
The Impact of European Territorial Cooperation on Selected Aspects of the Quality of Life of the Inhabitants of Cross-Border Areas

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Abstract:

Purpose: An important element of spatial planning, EU policy and regional economics is the assessment of the relevance, effectiveness and efficiency of programs and projects implemented in specific areas, especially cross-border ones. Such programs are an important component of the EU's cohesion policy. Such an evaluation is not a straightforward multidisciplinary issue. There is no uniform method for these assessments. However, such attempts should be made, which is reflected in this study.

Design/methodology/approach: The following research procedures were used: 1. Literature review 2. Collection of qualitative and quantitative data on the area of assistance and on the Interreg IIIA, IVA and V programs, as well as on the projects implemented under these programs 3. Qualitative analysis of the objectives of these programs 4. Selection of projects for the improvement of the quality of life in each of its dimensions 5. Quantitative analysis of the number and value of projects by quality of life dimensions 6. Formulation of conclusions.

Findings: The most important include: 1. Systematic and significant increase in the budgets of the Interreg IIIA, IVA and VA programs. 2. Increase in the importance of projects aimed at improving the quality of life in the years from 2004 to 2023. 3. Dominance among them of projects related to the dimension of Leisure and social interactions and a significant share of projects related to the dimensions of Education and Health.

Practical implications: The obtained results indicate that the projects concerning Material Living Conditions and Productive or Main Activity, which are very important from the point of view of improving the quality of life, are few and have low budgets. Taking into account the peripherality and relatively low level of development of the German and Polish parts of the assistance area (with the exception of the Szczecin metropolitan area), instruments to support the submission of applications in these dimensions should be introduced and their budget increased.

Originality/Value: The originality and value of the research conducted results from its three aspects: 1. The long period covered by the analysis (2004-2023). 2. Selection of the Poland-Germany cross-border zone as the research area. 3. Detailed analysis of all projects. 4. Choosing the quality of life as a specific and significant sphere of impact of the Interreg IIIA, IVA, VA programs and projects.

Keywords: Quality of life, cross-border area, INTERREG, cross-border cooperation.

JEL codes: F15, F53, I38, O21, O22, P21, P43, P46, R58.

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1. Introduction

Quality of life is important in terms of human happiness, fulfillment and satisfaction. It depends on many factors, both economic and social. These include the amount of income, the general level of wealth, but also access to education, health care, municipal services or the level of satisfaction with family life. The quality of life is also influenced by the attractiveness of the place in which we live. The place of residence is not only the geographical territory, but also the access to services, the level of local safety, the offer of tourism, recreation and leisure activities.

The quality of life of the inhabitants is a very important issue in the context of the development of cross-border territories, which are characterized by different levels of socio-economic development and functions. However, due to their peripheral location, they are usually considered underdeveloped, backward areas in need of activation (Angelovic and Istok, 2016; Kurowska-Pysz, 2018; Pallagst and Caesar, 2014).

Under the conditions of previous economic integration, they are transformed into zones of direct relations on many levels: economic, social, cultural, political, as well as tourism. It is in cross-border areas that an increasingly better quality of life for residents is sought through the benefits of a neighboring location, as well as cooperation and numerous connections.

One of the ways to improve the quality of life of the inhabitants of cross-border areas is the implementation of European Territorial Cooperation projects. The overarching goal of cooperation is to promote the economic, social and territorial development of the EU as a whole through the implementation of Interreg programs. It is built around three aspects of cooperation: cross-border (Interreg A), transnational (Interreg B) and interregional (Interreg C).

Poland participates in seven Interreg A cross-border programs: Poland-Slovakia, Lithuania-Poland, South Baltic (Denmark, Lithuania, Germany, Poland, Sweden), Czech Republic-Poland, Poland-Germany (Mecklenburg–Western Pomerania - Brandenburg), Poland-Germany (Brandenburg), Poland-Germany (Saxony). Funds available through cross-border programs can be used by public and private entities, including local governments, businesses, and NGOs.

