authors analysed women's empowerment, focusing not on multidimensional aspects or factors but on some concrete aspects. Lopez-Claros and Zahidi (2005) pointed out that *political empowerment* includes such dimensions (indicators) as the number of female ministers, the share of seats in parliament, women holding senior legislative and managerial positions, and number of years a female has been head of state. Duflo (2012) and Bhattacharyya (2023) mentioned that *educational empowerment* is a basic criterion for empowerment. Bhattacharyya (2023) analysed women's empowerment through education and found the main barriers to it: socioeconomic conditions, early marriage, social restrictions, household management, gender discrimination, and educational opportunity. These mentioned often concern rural or disadvantaged areas. *Economic empowerment* is very basic and prior indicator among various authors (Mandal, 2013).

As types of women's empowerment have specific patterns, further attention is drawn to women's economic empowerment and its patterns and related indicators. It is traditionally recognized that economic empowerment is a powerful tool for empowerment, primarily in the fight against poverty (Mandal, 2013). Literature indicates that women's empowerment is strongly associated with poverty (Rathnachandra and Malkanthi 2021). Poverty as a multi-faceted phenomenon can be explained by the lack of opportunities to participate effectively in society, the lack of good jobs and access to education (Khan et al., 2017). Most authors (Sell and Minot, 2018; Peng, 2022; UN Women, 2024) pointed out that the education level of rural women is mostly the primary factor affecting poverty of women, but also a direct factor that leads to empowerment in various spheres of life, even eradicating generation poverty and achieving common prosperity. Both in the literature and the activities of various organizations/institutions, an important thread covers the discussion on ways of strengthening the economic position of women. Greater women's participation in the labor market and stronger social relations, social programs can strengthen women's economic position and help reduce poverty and rural vulnerability more effectively and sustainably (FAO, 2015). Economic empowerment raises the voice and visibility of women's activities and innovations created for the community or all of society. Moreover, it assures that women (not only men) can also own or control economic resources, whether economic development is becoming visible. This is especially relevant for women who live in districts, villages, remote from the city, or empty areas.

Economic empowerment in economic activities and their development is known as cooperation, a key response to rising poverty levels and the feminization of poverty (OECD, 2022). Duflo (2012) explained economic empowerment as a bi-directional relationship between economic development and women's empowerment. He defined it as the improvement of the ability of women to access the constituents of development, e.g. health, education, earning opportunities, rights, and political participation. UNESCO (2023) pointed out that women's economic empowerment related to access to education and employment has mutual relations with political decision-making and civic participation. This explores that women's political inclusion is related to faster economic development (Duflo, 2012). The UNESCO (2023) study based on describing women's situation support in society emphasized work as a source and powerful tool

of empowerment that strengthens independence and has an impact in enhancing the sense of usefulness and belonging to a community. Pocius (2020) disclosed that the levels of women's differentiation in the labor market are far from sufficient because there are hidden differences in the situation of urban and rural people. Insufficient inclusion of rural women also causes rural women to be deprived of fulfilling their basic needs. Accordingly, through economic participation, women can enhance their self-esteem and status (Alam et al., 2015). Furthermore, women's economic empowerment is important from various aspects (Table 1).

