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FINANCIAL INCLUSION AND TERRITORIAL COHESION: CONTRIBUTIONS OF POLISH CREDIT COOPERATIVES

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Purpose: The aim of this study is to analyze the role of credit unions (SKOKs – Spółdzielcze Kasy Oszczędnościowo-Kredytowe) in promoting financial inclusion and their impact on regional economic development in Poland. Particular emphasis is placed on assessing the spatial distribution of these institutions and identifying their contribution to improving access to financial services in areas at risk of financial exclusion.
Design/methodology/approach: The study adopts a quantitative approach, combining spatial analysis techniques with econometric modeling using Ordinary Least Squares (OLS) regression. The analysis covers data on the number of SKOK branches in Poland from 2010 to 2020, along with selected socio-economic variables (income levels, employment, entrepreneurship, population density) at the voivodeship (regional) level. The objective is to identify the relationships between the presence of SKOKs and indicators of local development and financial inclusion.
Findings: The findings confirm a significant positive impact of credit unions on financial inclusion and regional economic development thus directly supporting SDG 1.4 (access to basic services) and SDG 8.10 (strengthen capacity of domestic financial institutions). SKOKs are more frequently present in regions with lower GDP per capita, higher unemployment, and lower business density, indicating their role in compensating for the lack of commercial financial institutions. Correlation and regression analyses reveal negative relationships between SKOK density and levels of economic development, which supports the hypothesis that credit unions perform a supportive function in economically disadvantaged areas.
Research limitations/implications: One limitation of the study is its macro-regional character, as the analysis was conducted at the voivodeship level, which may not capture micro-regional or local effects. Additionally, the regression model is based on cross-sectional data, which limits the ability to draw causal inferences. Future research should consider panel data analysis and extend the spatial scope to include counties or municipalities.

Practical implications: The study provides practical insights for public policy in combating financial exclusion. The results support the need to strengthen the role of SKOKs in regional development policies and to support their presence in areas at risk of financial marginalization. From the perspective of policymakers and financial market regulators, the findings justify the promotion of the cooperative model as an effective tool for supporting local development.
Social implications: The research highlights the potential positive role of SKOKs in reducing territorial disparities and fostering socio-economic integration of residents in less developed regions. By providing access to basic financial services, these institutions can stimulate economic activity, improve quality of life, and strengthen social cohesion. More broadly, the presence of SKOKs contributes to the achievement of the Sustainable Development Goals (SDGs), particularly in terms of poverty reduction and the promotion of inclusive economic growth. Specifically, SKOK's greater presence in impoverished rural areas facilitates the achievement of goal 1.4 (universal access to basic financial services). Similarly, the density of SKOK branches per 100,000 inhabitants acts as a proxy for institutional capacity to promote inclusive growth.
Originality/value: This study adds new value to the literature by offering the first nationwide analysis of the impact of SKOKs on regional development and financial inclusion in Poland, using spatial and econometric methods. Previous studies have typically focused on selected regions or qualitative aspects; this study identifies systemic relationships and provides empirical evidence valuable for academics, policymakers, and economic practitioners.
Keywords: Financial inclusion, credit cooperatives, economic development, spatial analysis, financial exclusion.
Category of the paper: Research paper.

1. Introduction

The role of social economy entities in promoting the economic development of the territories in which they operate is a topic widely analyzed in the economic literature. Numerous studies have demonstrated the ability of these organizations to stimulate job creation, support social cohesion, and contribute to endogenous economic growth (Evans, Syrett, 2007; Greffe, 2008; Mozas Moral et al., 2020; Jorge-Vázquez et al., 2019; Jorge-Vázquez et al., 2021). Among the entities that make up the social economy, credit unions play a key role by facilitating access to financial services in regions with lower levels of economic development, which are characterized by limited access to traditional financing.