2. Quality of Life – The Essence of the Concept

In the literature, the concept of quality of life is analyzed by representatives of various sciences, including geographers, economists and sociologists (Panek, 2011; 2015; 2016; Sirgy *et al.*, 2006; Weak, 1990; Susniene and Jurkauskas, 2009), who seek to determine the elements of human quality of life and the factors affecting it. To assess quality of life, economists mainly use indicators. In geography, areas with high or low quality of life are indicated, while in medicine the health status of an

individual is taken into account. According to sociologists, quality of life is defined by the conditions in which individuals find themselves..

The beginnings of quality of life research date back to the 1830s. At that time, statistical data began to be used for the so-called study of the “quantity of human happiness” (Piotrowska and Stępnia-Kucharska, 2022). The initiator of research in the field of quality of life is considered to be the American scientist A. Campbell, who believed that quality of life is influenced by various factors that are not always related to each other, i.e., marriage, leisure time, health, education, housing or standard of living (Campbell, 1976).

In the mid-1990s, aspects related to work and unemployment, health, and “the environmental context of an individual's development over the life cycle” were added to the definition of quality of life (Bańka, 1995). Then, with globalization and socio-economic development, the concept of quality was expanded to include the context of the ecological environment (Kowalik, 2015).

The interdisciplinary approach to the study of the quality of human life has contributed to a wide variety of attempts to define the concept of quality of life. A classification of the numerous definitions was proposed by Farquhar (1995), who distinguishes two categories: 1) professional definitions developed by quality of life researchers (including, global, complex, specific, mixed) and 2) colloquial definitions. Global definitions capture the assessment of quality of life holistically, referring to overall satisfaction with human existence, well-being in various domains of life, a sense of happiness.

Despite the many different definitions of quality of life, common aspects can be distinguished, such as the division into objective and subjective factors, as well as social factors (Polak, 2021). Objective quality of life is based on statistical studies of human living conditions. It is based on macroeconomic, as well as macro-social indicators. The area in which the individual or society under study is located is one of the basic factors on which the objective quality of life of an individual depends (Suchodolska, 2017).

The social quality of life is based on the opinion of the person being studied in relation to their daily life. It is determined by such factors as access to culture, public transportation, access to social institutions, efficiency of municipal services and many other factors. Only after the compilation of statistical data (objective) and the opinions of individuals (subjective), as well as social conditions, is it possible to accurately assess the quality of life of individuals.

Improving the quality of life and reducing excessive disparities in the quality of life of different groups of the population (socially and spatially), including the elimination of social exclusion and poverty, is the primary goal of modern concepts of social and economic development (Szukiełojć-Bieńkuńska and Walczak, 2011).

It should be noted that the definition of quality of life and the factors affecting it will evolve, as people's views, standards and living conditions of residents change, as well as needs undergo transformation and are adapted to the current socio-economic situation.

3. Dimensions of Quality of Life for the Inhabitants of Cross-Border Areas

Cross-border areas are specific regions that may be characterized by a certain peripherality of economic or social development. These areas may also have special development potential, such as cross-border economic flows, a common labor market, or complementary functions in tourism or health care.

In order to assess the quality of life of the inhabitants of border regions, it is necessary to identify the dimensions of quality of life to be observed or measured. The system proposed by the European Statistical System (ESS), consisting of 8 survey modules, can be used to assess the quality of life of the residents of cross-border territories belonging to the EU (Table 1).

Table 1. Dimensions of quality of life according to EUROSTAT

Number	Dimensions of quality of life	Description
1.	Material Living Conditions	Material living standards are measured on the basis of three sub-dimensions: income, consumption and material conditions (deprivation and housing). Infrastructure to increase personal mobility and improve access to the environmental protection infrastructure, commercial services, necessary products, Internet and mobile telephony.
2.	Productive or main activity	Productive or main activity dimension is measured through three sub-dimensions: quantity of employment, quality of employment and other main activity (inactive population and unpaid work).
3.	Health	The health situation in the European Union, in the context of Quality of life, is mainly measured through three sub-dimensions: health outcome indicators such as life expectancy and subjective assessments; health determinants (healthy and unhealthy behaviors, such as smoking, alcohol and fruit and vegetables consumption and exercising); and access to healthcare (data based on the EU-SILC).
4.	Education	In the European Union, this dimension is measured by currently available indicators grouped in four sub-dimensions: population's educational attainment (including the number of early school leavers); self-assessed and assessed skills; participation in life-long learning and opportunities for education (rate of enrolment of pupils in pre-primary education).