Table 1

Importance of women economic empowerment

Factor of importance	Explanation	Source
Women's economic empowerment is essential to achieving women's rights and gender equality	Women's economic empowerment means ensuring women can equally participate in and benefit from decent work and social protection; access markets and have control over resources, their own time, lives, and bodies; increased voice, agency, and meaningful participation in economic decision-making at all levels, from the household to international institutions.	Allahdadi (2011); OECD (2022); UN Women (2024)
Women's economic justice and rights in the economy	Promoting women's economic empowerment and closing gender gaps in the world of work are key things to achieving the SDG	Alam et al., 2015; UN Secretary... (2016); Pocius (2020)
When more women work, economies grow	Women's economic empowerment increases economic diversification and income equality for shared prosperity; closing the gender gap could give the global economy a boost	IMF (2018); Didana (2019); Moody's Analytics (2023)
Increasing women's and girls' educational attainment	Contributes to women's economic empowerment and more inclusive, environmentally sustainable economic growth; Promotion of education, upskilling, and re-skilling; Cognition of technological transformations affecting jobs; Promoting income-generation opportunities in the labour market despite generation poverty.	Wei et al. (2021); OECD (2022); Bhattacharyya (2023); UN Women (2024)
Women's economic equality is good for business	Companies greatly benefit from increasing employment and leadership opportunities for women; Women increase organizational effectiveness and growth; Companies with three or more women in senior management functions score higher in all dimensions of organizational performance.	Demetriades (2009); UN Women (2024)

Source: made by authors.

In recent years, many international organizations (e.g. World Bank, United Nations, OECD, WHO) and various academics have monitored and evaluated women empowerment situations worldwide, but also going to the local level. Many authors have analysed women empowerment on separate levels - national level (Sell and Minot, 2018; Rathnachandra and Malkanthi, 2021; Yıldırım and Köroğlu, 2024), regional, local or community level (Women., 2020; Peng, 2022). In addition, key insights on the types of empowerment (political, economic, technological, social, etc.) were provided, as outlined in previous paragraphs. The scientists also analysed and evaluated women empowerment indicators (e.g. number of female ministers; involvement in paid work; income from non-farm activities; education status; employment status; access to own property; etc. (Khan et al., 2017; Franić and Kovačiček, 2019).

In conclusion, it can be stated that the multi-dimensional concept of empowerment and its types translates into how it is measured, where there are no recognized methods of measuring women's economic empowerment as the best (Martínez-Restrepo et al., 2016). Women empowerment includes both objective and subjective dimensions, where traditional measures include employment, income, and education. Education or employment has often been used as empowerment indicators in research, but these should be viewed as enabling factors rather than empowering outcomes (Sell and Minot, 2018). Women's economic empowerment promotes cooperation and denies various forms of discrimination. This means that the evaluation of women's empowerment should be relevant to the specific context.

2.2. Key patterns of rural women economic empowerment

Specific attention in many publications and reports is given to rural women's economic empowerment and related issues. Shortall and Bock (2015) noted that distance and geography shape women's lives in rural areas across Europe, especially concerning their empowerment potential. Moreover, they stated that gender inequality is a structural and enduring characteristic of rural areas. However, in modern society the boundaries between many rural and urban areas are weakening or just very clearly highlighting where the differences are.

Franić and Kovačiček (2019) disclosed that the relevance of gender empowerment in rural areas mainly concerns the areas of agriculture and rural policy, as the problems of inequality between women and men. This leads to traditional gender roles and related stereotypes.

Though education is a basic factor in increasing women's economic empowerment, especially in rural areas (Didana, 2019), women's limited access to education means they remain uneducated compared to men, so they willingly take up work in the informal sector. Moreover, education is recognized as an effective means of preventing the intergenerational transmission of poverty what especially important in relation to women, who, as housewives, are its main transmitters (Nie and Wang, 2020). The example of Mongolia shows that education can be seen as an important asset for rural girls, primarily because their future as pastoralists is less clear than that of boys (Bieri and Sancar, 2009). The level of education, education status, and number of years of education of women are argued to be a basic factor that affects their economic empowerment (Asmare et al., 2017). Education as knowledge strengthens competencies and skills needed in diverse economic activities. If women's education does not meet the requirements of the labor market or they do not have a job at all - this, combined with the fact that women occupy a secondary position in the labor market and are obliged to perform labor-intensive work for low wages, contributes to women's poverty (Zanbak and Soykan, 2023). UNESCO (2023) also emphasized that women's economic empowerment goes hand in hand with education and training.