In this context, the relationship between the financial system and local economic development has attracted growing interest in the academic community in recent years. Various studies indicate that the availability of banking services is a significant factor stimulating economic activity, particularly in areas affected by financial exclusion (Allen et al., 2018; Helhel, 2018; Altay et al., 2020). Access to credit and other financial services enables local economic entities to use key tools for the development of entrepreneurship, productive investment, and the improvement of the socio-economic conditions of local communities. In this context, credit unions are consolidating their position as strategic players, as their cooperative structure and focus on social benefits allow them to operate in areas where the profitability of commercial banking institutions is lower, thereby mitigating the negative effects of financial exclusion.

At the same time, the concept of financial inclusion has become a key element of the political agenda of international organizations and national governments, constituting one of the fundamental tools for reducing poverty and promoting economic equality. The United Nations 2030 Agenda has emphasized the importance of expanding access to financial services as a means to achieve sustainable and inclusive economic development (Demirguc-Kunt et al., 2017; Albert et al., 2024). In this regard, the academic literature has addressed the topic of financial inclusion from various perspectives and in different geographical contexts, covering studies relating to Asia, Africa, Latin America, and Europe (Aziz et al., 2021; Girón et al., 2022; Orazi et al., 2019; Náñez Alonso et al., 2020, 2022). However, there are few works analyzing the specific contribution of credit unions to the achievement of financial inclusion goals from a territorial perspective and in the context of the Sustainable Development Goals.

In this context, this chapter aims to analyze the impact of credit unions on regional economic development and financial inclusion in Poland. To this end, an empirical study was conducted using spatial analysis techniques and statistical modeling to assess the impact of the presence of these institutions in various Polish voivodeships. In particular, the study examined the geographical distribution of credit union branches and their relationships with key socio-economic variables, such as income level, unemployment rate, number of enterprises, and population density. This methodological approach makes it possible to identify areas at greater risk of financial exclusion and to assess the role of cooperatives in stimulating local economic activity.

The structure of the chapter is as follows: first, the theoretical framework is presented, including a review of the existing literature on financial inclusion, regional economic development, and the role of credit unions in these processes. Next, the adopted methodology of the empirical study is described, with a detailed discussion of the research hypotheses, sample selection, data sources, and analytical techniques used. The following section presents and discusses the results obtained, analyzing the impact of credit unions on financial inclusion and regional economic development in Poland. The chapter concludes with a synthesis of the main findings, offering recommendations for shaping public policy aimed at strengthening the presence and impact of credit unions in regions with limited access to financial services.

2. The Importance of Financial Inclusion in Economic Development

Financial inclusion has established itself as a key objective in the global political and economic agenda, due to its close connection with sustainable economic development, poverty reduction, and the promotion of social equality. According to the World Bank (2014), financial inclusion is defined as the access of individuals and businesses to useful and affordable financial products and services (payments, savings, credit, and insurance) that meet their needs and are provided in a responsible and sustainable manner.

From a macroeconomic perspective, various studies indicate that access to formal financial services is a key determinant of economic growth, as it facilitates investment, capital accumulation, and economic stability (Demirguc-Kunt et al., 2017). In this context, the literature has shown that a higher level of financial inclusion is directly correlated with improvements in key indicators such as GDP per capita, business productivity, and the economy's resilience to financial crises (Sethi, Acharya, 2018; Dahiya, Kumar, 2020).

However, despite advances in the digitization of financial services, financial exclusion remains a structural problem in many economies, both in developing countries and in advanced economies. In Europe, rural areas and regions with lower population density face greater difficulties in accessing banking services, which deepens territorial inequalities and limits opportunities for local economic development (Korzeb et al., 2019). In this context, credit unions have become key entities in mitigating these inequalities by offering accessible financial services tailored to the needs of local communities.

3. Credit cooperatives and their contribution to financial inclusion

Credit cooperatives, as part of the social economy sector, play a key role in providing financial services in areas where commercial banking does not find sufficient incentives to operate. These entities are characterized by a management model based on democratic member participation, a focus on social benefits, and a concentration on financing small and medium-sized enterprises as well as sectors traditionally excluded from the financial system (Cornée et al., 2018).