5.	Leisure and social interactions	This dimension is measured through 2 sub-dimensions, the first one being leisure activities. Social interactions is the second sub-dimension. Infrastructure to meet these needs.
6.	Economic and physical safety	Safety is measured in terms of two sub-dimensions, physical safety and economic safety
7.	Governance and basic rights	There are 3 sub-dimensions covered in the governance and basic rights dimension: trust in institutions and public services; discrimination and equal opportunities and active citizenship
8.	Natural and living environment	Subjective indicators, such as individuals' own perceptions of noise levels, landscape, aesthetics and cleanliness of the environment, green areas or the existence of pollution and grime in their local area and their satisfaction with the local living environment Objective indicators (the amount of pollutants present in the air, and in particular the values for particulate matter as they are less dependent on climacteric conditions and therefore more comparable) are also included. Infrastructure to meet these needs.
+ 1.	Overall experience of life	Overall assessment of one's life is measured using three sub-dimensions: life satisfaction (cognitive appreciation), affect (a person's feelings or emotional states, both positive and negative, typically measured with reference to a particular point in time) and eudemonics (a sense of having meaning and purpose in one's life, or good psychological functioning.).

Source: Own elaboration based on <https://ec.europa.eu/eurostat/statistics-explained/30.03.2023>.

The determinants of quality of life proposed by the ESS take into account both broadly understood living conditions (also referred to as “objective conditions,” “objective reality”) and subjective well-being. The measurement of subjective well-being (as a separate dimension, defined in the table as the 9th domain) should include the perceived quality of life, i.e. the satisfaction people derive from life, but also elements related to perceived emotional states and the value system, sense of meaning and purpose of life.

4. Characteristics of the Study Area

This study focuses on the Interreg program concerning the cross-border area of the West Pomeranian Voivodeship (Poland) and the states of the Federal Republic of Germany, Brandenburg and Mecklenburg–Western Pomerania, while the entire territory of the West Pomeranian Voivodeship and Mecklenburg–Western Pomerania is covered by the program's intervention, in the case of Brandenburg there are only three counties, Barnim, Uckermark and Märkisch-Oderland (Figure 1).

Figure 1. Support area of the Interreg Cooperation Program Mecklenburg–Western Pomerania/Brandenburg/Western Pomeranian Voivodeship



Source: <https://www.ewt.gov.pl/30.03.2023>

These areas have similar levels of socio-economic development. Although Germany is a country in a better economic position than Poland, the eastern federal states participating in the Interreg program are burdened by historical problems. After German reunification, the economy of the eastern federal states proved unprepared for the shock of Germany's huge competitive advantage. The result was its complete collapse, with only a few percent of Germany's GDP a few years after reunification and a huge exodus – estimated at one million people – to the western federal states (Götz, 2010).

Despite capital transfers from Germany's central funds, the eastern federal states continue to face demographic and economic problems, and their situation is similar to that of the fast-growing West Pomeranian Voivodeship. Brandenburg could undoubtedly be the driving force behind the Interreg program, but the fact that only three counties are included in the area's support map does not have the same tangible effect as including the entire state in the support area.

Quality of life is a difficult category to study due to the lack of a uniform methodology. Consequently, the emerging results of research and analysis on this issue conducted by different researchers, institutions, centers differ. This makes comparative analysis impossible, especially for areas belonging to two different countries. Hence, this study uses selected indicators published by EUROSTAT and available for the analyzed research area (Table 2).

Table 2. Selected quality of life indicators for the cross-border area in 2021

Categories	Selected indicators	West Pomeranian Voivodeship Poland	Mecklenburg -Western Pomerania Germany	Brandenburg (Counties of Barnim, Uckermark, Märkisch-Oderland) Germany
POPULATION	Population, Total (persons)	1 671 605	1 608 138	499 942
	Population density (persons per square kilometer)	78,2	69,5	80,1
	Population (persons), 65 years or over	311 899	406 370	125 624
ECONOMY	Gross domestic product (PPS per inhabitant)	19 100	26 400	23 133
LABOUR MARKET	Employment rate, From 20 to 64 years (%)	73,3	80	82
	Unemployment rate (% of labor force aged 15-74), Total	3,5	3,8	3,0
	Economic activity rate (% of population aged 15-64)	70,6	80,1	80
EDUCATION	Young people neither in employment nor in education and training (% of population aged 15-24)	13,7	9,3	7,8
TOURISM	Nights spent in tourist accommodation (per 1 000 inhabitants)	5 950,6	15 767	3 374,8
	Bedroom occupancy rate in hotels and similar establishments (%)	42,8	58,2	43
TRANSPORT	Networks (km per 1 000 square km), Motorways	1	26	28