Allahdadi (2011) outlined that rural women's empowerment should be implemented to satisfy their diverse needs and enhance community participation processes that can be important to social, technological, political, and psychological empowerment. As Pocius (2020) observed, urban and rural women's activity and employment indicators are usually different compared to other target groups. The author notices that in various countries, the employment structure of residents of rural regions is extremely unfavourable for women, as these areas lack jobs in the service sector that they could successfully fill. So, it can be said that the higher the employment and activity indicators, the more favourable the changes in the population's social structure at the country's local level.

Depending on the country's level of development, the economic empowerment of rural women is closely linked to the income they receive, which can maintain poverty and poor well-being or encourage positive change (Mukaila et al., 2021; UN Women, 2024). This shows that the lack of activities or their absence limits the amount of income women receive.

Didana (2019) analysed various determinants of rural women's economic empowerment in agricultural activities. He found that variables such as age, family size, education level, household income, off-farm income, employment/doing any paid work, ownership of property, credit utilization, distance from the market, access of information and participation of community affairs were found to be a significant determinant of economic empowerment of rural women through agricultural activities. Thus, women's empowerment is not an easy problem because it is influenced by many factors that depend on the specifics of the country, the characteristics of the place of residence, and the subjective characteristics of the person. Thus, we suppose that employment is a significant factor in strengthening rural women's empowerment in the EU countries we studied.

In conclusion, it can be noted that raising the economic empowerment of rural women will be difficult if they are constantly accompanied by problems such as poverty, low / shorter social security (work) years, lower positions, violence, no/or low education, etc. The traditional choice of so-called female professions also shows how much empowerment weakens or strengthens the position of women in economic and social activities. Rural women's economic empowerment will likely remain a sensitive issue in the future as the societies of many countries are aging, the average life expectancy is increasing, and there are better medical services, which means that women seek and want to remain involved in various not only social but also economic activities.

3. METHODOLOGY

In the first stage of the research, selected indicators were analysed in all EU-27 countries, then two neighbouring countries were examined: Lithuania (LT) and Poland (PL). These countries belong to Central and Eastern Europe, and they are similar in terms of cultural and historical conditions and path of socio-economic development. Moreover, an important factor in selecting countries was the similar value of the Gender Equality Index (Gender..., 2022): LT ranks 20th (60.6 points out of 100), while PL ranks 21st (57.7 points). However, in these countries, women's employment and unemployment rates differ from the EU average in rural areas. It should be emphasized that in PL and LT, the share of women in the population is similar (2023); in LT, it is 53.2%, and in PL, 51.6%. The percentage of rural women is also similar; women aged 15-64 constitute 49.0% of the total population in rural areas in LT and 48.7% in PL (Eurostat, 2024b).

Data. Objective data, as statistics, especially available to many countries - is a suitable tool for analysing the situation of women's empowerment and its changes. However, to assess the different aspects of the economic empowerment of rural women - the problem of data availability is encountered (Poverty..., 2022). The data source for the calculations carried out in this study was Eurostat (Eurostat, 2024a). Indicators mostly available for all EU-27 countries were selected and the time range covers 2013-2022. The following indicators for rural areas were analysed: (1) Women employment rate (20-64 years), %; (2) Women unemployment rate (15-74 years), %; (3) Women tertiary educational attainment (25-34 years), %; (4) Women tertiary educational attainment (15-64 years), % (5) Mean equivalised net income of women, thousand EUR; (6) Women at risk of poverty or social exclusion, %. Eurostat methodology was used to define rural areas (Eurostat, 2024a). According to the degree of urbanisation classification (DEGURBA), rural areas are thinly populated local spatial units (LAU or communes) where at least 50% of the population lives in rural grid cells.