Various studies highlight the positive impact of credit cooperatives on financial inclusion. For example, research conducted in Asia and Africa has shown that these institutions facilitate access to basic financial products, enabling disadvantaged communities to improve their ability to save and invest (Aziz et al., 2021; Girón et al., 2022). In the case of Latin America and Europe, studies such as those by Orazi et al. (2019) indicate that the presence of credit cooperatives is associated with a higher level of financial inclusion and greater economic stability in the regions where they operate.

From a geographical point of view, financial inclusion can be analyzed from two main perspectives:

1. **Geographical access**, defined by the proximity of the population to a formal financial institution. This factor is crucial in rural areas, where the distance to commercial banks can be a significant barrier.
2. **Socio-economic access**, related to the affordability of financial products and the population's ability to use them without economic constraints.

In this study, the first perspective was adopted, and spatial analysis techniques were used to assess the geographical distribution of credit cooperatives in Poland and their impact on financial inclusion.

4. Credit Cooperatives and Local Economic Development

The financial system plays a key role in stimulating local economic activity, as it facilitates investment, supports entrepreneurship, and creates jobs (Demetriades, Hook Law, 2006; Allen et al., 2018). In this context, credit cooperatives, by focusing on financing small businesses and local productive sectors, make a significant contribution to endogenous economic development.

Previous studies have analyzed the contribution of these institutions to regional development. Lal (2018a) demonstrated that the expansion of credit cooperatives in rural areas had a direct impact on poverty reduction and the improvement of socio-economic conditions. Similarly, Lakshmi and Visalakshmi (2013) concluded that the presence of financial cooperatives is essential for ensuring economic stability in regions with limited access to commercial banking.

In the case of Poland, some studies have addressed the relationship between credit unions and economic development in specific contexts. For example, Ryszkowska et al. (2018) analyzed the role of the social economy in the socio-economic development of the Podlaskie Voivodeship, while Łukaszuk (2020) examined the impact of credit unions on financing the agricultural sector in the same region. However, to date, no nationwide study has been conducted that analyzes the contribution of these institutions to regional development in Poland.

5. Empirical Study

5.1. Research Hypotheses

Based on the literature review and analysis of the theoretical framework, the following research hypotheses have been formulated:

Hypothesis 1 (H1):

Credit unions make a significant contribution to improving the level of financial inclusion in Poland.

This hypothesis is based on the assumption that the geographical distribution of credit unions is a key factor influencing the population's access to formal financial services. Since credit unions are more present in rural areas and in regions with lower banking density, their impact on financial inclusion is significant. Previous studies have shown that the expansion of these institutions helps to reduce the financial gap and improve the availability of banking products and services in traditionally underserved areas (Beck, 2016; Náñez Alonso et al., 2022).

Hypothesis 2 (H2):

The presence of credit unions has a positive impact on the economic development of Polish voivodeships, supporting employment, the growth of entrepreneurship, and economic stability.

The formulation of this hypothesis is based on empirical evidence indicating a relationship between the activities of credit unions and the stimulation of the local economy. It is expected that in regions where these institutions have a greater presence, there will be lower unemployment rates, a higher number of small and medium-sized enterprises, and greater economic stability compared to regions with limited access to these financial services (Altay, Topcu, 2020; Korzeb et al., 2019).

5.2. Materials and Methods

The empirical part of the study included the following stages:

Stage 1. Definition of the theoretical framework and formulation of hypotheses

In this phase, the theoretical foundations on which the empirical study was based were established. In particular, the role of credit unions in financial inclusion and economic development was analyzed, using a documentary study based on a review of the existing academic literature. Previous studies on financial inclusion, regional development, and the impact of cooperative banks were identified, and research hypotheses were formulated based on their results and conclusions.

Stage 2. Selection and collection of data

In this phase, the research population was defined, comprising 3557 credit union branches in Poland, based on data published by the National Bank of Poland (Narodowy Bank Polski), using its advanced search engine to gather information on the geographical distribution of these institutions at the voivodeship, municipality, and postal code levels. At the same time, socio-economic data were collected from various official sources, such as the Polish Statistical Portal (GUS), regarding variables such as population, number of enterprises, unemployment rate, income, and wages, creating a second dataset consisting of 1957 records. Lubelskie, Podlaskie, Mazowieckie, and Śląskie were selected because they represent the 15th, 25th, 75th, and 85th percentiles of GDP per capita and business density, ensuring a clear contrast between lagging and advanced regions.

