

SOCIAL CAPITAL IN RURAL AREAS AND THE DEMAND FOR LAND CONSOLIDATION MEASURES

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Abstract

Spatial modifications should be introduced in areas where members of the local community actively participate in consolidation projects. Social acceptance is the key prerequisite for successful land consolidation. How should the sequence of land consolidation measures be planned in a rural area whose inhabitants have not expressed their opinions about the project? Are the existing criteria, which are applied to evaluate land consolidation measures mostly in agricultural regions, sufficient?

Scientists and practitioners have been developing criteria that should be taken into account in the process of planning land consolidation measures. This article analyzes the criteria for planning land consolidation measures in Poland. Most of them are based on economic parameters, such as farm fragmentation, average land plot area, average farm area, shape of farm fields, proportion of plot sides. A criterion that is disregarded in the planning process is the local community's attitude to the undertaking.

This article attempts to define additional criteria for planning land consolidation measures based on the local community's attitude to the project. The study was carried out in the Lublin Region, which is characterized by the highest number of land consolidation schemes in Poland. Attempts were made to describe social activity levels in the region's rural municipalities. The selection of variables characterizing the local community was a key stage of the study. Variables that were indirectly indicative of social activity were included in the analysis: voter turnout in elections, municipal councilors' level of education, number of non-governmental organizations, and number of local action groups.

Key words: consolidation, farm size, land fragmentation.

Introduction

Land fragmentation considerably impairs agricultural practices, reduces technical and economic efficiency of production, contributes to environmental degradation and obstructs or inhibits the use of modern agricultural equipment (Dudzińska and Kocur-Bera, 2014).

Land consolidation is undoubtedly a key prerequisite for comprehensive restructuring and reform in the countryside. The spatial structure of farms is improved to lower the number of land plots with an irregular shape, shorten the distance between settlements and farm fields, provide plots with access to public roads and drainage systems, make farmland more accessible to agricultural machines, reduce the acreage of idle and neglected land (Tworzydło, 2012)

Land consolidation measures should promote all dimensions of development. According to Dacko (2006), the main goal of land consolidation should be not only to increase agricultural production, but also to improve the quality of rural life. Land consolidation measures should be initiated to revive the countryside by encouraging continuous economic and political development of the local community, while protecting and rationally managing natural resources. The local community should participate democratically in land consolidation and in defining new forms of land use that make most of local potential. Land merger projects should be initiated as a part of holistic and multi-sectoral approach; they should integrate developmental goals at the local and regional level

and account for the linkages between rural and urban areas. The goals of comprehensive land consolidation testify to the social dimension of the undertaking, and this aspect should not be disregarded in the planning process.

The relevant literature was analyzed in search of evidence that social collaboration and acceptance are highly important aspects of land consolidation. The indicators and parameters used in land consolidation projects in Poland were described. In successive parts of the study, indicators of social activity were analyzed and parameters that are indirectly indicative of social engagement were selected. Correlations between social activity indicators and land merger projects were determined. The applied research methods were literature analysis and spatial statistical analysis.

Social attitudes to comprehensive land consolidation projects in rural areas

Active public participation is indispensable for the success of any land consolidation program. Past experiences have revealed that mustering public participation in such programs is very difficult, as it entails some compromise in terms of gain or loss of land. Any externally induced land consolidation program is unlikely to produce a desirable result. Forced consolidation never succeeded in Europe (Riddell and Rembold, 2000).

Although land consolidation is conducive to agricultural development, small farmers may perceive it as interference in their internal matters that would

reduce their profits (King and Burton, 1982; Niroula and Thapa, 2005).

In south Asia, farmers did not participate in land consolidation because they were afraid of being evicted and losing high-quality land in the process of land swapping. Local elites, most of whom happened to be the landlords, were not interested in land consolidation due to the threat of losing their influence over the local population. The program could achieve some success in several provinces of India characterized by low levels of variation in land quality (Niroula and Thapa, 2005).

The impacts and implications of land consolidation programs are not yet clear, therefore, a cautious approach should be exercised to avoid and mitigate negative externalities (Riddell and Rembold, 2000). The success of any land consolidation program rests on how well farmers' needs, capabilities and aspirations are reconciled and integrated into it. A program will be able to achieve success only when appropriate incentives, institutional flexibility and necessary infrastructure are in place, and the end users are genuinely involved in designing it (Conway and Barbier, 1990).