Methods. The concept of interdependence is used to examine the impact of socioeconomic indicators on women's economic empowerment in rural areas. This helps to identify how strongly one or another socioeconomic indicator may affect the economic empowerment of rural women. The hypothesis is proposed based on the literature review: (H1) Employment is a significant factor in strengthening rural women's empowerment in the studied EU countries. Correlation and linear regression analyses were carried

out to determine the significance of the relationships between the variables. Pearson's correlation coefficients were calculated. The study examines the correlations between women's employment and the mean equivalised net income, between women's tertiary educational attainment and the mean equivalised net income of women, and other selected indicators. The statistical significance of the regression model was checked against the values obtained from the ANOVA table. The regression model is statistically significant when the p-value of the F-criterion is 0.000. A comparison method was also used, which enabled the comparison of Lithuania with Poland and the exploration of rural women's empowerment across EU-27 rural areas. Data were processed with IBM SPSS Statistics 27 software.

Study area. The justification for researching women's empowerment is the observed gender inequalities in EU countries. Despite policies aimed at achieving gender equality in the EU (Communication from the Commission..., 2020; Teevan, 2021; Sergejeff and Di Ciommo, 2023), there are still large differences between women and men, which are visible in various aspects of life, such as access to the labour market, pay and working conditions, and leadership in decision-making (Cohesion in Europe ...2022; Ninth Report..., 2024). In 2022, the EU's employment rate for men (aged 20-64) was approximately 11 percentage points higher than for women (79.9% vs 69.2%). On the other hand, significantly lower employment rates for women do not translate into a higher unemployment rate in EU countries (Ninth Report..., 2024). At the EU level in 2022, the unemployment rate for women was only 0.6 percentage points higher than for men (Table 2). In the surveyed countries, there were slight differences, most visible in Lithuania (by 1 percentage point). Moreover, women are more at risk of poverty and earn less, which is especially visible in Lithuania, but they are better educated than men.

Table 2

Gender gap* by dimensions in Lithuania and Poland, 2022

Indicator	EU	LT	PL
Employment rate (women)	69.2	78.6	70.3
Employment rate (men)	79.9	79.4	83.2
Gender gap in employment rates (20-64), (pp)	10.7	0.8	12.9
Gender gap in employment rates in rural areas (20-64), (pp)	11	1	16
Unemployment rate (women)	6.5	5.5	2.9
Unemployment rate (men)	5.9	6.5	2.8
Gender gap in unemployment rates (20-64), (pp)	-0.6	1.0	-0.1
Gender gap in being at-risk-of-poverty, (pp)	-2.0	-6	-2.0
Gender gap in mean equivalised net income (PPS), (pp)	1003	1747	652
Gender gap in the duration of working life (years), (pp)	5	-1	6
Gender gap in graduates of tertiary education, (pp)	-1	-7	-7

Source: made by authors based on the Eurostat database (Eurostat 2024b) and (Gender Equality Index 2022). * The gender gap is defined as the difference between the indicator for men and women. A value with a minus means a higher indicator for women compared to men.

Women in rural areas of the EU make up below 50% of the total rural population; they represent 45% of the economically active population, and about 40% of them work on family farms (Franić and Kovačiček, 2019). The situation of women in rural areas is a complex issue, with differences between EU countries. Studies show that women work in the informal economy more often than men (Franić and Kovačiček, 2019) and are deprived of access to better jobs and social security. In most EU countries, in rural areas, the percentage of women employed in the shadow economy is higher than that of men (ILO, 2018). In addition to employment in informal sector enterprises (unregistered enterprises), the informal economy includes people who perform informal work, i.e. jobs without basic social or legal protection and employee benefits. Women are particularly overrepresented in this group and constitute the majority of vulnerable home-based. To sum up, it can be said that the importance of women in the rural economy is even more significant, but

women's work in the grey zone means that their participation in the rural economy is not statistically recognized (Franić and Kovačiček, 2019).