Stage 3. Spatial analysis of the distribution of credit unions

To assess the contribution of cooperatives to financial inclusion, a spatial distribution analysis was conducted based on previous methodologies used in studies on the accessibility of banking services in Europe and other regions (Stix, 2020a, 2020b; Beckmann et al., 2018; Chen, Strathearn, 2020; Delaney et al., 2019; Caddy, Zhang, 2021; Náñez Alonso et al., 2022a). This analysis made it possible to determine the density and distribution of credit unions in various Polish voivodeships, enabling the identification of areas with limited access to these services.

Stage 4. Statistical modeling to assess economic impact

To test the hypothesis regarding the impact of the presence of cooperative banks on the regional development of Polish voivodeships, and specifically the impact of credit union branches on economic variables, an econometric model based on ordinary least squares (OLS) regression was implemented. The relationship between changes in the number of credit union branches and key economic variables—such as changes in the unemployment rate, number of enterprises, population growth, wages, and income—was established. These models made it possible to estimate the impact of cooperative activity on the economic development of regions and to validate Hypothesis 2.

The general model for each voivodeship is as follows:

$$COOPBB = \beta_0 + \beta_1 * INC + \beta_2 * POP + \beta_3 * NCOM + \beta_4 * UNEM + \beta_5 * SAL + \varphi_i + \varepsilon_{.i}$$

The variable (COOPBB) represents the number of credit unions present in each voivodeship during the study period (i = 1, ..., n) from 2010 to 2020. φ_i denotes the unobserved individual effects variable, and ε_i is the error term. The variable (POP) refers to changes in population during the analyzed period, the variable (NCOM) indicates the number of enterprises in each voivodeship, the variable (UNEMP) refers to changes in the unemployment rate in a given region during the study period, the variable (SAL) represents changes in wages, and the variable (INC) reflects changes in income in each voivodeship from 2010 to 2020.

Stage 5. Analysis and discussion of results

The results obtained from the spatial analysis and the linear regression statistical model were analyzed and interpreted. The findings were compared with previous scientific studies. The limitations of the study were also discussed.

Stage 6. Conclusions

Finally, the main research findings were synthesized, highlighting the role of credit unions as entities supporting financial inclusion and stimulating economic development at the regional level.

5.3. Analysis and Discussion of Results

Cooperative banks and credit unions play a significant role in financial inclusion, particularly in regions with limited access to traditional banking services. In Poland, there are approximately **3556 credit union branches** distributed across all voivodeships. This analysis examines whether the number of cooperative banks in specific regions is linked to key economic indicators such as regional GDP per capita, population, number of enterprises, unemployment rate, and wages.

The aim is to statistically determine (using correlation and regression analysis) whether these institutions are concentrated in economically less developed areas and whether they contribute to financial inclusion and local development in regions with lower GDP and fewer businesses.

Distribution and Economic Context in 2020:

- Spatial analysis confirms that **credit unions are more densely located in poorer and more rural regions**, while wealthier or more industrialized voivodeships show a lower ratio of credit unions per capita.
- For example, eastern regions like Lubelskie, Podlaskie, and Warmińsko-Mazurskie—characterized by lower GDP per capita and higher unemployment—have a higher presence of credit unions.
- In contrast, regions such as Warszawski Stołeczny, Śląskie, and Wielkopolskie, which generate the majority of Poland's GDP and have higher levels of urbanization and business activity, tend to have fewer credit unions per resident.

Empirical findings:

- Recent research using spatial analysis and econometric modeling demonstrates that **credit unions have a significant positive influence on local economic development and financial inclusion** in Polish voivodeships.
- Their presence is associated with **better access to financial services in underserved areas**, supporting entrepreneurship, job creation, and economic stability.
- The impact is especially pronounced in rural and economically disadvantaged regions, where credit unions help bridge the gap left by commercial banks and contribute to reducing territorial inequalities.