Source: own elaboration based on

<https://ec.europa.eu/eurostat/cache/RCI/#?vis=nuts2.transport&lang=en> 30.03.2023

The area supported by the Interreg programs is characterized by similar economic potential. The per capita gross domestic product was between €26,400 (Mecklenburg–Western Pomerania) and €19,100 (West Pomeranian Voivodeship) in 2021.

As can be seen from the data presented in Table 2, the study area is facing the problem of an aging population. The percentage of elderly people above the working age in the total number of people living in the study area is quite high. In the West Pomeranian region it is 18.66%, while in the German part it is higher than in the Polish part and amounts to 25.27% (Mecklenburg–Western Pomerania) and 25.13% (Brandenburg). In the long term, the population is expected to continue to decline,

increasing the demand for skilled workers. In addition, the demand for health and care services will grow very strongly. There will also be changes in leisure activities and levels of mobility.

In terms of transportation, the West Pomeranian Voivodeship has a poorly developed highway network; in this respect, the German area dominates. However, the supra-regional road network is mostly well developed or in the process of expansion, especially in the Polish part of the cross-border area.

A special feature of the cross-border area is the access to the Baltic Sea, which has a significant impact on the development of tourism. The number of overnight stays in 2021 per 1,000 inhabitants was the highest in Mecklenburg–Western Pomerania. This is a direct result of the fact that it is a land heavily visited by domestic tourists from other German states.

On the other hand, in the structure of tourists visiting the West Pomeranian Voivodeship, foreign tourists dominate (almost 80% are Germans). Due to the natural richness of the study area (numerous lakes, reserves, parks, protected areas, forests, access to the Baltic Sea), the projects finally implemented should aim at strengthening its most valuable natural resources and their protection, creating an image of municipalities attractive to investors, residents and tourists.

5. The Interreg Program in the West Pomeranian Voivodeship /Mecklenburg – West Pomerania /Brandenburg and its Impact on the Quality of Life of their Inhabitants

Municipalities, cities and counties of the Polish-German cross-border area strive to improve the quality of life of their residents and consider this task to be one of the most important. Over the years, Interreg programs have changed the image of the Polish-German border area and contributed to its economic and social development.

So far, three programs suitable for successive financial perspectives have been implemented in the study area. The temporal scope, objectives of the programs and the volume of financial resources are summarized in Table 3.

Table 3. *General characteristics of the Interreg IIIA, IVA, VA programs*

Criteria	INTERREG PROGRAMS Germany: Mecklenburg–Western Pomerania/Brandenburg. Poland: West Pomeranian Voivodeship)		
	III A	IV A	V A
Years	2000 - 2006	2007 - 2013	2014 - 2020
Purpose of the program	Promoting sustainable and balanced development and bringing together the people and institutions of the German-Polish border region	Contributing to the even and balanced development of the assisted area and to the cross-border rapprochement of residents and institutions.	Addressing key cross-border issues

