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The Standard of Living as a Correlate of Electoral Preferences in the 2020 Presidential Elections on the Example of the Greater Poland Voivodeship

Abstrakt: The aim of the study is to describe electoral preferences of the inhabitants of the Greater Poland Voivodeship in elections of the President of the Republic of Poland in 2020. The study attempts to establish the correlation between standard of living and results of the candidates in the first and second (runoff) rounds of elections.

The literature review allowed to establish the theoretical basis for research on elections in the field of political science and electoral geography. The results of the presidential elections in 2010, 2015 and 2020 in the voivodship were analyzed against the national background. Then, based on the Perkal's method, a synthetic indicator of the standard of living was developed in the studied counties. The last step was to investigate the relationship between the? standard of living and election results of candidates.

Research has shown correlation between candidates results and the standard of living. A. Duda's results correlated negatively each time, while R. Trzaskowski's results correlated positively. Additionally, it was noted that Duda achieved the highest results in poviats with a low and average standard of living, and (on the other hand) Trzaskowski in poviats with a very high and high level.

On the basis of the election years analyzed, the political preferences of the inhabitants of the region were defined as liberal and left-wing, as they more willingly voted for candidates of such profiles than for conservative and right-wing politicians.

Key words: electoral preferences, standard of living, presidential elections, Perkal's indicator

1. Introduction

Election research is of interest to numerous scientific disciplines. This is due to the multi-aspect nature of factors and conditions influencing the organization, course and results of elections. As Roman Matykowski and Katarzyna Kulczyńska (2016, p. 163) note, scientific disciplines adopt different research perspectives on choices. To properly understand such complex issues, an interdisciplinary approach is crucial. In this study, the most important thing seems to be taking into account the political science and geographical perspective. Political science, as a field of the social studies dealing with politics, provides theoretical foundations enabling, among other things, the analysis of electoral preferences. Geography is a natural and social science focusing primarily on the spatial aspect of phenomena, including the analysis of differences in electoral preferences and related factors.

Electoral geography is a subdiscipline of geography that studies the spatial aspects of election organization, voting behavior and election results. T. Zarycki (1997, p. 16) points out that the beginnings of electoral geography date back to the mid-20th century. The pioneer of election research was Andre Siegfried, a geographer who conducted comparative map analyses. Siegfried (1913), in his work on Western France, noticed the relationship between the political preferences of the inhabitants and the geological structure of the areas they inhabited. In practice, these conditions influenced the level of economic development, methods of farming, and population density, and they largely determined the political preferences of residents. The development of electoral geography in Poland was hampered by the political situation, which meant that publications on this subject began to appear only after 1989 (Matykowski, 2018, p. 150). Geographers who undertook electoral analyzes included Florczyk et al. (1989), Parysek et al. (1991), Węclawowicz (1993), Matykowski and Tobolska (1994), and Churski (1995). These studies concerned both the presidential and parliamentary elections.

The electoral decisions of the electorate are determined by a number of factors. One of them are socio-economic factors determining the place a given individual occupies in the social structure. However, this status is not currently (as S. M. Lipset pointed out) the main axis of dividing the political scene into left, right and center.¹

Since the 1960s and 1970s, cultural and religious factors have become important determinants of electoral decisions, and in post-communist countries, historical conditions have also become important. In some countries, ethnic, national minority and migration problems are also important, but in the case of Poland they do not have a decisive impact on the political attitudes of all citizens.

In Poland, in the 1990s, the leading dividing line was the axis of values, which was a reference to the vertical division proposed in Mattei Dogan's model.² According to him, right-wingers were supporters of a greater role of the church and Christian values in social life and in the reconstruction of the system of legal norms. On the opposite side there were supporters of building a secular state, with its clear separation from the church. This division was accompanied by a diverse set of views on the past system, with particular emphasis on the decommunization process.

Divisions based on economic paradigms were not significantly noticeable at that time. This was largely due to the fact that, as Inka Słodkowska noticed, it was only in the 1997 elections that real inter-party program competition appeared. Poles' previous choices were based primarily on emotional factors, determined by their attitude towards communism and the Catholic Church.³

The first symptoms of the formation of differences based on socio-economic issues can be seen in the establishment of the Social Alliance (pl. Przymierze Społeczne) electoral coalition in 1998, before the local elections. The established electoral coalition

¹ Lt. S. M. Lipset, *Homo politicus. Social basis of politics*, Warszawa 1998, p. 237. More on the conditions and criteria of political divisions in the third chapter.