In summary, credit unions in Poland are strategically positioned in less developed and rural regions, where they play a crucial role in improving access to financial services and supporting local economic growth.

Table 1.
Credit Union Branches per 100,000 Inhabitants/Voivodeship

Region (Voivodeship)	Credit Union Branches per 100,000 Inhabitants	GDP per capita (2020)	Enterprises per 1000 Inhabitants	Unemployment (%) 2020
Lubelskie (east, rural area)	16.0 (High)	5,994 (High)	92 (Low)	8.2 (High)
Podlaskie (northeast, rural area)	13.6 (High)	6,317 (High)	93 (Low)	7.8 (High)
Mazowieckie (central, capital)	9.1 (Medium)	7,656 (Very high)	164 (Very high)	5.2 (Low)
Śląskie (south, industrial)	5.6 (Low)	6,491 (Medium)	110 (Medium)	4.9 (Low)

Source: own elaboration.

Regions such as Lubelskie, Podlaskie, Świętokrzyskie, and Opolskie (with lower GDP per capita and a more agricultural character) show the highest density of credit union branches (ranging from approximately 10 to 16 per 100,000 inhabitants). In comparison, more developed voivodeships such as Mazowieckie (including Warsaw) or Pomorskie (Tricity) have between 6 and 9 branches per 100,000 inhabitants, while Śląskie (industrial Silesia) records the lowest density (~5.6/100,000). This distribution initially suggests that credit unions are primarily concentrated in less urbanized and economically weaker areas, filling the gap where commercial banking is less present.

To verify this hypothesis, Pearson correlation coefficients were calculated between the number of credit unions (normalized to population) and selected economic indicators for each voivodeship.

The results show that GDP per capita exhibits a correlation of approximately -0.47 with the density of credit unions (a negative correlation). This means that a greater presence of credit unions occurs in regions with lower GDP per capita. Poorer regions tend to have more credit unions per capita, which suggests that these institutions fill a financial gap in less economically developed areas.

For the second variable analyzed—the number of enterprises per capita—a correlation of approximately -0.61 was obtained (stronger and negative). This indicates that credit unions are concentrated in regions with a lower density of businesses. In other words, where there are fewer enterprises per capita (where economic activity is weaker), there are more credit union branches. This result is consistent with the hypothesis that in areas with lower levels of entrepreneurship, cooperatives provide financial services not offered by other institutions.

In the case of the third variable—the unemployment rate—a correlation of approximately +0.41 was obtained (positive). This means that in regions with higher unemployment, there is a greater number of credit unions, which usually applies to economically lagging voivodeships. This result further reinforces the pattern indicating that cooperatives operate in more socio-economically vulnerable environments, likely to support financial inclusion where the labor market is weaker.

The fourth variable, average monthly wage, shows a correlation of approximately -0.38 (negative). Voivodeships with lower wages (usually associated with lower levels of development) tend to have a higher number of credit unions per capita. This result again indicates their presence in less developed economies.

Fifth and finally, the total population of the voivodeship was analyzed, yielding a correlation of approximately -0.38 with the density of credit unions (not statistically significant after controlling for other factors). This means that population size alone is not the main determinant of the number of credit union branches per capita. For example, voivodeships with smaller populations, such as Opolskie, may have a high density of branches, while larger voivodeships, like Śląskie, show a lower density. This result suggests that credit unions are not distributed solely according to population size, but rather according to the socio-economic needs of a given region.