4. EMPIRICAL RESULTS AND DISCUSSION

In particular, the assessment of socioeconomic factors related to women's empowerment identifies relationships between selected indicators (Table 3). The correlation analysis between the two variables, women's employment rate (20–64 years) in rural areas (%) and the mean equivalised net income of women in rural areas (thousand EUR), shows a moderate and statistically significant relationship. The correlation coefficient is 0.556 and the F-criterion p is 0.002 ($p < 0.05$), indicating that as the employment rate (aged 20–64 years) increases, so does the mean equivalised net income of rural women. A 1 percentage point increase in the employment rate in the EU Member States results in an increase in income of 0.64 EUR. The independent variable (employment rate) explains 30.9% of the variance of the dependent variable (mean equivalised net income).

Table 3

Relationships between selected women economic and social indicators and mean equivalised net income in rural areas in the European Union, 2021

Indicators	Correlation coefficient	Relationship	p-value	R square	Linear regression equation	Statistical significance of the regression model
Mean equivalised net income of women, thousand EUR						
Women employment rate (20–64 years), %	0.556	Moderate correlation	0.002	0.309	$y = -25.66 + 0.64x$	Statistically significant
Women unemployment rate (15–74 years), %	-0.421	Moderate correlation	0.029	0.177	$y = 26.24 - 1.19x$	Statistically insignificant
Women tertiary educational attainment (25–34 years), %	0.376	Weak correlation	0.049	0.141	$y = 6.46 + 0.27x$	Statistically insignificant
Women tertiary educational attainment (15–64 years), %	0.577	Moderate correlation	0.001	0.333	$y = 1.21 + 0.60x$	Statistically significant

Source: made by authors.

Higher education has a slightly greater impact on rural women's incomes (Table 3). When examining the relationship between the share of women aged 15–64 with tertiary education and the mean equivalised net income, the coefficient of determination shows that 33.3% of the income of women aged 15–64 is determined by the level of education. The regression model shows that a 1 percentage point increase in the level of education of rural women of this age increases the mean equivalised net income of rural women by 0.6 EUR. The regression model is statistically significant as the F-criterion $p = 0.001$. The relationship between the other two independent variables (women's unemployment rate and women's tertiary educational attainment (25–34 years) in rural areas) and the dependent variable is somewhat weaker, and the regression model is not appropriate because $R^2 < 0.25$.

To assess the impact of economic and social indicators on women's risk of poverty or social exclusion in rural areas in the EU, the relationships between the percentage of women at risk of poverty or social exclusion and women's employment rate, followed by women's unemployment rate, women's tertiary education and mean equivalised net income of women were examined. Table 4 shows that a moderate or strong relationship was established between the aforementioned indicators.

Table 4

Relationships between selected economic and social indicators and women at risk of poverty or social exclusion in rural areas in the European Union, 2021

Indicators	Correlation coefficient	Relationship	p-value	R square	Linear regression equation	Statistical significance of the regression model
Women at risk of poverty or social exclusion, %						
Women employment rate (20–64 year, %)	-0.768	Strong correlation	0.000	0.590	$y = 78.99 - 0.81 x$	Statistically significant
Women unemployment rate (15–74 years), %	0.530	Moderate correlation	0.004	0.281	$y = 14.54 + 1.37 x$	Statistically significant
Women tertiary educational attainment (25–34 years), %	-0.477	Moderate correlation	0.010	0.227	$y = 37.32 - 0.31 x$	Statistically significant
Women tertiary educational attainment (15–64 years), %	-0.490	Moderate correlation	0.008	0.240	$y = 36.97 - 0.47 x$	Statistically significant
Mean equivalised net income of women, thousand EUR	-0.623	Strong correlation	0.000	0.388	$y = 34.14 - 0.57 x$	Statistically significant

Source: made by authors.

All regression models (Table 4) are statistically significant because the F criterion is $p < 0.01$, i.e. the coefficient of the variable risk of poverty or social exclusion is statistically significantly different from 0 in the regression models. The strongest correlation is found between women's employment rate and the risk of poverty or social exclusion (correlation coefficient – 0.768). The coefficient of determination shows that in the EU, the rural women's employment rate of 59.0% determines the risk of poverty or social exclusion and that the higher the employment rate of rural women, the lower the risk of falling into poverty. Women's income also has a significant impact on rural poverty rates: as women's income increases, the risk of poverty and social exclusion decreases. The correlation between women's mean equivalised net income in rural areas and the risk of poverty and social exclusion is strong (correlation coefficient of 0.623) and statistically significant ($p = 0.000$).