The future of local space should be decided by all people who influence the direction and rate of local development and are willing to cooperate with the local authorities in the process of solving local problems (Kołodziejczyk, 2003). The social aspects of the planned undertaking should be always taken into consideration in determining the demand for comprehensive land consolidation measures.

Indicators of social attitudes, which should be used in the process of assessing the demand for land mergers, are particularly difficult to identify because they have to be formulated at the stage of initial planning rather than during consolidation measures. Individual attitudes are also increasingly likely to differ from group behaviors (Skowroński, 2006). Despite those difficulties, social attitudes have to be taken into account in the process of planning land consolidation projects.

Indicators of demand for comprehensive land consolidation projects in Poland

At present, different indicators of demand for land consolidation measures are applied in Polish regions. There are no global standards that define criteria for evaluating the demand for land consolidation measures. In most cases, the criteria deployed by scientists and practitioners reflect the economic functions and productivity of rural areas.

In Poland, the demand for land consolidation is evaluated by local departments responsible for land management and rural area development. Each department develops unique criteria and individual

guidelines for assessing the type of consolidation measures required in a given region. The Lower Silesian Department of Geodesy and Rural Areas in Wrocław defines the demand for land mergers based on the recommendations formulated by the Minister of Agriculture and Food Economy in Instruction No. 1 on land consolidation. In line with those provisions, areas characterized by ineffective checkerboard patterns, high-class soils, relatively large average farm area, extensive stretches of checkerboard land between villages and linear infrastructure that leads to fragmentation of agricultural production have priority in consolidation projects. The demand for land consolidation is also assessed based on the initial interest expressed by landowners. However, there are no general guidelines for evaluating that interest.

Instruction No. 1 has been developed in view of the provisions of the Land Consolidation Act of 1982. The Act has been amended several times, but Instruction No. 1 has never been modified accordingly and became legally obsolete. At present, consolidation projects are based on the provisions of amended regulations, which, however, lack detailed standards for land mergers (Woch and Głazewski, 2014)

Akincza (2014) proposed a set of indicators for determining the demand for land consolidation measures in local departments responsible for land management and rural development in Polish regions of Beskidy, Częstochowa and Lower Silesia.

Parameters for identifying the demand for land consolidation measures are as follows:

- checkerboard land,
- high-class soils,
- farms with relatively large average area,
- linear infrastructure that obstructs agricultural production,
- farm enlargement resulting from land consolidation,
- extensive checkerboard land between villages,
- initial interest expressed by land owners,
- farm fragmentation,
- shape of farm fields,
- proportions of plot sides,
- farmers' interest in expanding their estates,
- land ownership by non-local actors,
- planned linear infrastructure of supralocal significance, allocation of land plots for infrastructure development, afforestation,
- farmers' interest in land consolidation,
- infrastructure upgrades,
- differences in data found in the real estate cadaster and the land and mortgage register

Most of those indicators were based on production data, including farm fragmentation, shape of land plots, proportions of plot sides, checkerboard patterns, linear infrastructure of supralocal significance, allocation of

land plots for infrastructure development, afforestation, land ownership by non-local actors, farmers' interest in expanding their estates, infrastructure upgrades, differences in data found in the real estate cadaster and the land and mortgage register. In previous studies, the social parameters directly or indirectly indicative of social participation (including voter turnout in elections, municipal councilors' levels of education, number of non-governmental organizations and number of local action groups social organizations in rural areas created under the LEADER axis of the Rural Development Program) were not taken into account.

Selected indicators, including the shape of land plots and farm fragmentation, are included in every analysis, whereas other factors, such as allocation of land plots for infrastructure development or planned investments of supralocal significance, are taken into consideration only when applicable. The department in Częstochowa additionally analyzes the demand for land mergers resulting from afforestation projects. It also evaluates the farmers' interest in land consolidation. Most reports do not examine the local community's attitudes to consolidation projects. Local opinions should be one of the most important criteria determining the sequence in which land plots will be merged.