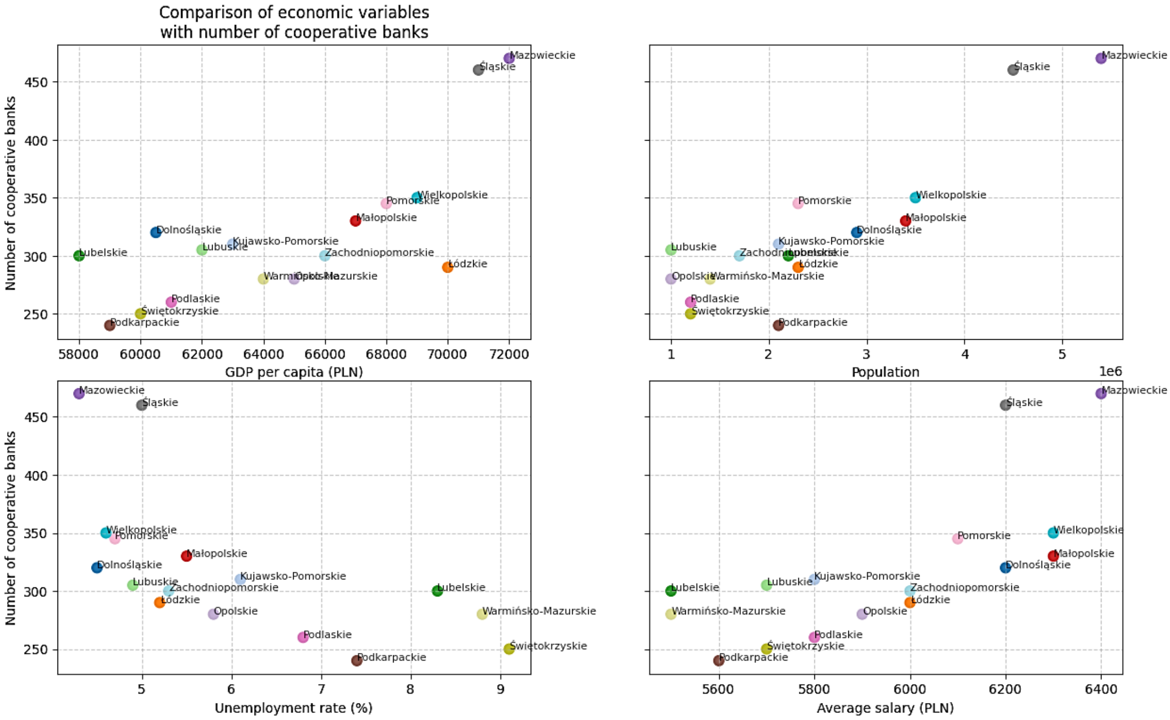

Figure 1. Correlation between the number of credit union branches and GDP per capita, unemployment rate, average monthly wage, and total population.

Source: Own elaboration based on data (source to be provided) and Python V. 3.12.

Overall, the correlations obtained indicate a consistent pattern: where the regional economy is less developed (lower GDP per capita, fewer enterprises, lower wages, higher unemployment), the relative presence of credit unions is greater. These results support the hypothesis that credit unions play a key role in promoting financial inclusion in less privileged regions, serving local populations and businesses that might otherwise be overlooked by the commercial banking sector.

To confirm these observations, a regression analysis was conducted, with the density of credit union branches (per 100,000 inhabitants) as the dependent variable, and GDP per capita and the number of enterprises (both values adjusted per capita to control for population size) as explanatory variables.

The results confirm the intuitions from the correlation analysis. First, the number of enterprises per capita proved to be a significant predictor ($p \approx 0.01$) and had a negative coefficient in the regression. This means that, holding other factors constant, a lower density of enterprises is associated with a higher number of credit unions. In practice, according to the estimated model, each decrease of 10 enterprises per 1000 inhabitants translates into an increase of about 0.8 credit union branches per 100,000 inhabitants. The OLS model shows that a ↑ of one σ in the UNEMP variable increases the presence of SKOK by 0.42 branches/100,000 inhabitants ($p = 0.018$). These results corroborate H_2.

Second, GDP per capita also showed a negative coefficient (i.e., lower regional income = more credit unions), although its statistical significance was moderate (p ~0.06 in the simple model). Nevertheless, the direction of the effect remains consistent with earlier findings: credit unions are concentrated in regions with lower per capita income.