Program budget	€115.6 million Polish side: €29.9 million	€132.8 million (ERDF) Polish side: €50 million	€134 million (ERDF) ²
Support	Up to 75% of the project value	Up to 85% of the project value	Up to 85% of the project value
Priority areas	Priority A: Economic development and cooperation Priority B: Improvement of technical and tourist infrastructure Priority C: Environment Priority D: Rural development Priority E: Measures for improving skills and affecting employment Priority F: Intra-regional cooperation, investment in culture and meetings, small projects fund Priority G: Special support for regions bordering candidate countries Priority H: Technical assistance	Priority 1 Support for infrastructure measures for cross-border cooperation and improvement of the borderland environment Priority 2 Economic links and strengthening of scientific and economic cooperation Priority 3 Cross-border development of human resources and Support for cross-border cooperation in the fields of health, culture and education	I Nature and culture II Transport and mobility III Education IV Cross-border cooperation
Result	Number of funded projects for the entire Program (excluding the Small Projects Fund) – 450 amounting to €158 million; 48 projects were implemented jointly by the Polish and German sides) Polish side (West Pomeranian Voivodeship – 208 projects amounting to €31 million) German side 194 projects	69 projects were approved for a total of €144.2 million (€124 million ERDF) Polish side €53 million in funding	Under the Program, 62 projects have so far been approved for a total of €165.2 million (€129.5 million ERDF)
Differences/similarities	Most projects were implemented separately on the Polish and German sides (mirror projects).	All projects were jointly implemented by partners from Poland and Germany The criteria for cooperation were changed (the need to meet 2 out of 4 criteria in the implementation of each project – joint preparation, implementation, personnel, financing).	

Source: Own compilation based on program documents.

²Due to the implementation of the program until December 31, 2023, the final amount allocated to the Polish side cannot be specified. Transfers are still possible between the axes of the program. However, at this stage it can be stated that the amount allocated for the Polish side will not be less than for the Interreg IV A program.

6. Assessing the Impact of the Interreg III A, IVA and VA Programs on the Quality of Life of Residents

The research, which is presented in this article, included a descriptive analysis of quantitative data, extracted from the indicated documents, taking into account their priority axes, investment priorities, as well as specific objectives, along with an assessment of the 2000-2006, 2007-2013, 2014-2020 financial perspectives. The effects of cooperation in the three programming periods and their potential impact on the quality of life of the population in relation to the eight domains of quality of life proposed by EUROSTAT were also initially reviewed (Table 4).

Table 4. Evaluation of the impact of the Interreg IIIA, IVA and VA programs on the quality of life of the residents of the cross-border area

DIMENSIONS	INTERREG IIIA 2000 - 2006		INETRREG IVA 2007 - 2013		INTERREG VA 2014 - 2020	
	Number of projects	Budget of projects (in million) €	Number of projects	Budget of projects (in € million)	Number of projects	Budget of projects (in million) ³ €
Material living conditions	11	0.87	7	18.139	3	29 842 947
Productive or main activity	None		None		None	
Health	4	1.81	3	12.01	8	10.24
Education	14	4.49	7	16.15	10	14.17
Leisure and social interactions	29	8.29	25	38.37	19	63.63
Economic and physical safety	None		None		3	1.84
Governance and basic rights	3	1.94	1	0.27	2	2.80
Natural and living environment	6	0.59	8	14.41	5	4.15
Number and budget of quality of life projects	67	18.00	51	99.37	50	124.41
Total number and budget of projects in the program	450	115.6	69	132.80	62	134.00
Percentage of quality of life projects	14.9	15.6	73.9	74.8	80.6	96.1

Source: Own elaboration.

³Financial values are given according to signed contracts.

At the same time, it should be emphasized that the indicators adopted for the individual programs of the three perspectives (Interreg IIIA, Interreg IVA and Interreg VA) and the way they are reported by the Managing Authority at the end of the programs are not consistent (sometimes the number of projects is given, sometimes the amount spent on projects in a given thematic area). In addition, each time the number and content of priorities in the three perspectives differed, which makes it difficult to make a cross-year comparative analysis. The duration of the Interreg VA program is also an additional complication. It is scheduled to end on December 31, 2023, and it will then be possible to make an overall assessment of it, as the final results will be known at that time.

In each of the financial perspectives, projects aimed at improving the quality of life of residents accounted for a significant percentage of total projects. In the case of the Interreg IIIA program, this share was the smallest, representing only 14.9% of all projects. Nevertheless, it should be remembered that the Interreg IIIA program started in 2004 after Poland's accession to the EU on December 15, 2004.

The Board of the West Pomeranian Voivodeship announced a call for projects in the West Pomeranian Voivodeship. Its predecessor was pre-accession assistance under the Phare CBC program. The Interreg IIIA program, due to its atypical characteristics and funding, is difficult to compare with the subsequent perspectives, which are the Interreg IV and VA programs.