After reviewing the general situation in the EU, the example of both countries (Lithuania and Poland) was further examined. The analysis of selected indicators in Lithuania and Poland showed that the situation in these countries is somewhat different. A larger share of women in rural areas who obtained tertiary education was in Lithuania. In 2022, there were 54.3% of women in rural areas obtained tertiary education, and their share increased by 7.5 percentage points in the last five years). Meanwhile, in 2022, women with tertiary education in rural areas in Poland were 37.5 percent, i.e. 16.8 percentage points less than in Lithuania. In 2022 compared to 2018, the share of women with tertiary education in Poland decreased by 5.5 percentage points. However, in both countries, the number of women with tertiary education was higher than the EU average (Eurostat, 2024a). In Lithuania and Poland's rural areas, the mean equivalised net income of women is significantly lower than the EU average. In 2022, women's incomes were 42.5% lower in Lithuania and 54.1% lower in Poland compared to the EU average. In Lithuania, the mean equivalised net income of women in rural areas grew somewhat faster. In 2014–2022, the mean equivalised net income of women in rural areas in Lithuania increased by 9.8% and in Poland – by 6.7%. Incomes in both countries increased the most in 2020, compared to 2019 (LT – 16.1%, PL – 10.8%). However, in recent years, faster mean equivalised net income of women growth has been observed in Poland. In this country, in 2022, compared to 2021, income increased by 9.2%, while in Lithuania – only 3.4%. Such changes could be caused by different rates of inflation in the countries in question and different ways of fighting inflation chosen by

the authorities. When evaluating changes in women's unemployment rate in the EU as a whole, it is easy to see that this indicator decreased in 2013–2022. The lowest unemployment rate in Lithuania was recorded in 2019 and stood at 6.8%; in Poland – in 2022, it stood at 3.7%. The highest employment rate for women in rural areas was recorded in 2022 and stood in Lithuania at 69.2% in Poland – at 60.5%. Both in Lithuania and in Poland, the employment and unemployment rate changed unevenly.

By analysing the average values of indicators in the EU in 2013–2022, very strong and statistically significant relationships between all selected indicators were determined (Table 5). The correlation coefficients are high, and the R squares show that the employment rate, the unemployment rate, and tertiary education have an impact of more than 80.0% on women's mean equivalised net income in rural areas.

Table 5
Relationships between selected women's economic and social indicators and mean equivalised net income in rural areas of Lithuania and Poland in 2013–2022

Indicators	Country	Correlation coefficient	R square	Relationship	p-value	Linear regression equation	Statistical significance of the regression model
Mean equivalised net income of women in rural areas, thousand EUR							
Women employment rate (20–64 years), %	LT	0.878	0.771	Very strong correlation	0.002	$y = -22.13 + 0.46x$	Statistically significant
Women unemployment rate (15–74 years), %		-0.600	0.360	Moderate correlation	0.088	$y = 12.98 - 0.58x$	Statistically insignificant
Women tertiary educational attainment (25–34 years), %		0.686	0.470	Strong correlation	0.042	$y = -8.04 + 0.31x$	Statistically significant
Women employment rate (20–64 years), %	PL	0.925	0.856	Very strong correlation	0.000	$y = -15.03 + 0.38x$	Statistically significant
Women unemployment rate (15–74 years), %		-0.819	0.670	Very strong correlation	0.007	$y = 8.59 - 0.33x$	Statistically significant
Women tertiary educational attainment (25–34 years), %		-0.412	0.170	Moderate correlation	0.270	$y = 15.34 - 0.22x$	Statistically insignificant

Source: made by authors.