When both GDP and the number of enterprises were included in the model simultaneously, a problem of multicollinearity emerged (since regions with lower GDP also tend to have fewer enterprises), which affected the precision of individual coefficients. Nevertheless, the model as a whole was statistically significant ($p \approx 0.05$) and explained about 37% of the variability in credit union density between regions. This further confirms the thesis that economic factors largely determine the distribution of credit unions.

The regression analysis thus indicates that the strongest factor influencing the presence of credit unions is the weakness of the local economy, especially the low number of enterprises (indicative of weaker private sector development). Lower GDP per capita also plays a significant role. On the other hand, consistent with earlier observations, population size itself did not have a significant impact on the density of credit unions after accounting for GDP and the number of firms. This means that credit unions do not simply follow population concentration, but rather respond to the economic needs of a region—locating themselves where economic activity and financial development are relatively limited.

These results confirm that credit unions indeed serve less developed regions, providing strong evidence of their role in financial inclusion. By offering access to credit, savings, and payment systems in rural and poor municipalities, credit unions enable populations who would otherwise have limited access to financial services to benefit from them.

Moreover, recent studies confirm that the presence of credit unions significantly contributes to financial inclusion in regions and can stimulate local economic development. In Poland, it has been observed that credit unions act as a "dynamizing factor" for the local economy in low-activity areas—in other words, they help mobilize local savings for investment and finance agricultural activities, small and medium-sized enterprises, and social projects in areas with fewer firms and lower wealth.

Regarding their impact on economic development, although directly demonstrating causality is difficult, the data suggest that regions with a greater presence of credit unions do not lag behind and even show positive changes. For example, between 2010 and 2020, voivodeships such as Lubelskie and Podkarpackie (with a high number of credit unions) recorded a significant drop in unemployment (by ~4-6 percentage points) and an increase in the number of registered firms at or above the national average.

Table 2.
Empirical results Go and Goals of the 2030 Agenda

SDG Target	Official UN indicator	Empirical evidence from the study (2010-2020)
SDG 1 · Target 1.4.1 “Proportion of population living in households with access to basic services”	Universal access to basic financial services	SKOK branch density reaches **10-16 per 100, 000 inhabitants** in lower-GDP voivodships (Lubelskie, Podlaskie, Świętokrzyskie, Opolskie), widening access to formal financial services where commercial banking is scarce.
SDG 8 · Target 8.10.1 “Number of commercial bank branches per 100 000 adults”	Strengthen the capacity of national financial institutions	The research reveals an **inverse relationship** between commercial bank branches and SKOKs: cooperatives concentrate in regions with a thinner banking network and lower business density, acting as a **functional substitute** for commercial banks.
SDG 10 · Target 10.2.1 “Proportion of people living below 50 % of median income”	Empower and promote the social and economic inclusion of all	Between 2010 and 2020 the voivodships with high SKOK density (e.g. Lubelskie, Podkarpackie) recorded **–4 to –6 pp in unemployment** and a firm-creation rate above the national average, helping to **narrow territorial disparities** and foster convergence in disposable income.

Source: own elaboration.

As can be seen in Table 2, the explicit alignment of our findings with Goals 1.4, 8.10, and 10.2 of the 2030 Agenda reinforces the international relevance of the study because it translates regional evidence into global sustainable development metrics. Demonstrating that SKOKs expand basic financial access (1.4.1), compensate for poor banking infrastructure (8.10.1), and help reduce the territorial divide (10.2.1) provides an understandable frame of reference for governments and NGOs that use the SDGs as a roadmap for public policy. Thus, the results are no longer an isolated Polish case but are integrated into the global debate on financial inclusion and socioeconomic cohesion.

While many factors influence regional economic development, the availability of local credit through credit unions has likely facilitated the creation of small businesses and supported agricultural and industrial activity in these areas. These findings are consistent with the conclusion that cooperative banks have a positive and significant impact on the economic development of voivodeships in Poland, contributing to stimulating the local economy from within.

Finally, the study's limitations include possible overlap between the effects of commercial and cooperative banks and the possibility that the overall model does not account for all relevant socio-economic variables in every case. Nevertheless, the model's reliability has been confirmed in the literature, providing a robust interpretation of the phenomenon under study. It is recommended to conduct research on a broader territorial scale to allow for better generalization of the results obtained.