² More on this: M. Dogan, *Erosion of Class Voting and of the Religious Vote in Western Europe*, "International Social Science Journal", 146/1995, pp. 525–536.

³ Elections 1997. Parties and their programs, op. cit., p. 9. See: J. J. Wiatr, *Birth and transformation of the multi-party system*, in: J. J. Wiatr, J. Raciborski, J. Kiliński, J. Bartkowski, B. Frączczak-Rudnicka, *Polish democracy 1989–2003*, Warsaw 2003, pp. 194–195.

referred to the historical “worker-peasant” cooperation, bringing together circles with similar socio-economic views. They clearly based their cooperation on an economically illiberal program, postulating a deepening of the scope of redistribution of goods by the state, taking into account greater social sensitivity to the situation of the economically disadvantaged part of society. On the opposite side of the political scene, in this area, there were to be the remaining political forces, led by the Freedom Union (pl. Unia Wolności). However, this division did not become permanent in the following period. After returning to the opposition, the post-communist, center-left Democratic Left Alliance (pl. Sojusz Lewicy Demokratycznej) was able to monopolize the so-called the left side of the political scene, which began to expand into socio-economic spheres. These trends were facilitated by the economic slowdown, for which Polish society blamed the right-wing government mainly. According to research carried out by the Polish General Electoral Study in 2000, religiosity was still the most important dividing line in the presidential elections. Income as an important factor within the socio-economic criterion did not divide the electorates of the main candidates (Marian Krzaklewski and Aleksander Kwaśniewski).⁴ In the parliamentary elections, the electoral defeat of the ruling party Social Movement Solidarity Electoral Action (pl. Ruch Społeczny Akcja Wyborcza Solidarność, RS AWS)⁵ in 2001 and the high victory of the electoral committee of the Democratic Left Alliance and the Labor Union (pl. Unia Pracy) also increased the importance of the discussed determinants. A higher level of income turned out to be clearly positively associated with voting for the Civic Platform (pl. Platforma Obywatelska, PO) and rather negatively associated with voting for the populist Self-defense (pl. Samoobrona) and the national-conservative League of Polish Families (pl. Liga Polskich Rodzin). The left-wing Democratic Left Alliance (pl. Sojusz Lewicy Demokratycznej, SLD) and the right-wing AWS and Law and Justice (pl. Prawo i Sprawiedliwość, PiS) did not participate in this division.⁶

The growing role of socio-economic factors contributed to the polarization of views between supporters of welfare state policy on the one hand and free market policy on the other. It can be said that this change made it possible to distinguish in the Polish party system a typically economic division distinguished by Herbert Kitchelt, related to the conflict regarding the methods and scope of redistribution of scarce goods.⁷

⁴ See K. Jasiewicz, *Wallet or rosary? Patterns of Poles' electoral behavior in the years 1991–2001*, in: *Party system and electoral behavior: a decade of Polish experience*, ed. R. Markowski, Warsaw 2002, p. 98.

⁵ Solidarity Electoral Action Social Movement (Ruch Społeczny Akcja Wyborcza Solidarność).

⁶ See K. Jasiewicz, J. J. Wiatr, op. cit., p. 98. Many political scientists emphasize that with the economic development of a given country, the role of socioeconomic divisions in the competition between the right and the left is decreasing. The reduction in the importance of this type of factors results both from the reduction in the number of the large-industrial working class, the quantitative expansion of the middle class, and the “bourgeoisization” of the working class, which leads to the blurring of differences in this context. See R. Herbut, *Sociopolitical divisions in Western Europe. Character and structure*, in: *Western European democracies. Comparative analysis*, eds. A. Antoszewski, R. Herbut, Wrocław 2008, p. 79. A similar position, pointing out that socio-economic aspects are not the leading elements of political parties' programs in Poland, was expressed by J. Wiatr. See J. J. Wiatr, op. cit., pp. 189–190.

⁷ More on this: H. Kitschelt, *The Formation of Party Systems in East Central Europe*, “Politics and Society”, 20(1)/1992, pp. 8–14.