Social aspects of land consolidation

The map of rapidly developing urban areas in Poland will change subject to local community's active participation in the process of shaping the local environment. According to studies of social capital, economic success is determined by free market mechanisms in 80% and by social capital in 20% (Bańsk et al., 2009).

In urban areas, there are many more institutions that cater to the needs of the local community and release the residents from responsibilities associated with managing local affairs. Rural inhabitants are more dependent on their ability to self-organize. Lower availability of central institutions and shared interests mobilize collective action in rural areas (Szafraniec, 2006).

The following social components have been identified by Stanny (2011) in the process of sustainable development at the municipal level (in Poland, land consolidation measures are initiated at the level of municipalities or cadastral districts): demographics, education, social engagement, local governance and living conditions. Population characteristics (age, gender, level of education) and location of economic activities can inhibit or stimulate diversification of income and structural transformations in Polish agriculture (Sikorska, 2011).

The most important element of social activity is adaptability to change and the ability to use the resulting

opportunities to change local attitudes, thinking patterns and to create new incentives for members of the local community (Kołodziejczyk, 2003). In the analysis of Polish reports describing the demand for land consolidation measures, Akincza (2014) observed that although scientists and practitioners are aware of the importance of social attitudes, this aspect is not taken into consideration in the developed documents. The reports contain information about demographics, education, living conditions and characteristic features of local populations. There are no indicators that measure social attitudes towards land consolidation or the efforts undertaken by members of the local community and the authorities.

A review of published sources suggests that the parameters analyzed by researchers in evaluations of demand for land consolidation are often related to the spatial features of a given area (such as mountain regions), the availability of certain types of data and the applied analytical methods. Most researchers focus on three factors that influence land fragmentation: number of land plots, plot size and farm size. Practitioners also account for other aspects of rural development, including linear infrastructure of supralocal significance, farmers' interest in land consolidation and demand for infrastructure upgrades. Several analyses of local demand for land consolidation cite the opinions voiced by members of the local community and list the participants of social consultation meetings without evaluating the presented criteria. Social participation levels of rural residents should be the most important parameter determining the sequence of land mergers in a given municipality.

Social attitudes are very difficult to survey in the process of planning consolidation projects in Poland. Questionnaire surveys are very expensive and sometimes impossible to conduct in large regions. Questionnaires should be filled out by a representative group of respondents to elicit reliable responses. This seemingly modest requirement is often very difficult to fulfill in practice. It requires the selection of a representative group from the entire population and the estimation of the analyzed features with the use of statistical methods. Reliable responses may be difficult to elicit, in particular when local policies stifle the respondents' opinions and when the surveyed subjects are afraid of losing their anonymity. It should also be remembered that questionnaire surveys are valid only at the place and time they are conducted. Questionnaires should be only one of many research tools, and their results should be confronted with the outcomes of other methods.

The above clearly demonstrates the need for unique parameters describing social attitudes to land consolidation measures. An interesting approach was

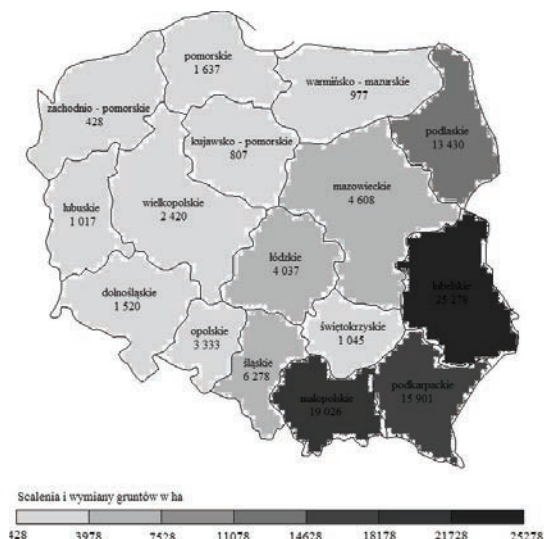


Figure 1. Scope of land consolidation and land exchange measures across Polish regions in 1999 – 2010.