The correlational and regression analysis showed that in the case of Lithuania, there is a very strong and statistically significant interrelationship (correlation coefficient is 0.878, p-value 0.002) between rural women's employment and mean equivalised net income, and the employment level is one of the main factors that affect the amount of women's income (R square = 0.771). The regression model shows that a 1 percentage point increase in the level of employment of rural women increases the mean equivalised net income of rural women by 0.46 EUR. However, the unemployment level does not significantly affect the mean equivalised net income of women.

A strong (correlation coefficient is 0.878) and statistically significant (p-value 0.042) correlation have also been found between rural women's tertiary educational attainment and their income. The R square showed 47% of women's mean equivalised net income is determined by tertiary educational attainment (Table 5). Meanwhile, no such dependence on the mentioned indicators has been found in Poland. In this country, as in Lithuania, there is a very strong relationship between the employment level of rural women and their mean equivalised net income (the correlation coefficient is 0.925). The coefficient of determination

showed that the employment level as high as 85.6% determines the income of Polish women in rural areas. In contrast to Lithuania, a very strong relationship between the women's unemployment rate (15–74 years) and their mean equivalised net income has been established in Poland. A 1.0 percentage point increase in the unemployment rate reduces women's income by 0.33 EUR.

In summary, employment is a very important factor for women's empowerment and economic independence. Access to employment reduces women's risk of falling into poverty. Although the social and economic conditions in rural areas differ slightly between the EU and the selected countries, it was found that education, employment, and income are essential factors in women's economic empowerment in rural areas. The correlation and regression analysis of the selected EU indicators approved that the economic empowerment of rural women requires, as mentioned above, a particular focus on increasing women's access to employment and income. Thus, the hypothesis that employment is a significant factor in strengthening rural women's empowerment in the EU countries studied was confirmed.

Comparing the results of this study with existing research, we can draw significant insights and conclusions concerning the research aim and hypothesis about the importance of rural women's economic engagement for rural areas and society as a whole. Literature studies revealed that the relevance of rural women's empowerment is meaningful in several aspects. Firstly, as previous authors stated (Franić and Kovačiček, 2019; Zanbak and Soykan, 2023), women's economic empowerment reflects their increasing self-confidence and personal achievements (e.g., achieving women's rights, reducing their poverty, increasing their well-being, etc. in agricultural decision-making) which means strong basis to ensure human dignity and justice. Secondly, following Sell and Minot (2018), Nguse et al. (2022), it is obvious that rural women's empowerment makes positive progress in society, e.g., rural women key actors in local development, recognition of education, participation in economic decision-making, promotion of inclusion, etc. The stated insights have already been mentioned and developed not only by numerous authors, but also by various international organizations that monitor, study, and evaluate the process of women's economic engagement, especially in poorly developed places (OECD, 2022; UNESCO, 2023).

Not only considering the results of this study, but also drawing on the experience of other researchers (Sell and Minot, 2018; Bhattacharyya, 2023), it can be concluded that women empowerment indicators are various, e.g., economic, social, political, psychological, etc. It should be emphasized that the assessment of their importance for economic empowerment largely depends on the data availability at the international and national levels. The most difficult to find such data at the local level, and this is where a scientific contradiction arises - it is very important to know and evaluate rural women's economic empowerment, but it is difficult to find clear, unanimously accepted indicators. While researchers acknowledge the relevance of data at the local level - official, objective statistics are not collected in the same way everywhere, so comparative studies between countries are not easy to carry out. This is why, in some cases, it should be agreed with the insights of other scholars (Martínez-Restrepo et al., 2016; Costa et al., 2023) that subjective research on women's empowerment also can be an important direction for future research.

After analysing the level, types and indicators of women's empowerment (Women..., 2020; Peng, 2022; Yıldırım and Köroğlu, 2024), as well reflecting the results above of our research, it was found that although indicators are gradually changing, women's economic empowerment is usually assessed using income, employment, and unemployment level (focusing on employment status), access to and control over resources, and very often including the importance of education.