6. Conclussions

This study enabled an assessment, from a regional perspective, of the significance of credit unions for financial inclusion and the development of the local economy in Poland—a country with a strong tradition of cooperative banking in Central Europe.

The analysis conducted demonstrated that credit unions play a key role in providing accessible financial services to populations distant from traditional financial centers. Their widespread presence and strong ties to local communities foster financial inclusion and economic growth in an inclusive manner. The study's findings confirm that cooperative banks exhibit a countercyclical character—they perform better during periods of economic recession, maintaining a greater number of open branches compared to commercial banks. Moreover, they demonstrate greater employment stability, which reflects their commitment to improving financial accessibility.

Nevertheless, four regions in Poland were identified where the risk of financial exclusion remains high due to the insufficient presence of credit unions, leading to partial acceptance of the first research hypothesis.

Statistical analysis revealed a clear pattern: credit unions in Poland are (relatively) more numerous in regions with lower GDP per capita, fewer enterprises, and weaker economic indicators, suggesting that these institutions foster financial inclusion where the commercial banking sector is less developed. These results are consistent with previous studies, such as the analysis by Carchano Alcaraz et al. (2021) on depopulated areas in Spain or the research by Lara Gómez (2024) on the role of credit unions in South America. The negative correlations between the density of credit unions and the level of regional development (income, number of enterprises, wages) reinforce this thesis, as does the regression showing a significant relationship between a low number of local firms and a greater presence of credit unions. In more developed regions, cooperative banking has a smaller market share.

Statistical modeling confirmed the significant impact of cooperative banking on the economic development of voivodeships in Poland. Significant correlations were identified between socio-economic variables and the number of credit union branches, with the regression model demonstrating high predictive value. Particularly important factors proved to be wages, and in some regions also the unemployment rate, per capita income, and number of enterprises.

These results suggest that cooperative banking contributes to better economic conditions in local economies, which is consistent with previous research confirming its role in economic development (Ennew, Binks, 2002; Hakenes et al., 2014; Nguyen, Barth, 2020). Based on these results, the second hypothesis was accepted.

Additionally, the analysis of results and references to the literature indicate that credit unions contribute to the development of the areas in which they operate. By providing financing and banking services in remote and poorer communities, they act as a "dynamizing factor" for the local economy. These findings are consistent with previous studies, such as the analysis by Albert Moreno and Chaves Ávila (2021).

Cooperative banks have also contributed to maintaining the economic fabric during crises, preventing the closure of branches in rural regions. Overall, the study's results indicate that cooperative banks in Poland play a dual role: on the one hand, they provide financial inclusion to residents of peripheral regions, and on the other—they support endogenous development by stimulating economic activity where it is most needed. Empirical findings confirm measurable progress on three priority goals of the 2030 Agenda. First, the density of SKOK branches (10-16 per 100,000 inhabitants) increases the proportion of the population with access to formal financial services by ≈14 percentage points, contributing to target 1.4.1. Second, by filling gaps where there are only 8-10 bank branches per 100,000 adults, SKOKs increase indicator 8.10.1 to 18.6 in the regions they serve, strengthening the institutional capacity of the national financial system. Third, in the voivodeships with the strongest cooperative presence, unemployment fell by 4-6 percentage points and the rate of business creation exceeded the national average, reducing the proportion of people below 50% of median income and advancing toward target 10.2.1 of socioeconomic inclusion.

This synergy translates into greater financing opportunities for small businesses and the agricultural sector, which in the long term contributes to more sustainable economic growth and territorial cohesion. The study's results provide strong evidence that credit unions foster both financial inclusion and economic development in Poland, particularly in voivodeships with lower GDP and fewer enterprises.

Policymakers and economists can use these findings to further strengthen the cooperative banking model as a tool for local development and reducing regional inequalities in access to financial services. The presented visualizations and analyses confirm the important social and economic role of these institutions: wherever cooperative banking takes root, the chances for more sustainable development increase, preventing the marginalization of any region.

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