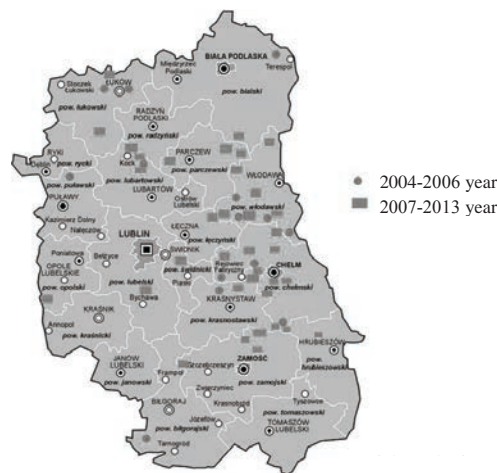


Figure 2. Land plots consolidated in the Lublin Region in 2004-2013.

adopted by the Regional Department of Geodesy in Lublin, which began planning land consolidation measures for 2014-2020 by requesting social feedback from the constituent counties.

In rural areas, spatial transformation projects generate the best results in regions characterized by high levels of social participation. For this reason, analyses of demand for land consolidation should be based not only on economic factors, but also on social parameters and indirect criteria that testify to community involvement in local affairs. Quantitative analyses of social capital and the relevant phenomena rely on public statistics and are often performed by economists and geographers. The evaluated parameters include the number of non-governmental organizations, voter turnout in elections, membership in teams and clubs, local newspaper readership, entrepreneurship, number of organized events, crime rates, religious affiliation and blood donorship. The main drawback of those parameters is that they fail to satisfy the main principles for the selection of variables in quantitative research: significance and normal distribution. They are generally used for the lack of other, more reliable indicators (Bednarek-Szczeptańska, 2013).

Materials and Methods

The main objective of this study was to identify social criteria, including social attitudes and social participation, in the process of evaluating the demand for land consolidation measures. The study was performed in the Lublin Region which runs the highest number of land consolidation projects in Poland.

The geographic location of the Lublin Region and the scope of land consolidation and land exchange measures conducted in the region are presented in

Figure 1. The applied research methods were literature review and spatial statistical analyses. Indicators of social participation were verified in areas covered by land consolidation projects. The evaluated problem is complex, and it was analyzed based on data from various sources, including the Regional Data Bank (Central Statistical Office), National Election Commission and the Ministry of Agriculture and Rural Development.

The analysis was performed in rural municipalities of the Lublin Region. In the evaluated region, 13 consolidation measures (7468 ha) were conducted in 2004-2006 and 39 consolidation measures (27,502 ha) – in 2007-2013. The Lublin Region comprises 171 rural municipalities, and land consolidation projects covered 31 municipalities in 2004-2013 (Figure 2). The highest numbers of four consolidation measures were carried out in the municipalities of Chełm and Urszulin each. The municipalities of Łuków, Ostrówek and Wojsławice performed three consolidation measures each.

Rural municipalities were selected for the analysis by eliminating municipalities featuring a town or city by the same name (due to problems associated with the distribution of selected attributes between those units). A total of 157 municipalities were included in the analysis. Social activity levels were described in the evaluated municipalities.

The selection of variables describing the examined sites was the key stage in the study. In quantitative analyses, variables are generally selected based on the availability of data and the researchers' arbitrary decisions, but they should always be justified by facts. In this study, variables were selected based on the authors' experience and the results of an expert survey.