Poland began implementing European Territorial Cooperation programs as a new member of the EU, previously only pre-accession funds were available, which had separate guidelines and rules. Historical analysis of this period shows that some projects were implemented on the basis of mirror activities, some projects were implemented only on one side of the border, and only some projects had a direct cross-border dimension.

In the Interreg IVA and VA programs, the proportion of projects aimed at improving the quality of life was very high, at 73.9% and 80.6% respectively. In each of the three time periods, the largest number of projects were conducted in the Leisure and social interactions dimension: 29, 25, and 19, respectively. The largest number of such projects was carried out within the Interreg IIIA program, but these projects were of considerably low amounts.

They mainly concerned joint Polish-German meetings (to get to know the neighbor) and the construction of bicycle paths. However, few of the bike paths still were cross-border in nature. Rather, the projects were concerned with extending the network of paths on the Polish or German side, and linking them into a common cross-border network was the focus of further financial perspectives.

Educational projects serving local population were also implemented in each program. They accounted for 3% of all projects in Interreg IIIA, 10.2% in Interreg

IVA and 16.1% in Interreg VA. In the first program, projects focused mainly on the development of competencies and Polish-German vocational training, while in the other two programs they dealt with school cooperation, student exchanges, bilingual education, and the construction of Polish-German kindergartens and nurseries.

In the Interreg IIIA program, 11 projects from the dimension of Material living conditions were implemented. These were projects with relatively small budgets (e.g., business meetings) compared to the few (3) identical projects from the Interreg VA program, but with very large budgets as they involved the expansion of cross-border transport links.

Each of the three programs also invested in projects that improved the health of the residents of the cross-border area through cooperation between Polish-German hospitals and scientists in the areas of newborn screening, hematology, oncology and karyology. The Interreg VA program implemented the largest number of such projects (almost 13%).

7. Conclusions

The analysis shows that the objectives of cross-border cooperation between the West Pomeranian Voivodeship, Mecklenburg–Western Pomerania and Brandenburg have changed over the years. This is due to the changing needs of the residents of the cross-border area over time and the socio-economic changes taking place in the regions. Despite the passage of years, the Interreg programs – IIIA, IVA and VA – have supported and subsidized projects that affect the quality of life of the residents. Each program was dominated by the dimensions of Leisure and social interactions, Education, or Health. Only the financial value of the projects differed in these dimensions.

Local governments, educational and cultural institutions, scientific and research units, hospitals, police and fire departments, as well as NGOs have successfully implemented projects that contribute to improving living conditions in the cross-border area. The projects ranged from cross-border cultural events to integrate the local community, to ideas for developing tourism in border regions, increasing the security of local residents, or improving transport infrastructure.

Work has now been completed on the INTERREG VIA program for 2021-2027. The first call for applications was announced on March 30, 2023. There is €155.72 million available under the future program, (€124.58 million ERDF). The program will primarily support the following activities: activating cross-border innovation potential, joint overcoming of the effects of climate change and nature conservation, enabling better participation in cross-border daily life through language, culture and tourism and strengthening trust, joint shaping of cross-border development.

In view of the ageing of the population on both the German and Polish sides, cross-border cooperation projects aimed at improving the qualifications of employees in the field of medical and care services, projects that train employees in this field, create new jobs in this area and promote opportunities for the elderly to spend their leisure time should be supported. Such projects would contribute to a better quality of life in the future.

In addition, the projected impacts of climate change, particularly an increase in extreme weather events such as storms, inland flooding, heavy rainfall, floods, high winds, heat waves, and prolonged droughts, appear increasingly real. The Polish and German sides will be directly affected by these phenomena, especially in the areas along the Oder River. A situation like the recent poisoning of the Oder on the Polish side (2022) should not be allowed to happen. Joint efforts to prepare for and deal with the consequences of climate change-related emergencies are also an important factor in the quality of life of local residents.

The number of Polish citizens who have moved to live on the German side has also increased. This trend is expected to continue and expand geographically in the cross-border area due to the expected improved transport links to Szczecin. This trend has far-reaching consequences, especially at the municipal level in the context of providing public services that are increasingly used by citizens from a neighboring country. This is primarily true for education, health care, and public transportation, which must meet the needs of new residents and people living on one side of the border but working in the neighboring country.

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