This does not mean that economic voting dominated Polish elections, but it became a stronger element of the process of developing electoral decisions. The subsequent elections also confirmed this tendency. In 2005, political parties began to clearly emphasize program differences in these areas. During the election campaign, Law and Justice effectively imposed a division into the vision of a Solidary Poland (pl. Polska Solidarna),⁸ which PiS was to represent and liberal Poland, which was to be embodied by the Civic Platform.

It can therefore be assumed that such a shift in the development of electoral decision factors only in the 2000s is a natural result of the construction of a young party system within the reborn democratic political system. The lack of a detailed vision of the target model of political transformation in the 1990s meant that political parties focused on symbolic differentiation. The formation of political discourse in the socio-economic field took place only after fundamental reforms were carried out and their first effects were faced.

2. Purpose, questions and research methods

The main purpose of the article is to compare the electoral preferences of the inhabitants of the Greater Poland Voivodeship in the 2020 presidential elections and to demonstrate the relationship between the socio-economic situation and these preferences. This goal was achieved by analyzing the correlation between the values of the living standard index developed by the authors and the electoral results of candidates, in spatial terms.

To achieve the above objectives, the following research questions were formulated: 1. Is it possible to demonstrate a significant correlation between the standard of living of residents and the electoral results of candidates in the 2020 elections in the Greater Poland Voivodeship? 2. For which candidates, favorable socio-economic indicators proving a higher standard of living contributed to an increase in electoral support? 3. Which socio-economic indicators correlated most strongly with the candidates' electoral results? 4. Did the results of candidates supported by the two largest political parties in Poland – Law and Justice and Civic Platform – correlate more strongly with the standard of living of residents than the results of other candidates, and what was the direction of the measured relationships?

The analytical part was developed on the basis of electoral and statistical data obtained from the website of the National Electoral Commission and the Local Data Bank of the Central Statistical Office. The work uses an original, synthetic indicator of the standard of living, constructed on the basis of the Perkal's method.⁹

⁸ The division created into "Solidarity Poland" and "Liberal Poland" consciously referred to the rhetoric and symbolism of the "Solidarity" movement. It is true that the current trade union is not a direct continuation of "Solidarity" from the 1980s, but only an attempt to build an ideological opposition to the domination of economic liberalism. This division, although it seems to be with decreasing force, also survived in subsequent election campaigns, more on this: J. Okrzesik, K. Stecyk, *Views on social issues and their impact on the Polish political scene*, in: A. Turska-Kawa, W. Wojtasik, *Social structure and party preferences in the left-right self-identification system*, in: *Political Preferences 2009. Attitudes-Identifications – Behavior*, eds. A. Turska-Kawa, W. Wojtasik, Katowice 2010, p. 173.

⁹ The Perkal's index values and partial indicators were compared with the electoral results of candidates in the 2020 presidential elections to determine the level of correlation between them. When constructing the synthetic indicator, the work of A. Malkowski (2007) was modeled, among others.

3. Terminology

According to the PWN Dictionary of the Polish Language, preference is “preferring something to something else, putting someone above someone else.” In relation to elections, electoral preference is therefore a preference for a given candidate or group over others. As Tomasz Bichta, Małgorzata Podolak and Marek Żmigrodzki (2007, p. 28) note, one of the functions of democratic elections is to express citizens’ political preferences. The issue of the effectiveness of preference articulation is raised in M. Potz (2011), who notes that even with the idealized assumption of voter rationality, it is practically impossible to vote based on all supported political demands, because political programs are packages of demands. He also notices a number of factors limiting the articulation of preferences, including emotions, psychological and social factors. Due to the complexity of the issue, the authors focus only on a fragment of reality, assuming that electoral preferences (and the resulting voting behavior) are partially related to the voters’ standard of living.

It is necessary to discuss the terms “standard of living” and “quality of life.” Both issues are the subject of research interest in many scientific disciplines, and their definition is varied (Włodarczyk, 2015, p. 3).

The definition by Czesław Bywalec and Stanisław Wydimus (1992) states that “the standard of living is the degree to which the needs of the population are met, resulting from the consumption of man-made material goods and services and the use of the values of the natural and social environment.” Quality of life is closely related to the standard of living. C. Bywalec (1991, 2010) defines it as follows: “The quality of life [...] is the degree of a person’s satisfaction with the entirety of his existence and is therefore a specific sum of the individual or collective feeling of the existing living conditions and, at the same time, their assessment.” It is therefore possible to distinguish these concepts by determining the type of indicators examined. The standard of living is determined using quantitative indicators, while the quality of life is based on qualitative indicators, because its essence is subjective assessments (Slaby, 1990).