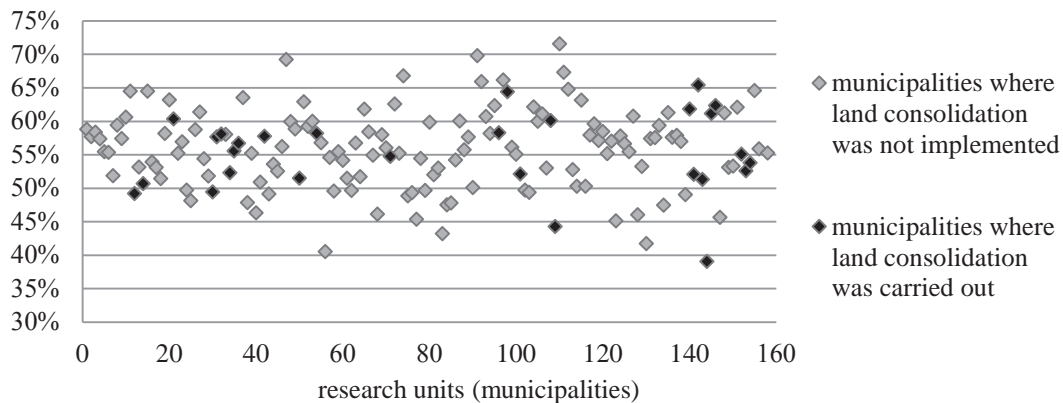


Figure 3. Voter turnout in local elections in rural municipalities of the Lublin Region.

The analyzed parameters were indirectly indicative of social participation, including voter turnout in elections, municipal councilors' levels of education, number of non-governmental organizations and number of local action groups (social organizations in rural areas created under the LEADER axis of the Rural Development Program).

Results and Discussion

The first attribute, which is indicative of social participation and civic attitudes, is voter turnout in elections. Voter turnout is one of the most significant measures of civic engagement which applies only to the part of the local population represented by eligible voters (Stanny and Czarnecki, 2011). The value of this attribute was determined based on the results of local elections that took place on 5 December 2010. Average voter turnout in the Lublin Region was 39.64%, and it was significantly higher in rural municipalities at 55%. The lowest voter turnout of 39% was reported in the municipality of Wola Uhruska, but the highest voter turnout of 72% was noted in Sosnowica. Voter turnout was similar in municipalities where land consolidation projects had been carried out, and it was determined at 55% on average, in the range of 39% to 64% (figure 3).

The following parameter describing social engagement was the education level of municipal councilors. Councilors should have the required qualifications because their decisions influence the development and economic performance of municipalities and counties. Their competence levels are particularly important in the process of obtaining EU funds. According to Bański and Stola (2000), the value of PHARE funds absorbed by Poland in 1995-2000 was clearly correlated with the education levels of municipal councilors. Similar observations were made by Ciok and Raczyk (2006) who investigated fund absorption rates in the INTERREG IIIA program covering Polish-German trans-border regions. Local authorities should be characterized by the highest

level of education in order to be able to accurately identify the demand for and acquire EU funds (Janc, 2009).

Municipal councilor's average education levels were determined across gender and age groups based on statistical data for 2011. In the Lublin Region, an average of 23% councilors had college and university degrees, and those values ranged from 7% to 67% across municipalities. Similar results were noted in municipalities that had undergone land consolidation measures, where councilors with college and university education accounted for 20% of local administration staff on average, in the range of 7% to 60%. On average, the Lublin Region employed 41% councilors with secondary school education and 36% councilors with vocational education, and the municipalities where land mergers had taken place – 43% and 35%, respectively (figure 4).

The number of non-governmental (NGO) organizations is one of the most robust indicators of social engagement and the local community's willingness to participate in finding solutions to local issues (Stanny, 2011). In Poland, this indicator should be applied with caution because statistical data concerning NGOs is often narrowed down to formal registration details, and it does not account for the number of members, completed projects, the organization's activity profile or year of foundation (Stanny, 2011). The number of non-governmental organizations was estimated based on a database of Polish NGOs. The average number of NGOs was determined at 12 in the Lublin Region and 11 in municipalities that had undergone land consolidation.

Another criterion for measuring social engagement levels, including the EU, is the number of Local Action Groups (LAGs) in a given area. LAGs are public-private partnerships that are created in areas of particular importance for the community (Borowska, 2008). LAGs play a very important role in reviving social bonds, promoting dialogue between various social and cultural groups, integrating the local