The research showed that depending on the territorial level of analysis, i.e., the EU, Lithuania, or Poland, the relationship between women's income and selected socioeconomic factors, employment rate, unemployment rate, or education was statistically different. The results are, therefore, also related to the hypothesis (H1). The statistical estimation shows that employment is the most important variable determining income. A statistical assessment of the impact of women's employment rate (20–64 years) in

rural areas (%) on the mean equivalised net income of women in rural areas (thousand EUR) has shown that a strong link exists in EU, and a very strong and statistically significant link exists in Lithuania and Poland. Women's income rises as employment increases. It is interesting that education indicated by researchers as an important tool for strengthening rural empowerment and reducing the risk of poverty (Nie and Wang, 2020) turned out to be important in the EU and Lithuania, and irrelevant in Poland. This means that income may be influenced by other factors that were not included in our study. This research confirms Didana's (2019) conclusions that factors such as national conditions determining the position of women in a given rural community or subjective individual characteristics of a given person may be important. Moreover, our research revealed that the economic empowerment of rural women requires a focus on increasing women's access to employment and income. However, to increase rural women's employment, it is also important to increase their education and to develop a broader range of their competencies, not only agricultural and domestic.

The study was conducted using official statistics, which shows a more objective situation of women's economic empowerment. In the case of the rural aspect, there is no data for many indicators that would allow for a full picture of the examined problem. The **limitations** of objective data that we have highlighted provide opportunities in future research to focus on subjective research, e.g. based on the experiences of rural women, distinguishing between successful cases and disappointing experiences, as well as challenges. Moreover, an important limitation is the different time range of data, which is especially visible from an international point of view. Another limitation of the study is the underrepresentation of data by gender and place of residence in public statistics, which is why this study selected indicators from the Eurostat databases. Additionally, considering one's own research, especially based on subjective assessment, would allow one to determine the actual rural empowerment of women (Khan et al., 2017), which is a complex issue. Moreover, with regard to the encountered gaps in the availability of data in terms of gender and place of residence of respondents, it seems reasonable to conduct in-depth research based on national statistics, which will more fully capture the essence of rural women empowerment and reveal the socio-economic conditions that determine the position of rural women in specific communities.

5. CONCLUSIONS

This study examines the issue of economic empowerment of rural women in European Union countries and the importance of socioeconomic factors based on 2013- 2022 Eurostat data. The findings reveal that the economic empowerment of rural women is conditioned by various conditions and factors. Special attention in the process of economic empowerment of rural women should be focused on low-income women experiencing poverty and social exclusion. A key source of support for women's empowerment can be education, which affects both human capital and human capabilities.

It should be mentioned that the insights and results of this study may be of relevance to neighbouring countries Lithuania and Poland, which are facing the problem analysed. This is particularly relevant as European societies are aging, and women are living longer than men at older ages, so keeping them active and empowered is important.

As it turned out, in the selected countries Lithuania and Poland, rural women's empowerment has so far been analysed in a narrow and fragmented manner in the literature. This raises, the need for further research in this area. Only comprehensive and coherent research would allow a better understanding not only of the indicators or causes and conditions that are important for successful rural women's empowerment but also of a wider range of tools and instruments (not only political) to foster this process.

Our research, focusing on the socio-economic factors associated with the position of rural women, contributes to the discussion on future strategies for the inclusion of rural women. The results may be

important for rural policy and management and have broad implications for the rural economy, business, and society. Strengthening the role of women fits into considerations of gender equality and is one of the goals of sustainable rural development. In order to ensure that women can be full members of society, policymakers should focus on understanding the motives and factors that determine women's empowerment, considering the geographic and local context. Expanding the research to other countries would perhaps provide a better understanding of rural women's inclusion and the factors that determine it. This, in turn, provides a basis for policymakers to shape effective and appropriate instruments to support this process and decision-making in the future.

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