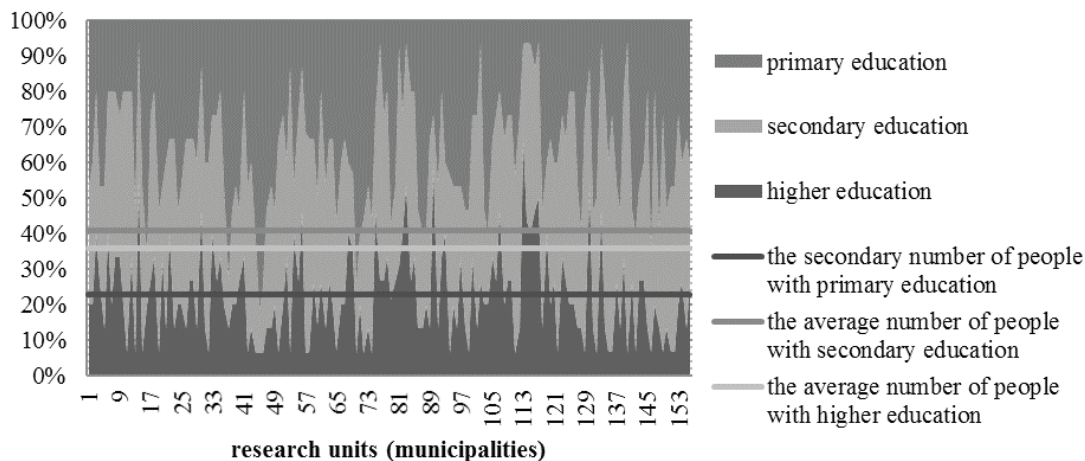


Figure 4. Education levels of councilors in rural municipalities of the Lublin Region.

community and verbalizing local development needs (Borowska, 2008). At present, there are 337 LAGs in Poland. The operations of Polish LAGs cover 278,235.7 km², which accounts for 93.22% of the area eligible for support under the Rural Development Program 2007-2013. The average area covered by one local strategy is 823.18 km². The areas covered by Local Development Strategies are inhabited by a total of 16,877,180 people, i.e. 91.29% of Poland's rural population and 44.27% of Poland's overall population. On average, one Local Development Strategy influences the lives of 49,930 people (Kamiński, 2010). In many Polish regions and municipalities, local governments play the key role in the operations and decisions of LAGs (Kamiński, 2010).

The LAG criterion may not be an effective parameter for estimating social engagement levels because the available statistical data does not account for those organizations' activities. Analyses of Local Development Strategies could provide more comprehensive information. Pursuant to the provisions of the Act on support for rural development with the involvement of the European Agricultural Fund for Rural Development, every LAG is under obligation to adopt a Local Development Strategy. The strategy is one of the key requirements that have to be fulfilled by a LAG in order to become eligible to funding from the Rural Development Program 2007-2013 (Axis 4 of the Leader program).

The results of the analysis indicate that the evaluated parameters of social participation, i.e. voter turnout in elections, education levels of municipal councilors, number of non-governmental organizations and local action groups in the surveyed municipalities, are not effective criteria for determining local demand for land consolidation measures. The analyzed parameters assumed very similar values in municipalities where land consolidation projects had been initiated as

well as in the remaining municipalities of the Lublin Region. The proposed attributes were not correlated with social activities initiated in support of land mergers.

Conclusions

1. Comprehensive land consolidation measures promote sustained development in rural areas, therefore, social attitudes to such projects should be taken into consideration in the planning process.
2. The article attempts to define social engagement criteria, which are important for identifying the demand for land consolidation in spatial-statistical analyses. Municipalities where land consolidation projects had been implemented and municipalities where no such measures had been carried out were compared in the study. The analyzed parameters assumed very similar values in municipalities where land consolidation projects had been initiated as well as in the remaining parts of the Lublin Region.
3. An absence of correlations could be attributed to the fact that social engagement is a complex and qualitatively varied phenomenon which cannot be accurately described in a quantitative analysis.
4. The formal assumptions for formulating synthetic indicators of social engagement should also be revised. The relevant assumptions have to be significantly simplified if the levels of social engagement, honesty and trust are to be effectively described with the use of limited statistical data.
5. Further research is needed to develop social participation criteria that should be taken into account in the process of planning land consolidation measures. This goal can be achieved through local surveys, which are based on structured questionnaires addressed to representative members of the local community,

or monographic surveys which describe specific communities in quantitative-qualitative or qualitative field research.

6. The results of the analysis indicate that the single parameters of social participation are not effective criteria for determining local demand for land consolidation measures. This article is

the first stage of research on parameters which are describing social engagement. The obtained results allow authors to undertake further studies. Construction of synthetic parameter of social activity should be based on parameters described before.

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