4. Elections of the President of the Republic of Poland in 2020 – introduction

The 2020 presidential elections were organized in the shadow of the COVID-19 pandemic. After the first case of the disease was detected in Poland in early March, the government introduced restrictions to prevent the spread of the disease. The restrictions introduced limited, among others, the ability to move, and the first so-called *the lockdown* was introduced at the turn of March and April.

Elections were scheduled for May 10, according to the Resolution of the Speaker of the Sejm (parliament) of the Republic of Poland (Journal of Laws 2020, item 184), and their date was announced in February. In the face of social anxiety and the prevailing restrictions, candidates, civic movements and legal and constitutional groups raised the issue of postponing the elections due to the inability to ensure the safe and correct conduct of electoral procedures (e.g. Marek Chmaj for Wyborcza (Ivanova, 2020) or Ewa Łętowska for OKO.press (Sitnicka, 2020)). Despite doubts, ten candidates collected the

required number of signatures and registered their committees. The candidates were: Robert Biedroń, Krzysztof Bosak, Andrzej Duda, Szymon Hołownia, Marek Jakubiak, Małgorzata Kidawa-Błońska, Władysław Kosiniak-Kamysz, Mirosław Piotrowski, Paweł Tanajno and Stanisław Żółtek.

In view of the epidemiological situation in Poland, representatives of the ruling United Right coalition (pl. koalicja Zjednoczonej Prawicy) presented the “Deputy bill on special rules for conducting the general elections for the President of the Republic of Poland ordered in 2020 (Form no. 328)”, which assumed the conduct of correspondence elections. Representatives of the legal community, academics, and politicians expressed their opinion that the presented project was inconsistent with the Constitution of the Republic of Poland, calling for its rejection and a boycott of possible elections (e.g., an appeal by 400 lecturers to postpone the elections (Olejarczyk, 2020)). The project was finally adopted by the Sejm of the Republic of Poland on May 7, after the Senate’s resolution rejecting the project was rejected. The implementation of the elections was entrusted to Polish Post (pl. Poczta Polska), which, even before the adoption of the act, requested commune heads, mayors and city presidents to provide it with voter lists (Szpala, Kondzińska, 2020). Many of them considered the request illegal and refused to provide voter data. On the same day when the act was adopted by the Sejm, the National Electoral Commission declared that voting would not take place because it did not have the competence to prepare electoral cards. On the day of the would-be elections, the National Electoral Commission issued a resolution in which it was announced that the inability to vote for candidates was tantamount to a situation in which there would be no candidates, thus asking the Speaker of the Sejm to call new elections (Resolution No. 129/2020 of the National Electoral Commission of 10 May 2020 regarding the inability to vote for candidates in the elections of the President of the Republic of Poland).

Less than a month after the missed elections, a Resolution of the Speaker of the Sejm was issued, announcing a new election date of June 28. A few days after the May elections, M. Kidawa-Błońska announced her decision not to run in the next elections. In her place, the Civic Platform elected Rafał Trzaskowski, who collected the required number of votes and registered his committee (Makarewicz, 2020). The last candidate who managed to register the committee was Waldemar Witkowski.

Despite constant but weakening criticism from constitutionalists, the elections were held and the turnout was 64.51%. In the elections for the President of the Republic of Poland, the highest result (43.5% of votes) was achieved by A. Duda, who was running for re-election, supported by PiS. The second result went to the PO candidate – R. Trzaskowski, who received 30.46% of the votes. Third place was taken by the non-partisan S. Hołownia with a result of 13.87%. The candidates of the remaining parliamentary groups achieved lower results. K. Bosak received 6.78% of the votes, W. Kosiniak-Kamysz 2.36% and R. Biedroń 2.22%. In the first round, none of the candidates obtained the required majority of votes, which resulted in the need to hold a second round of elections on July 12.

In the second round, two candidates with the highest result obtained in the first round competed. The turnout was 68.18%. The incumbent President A. Duda received 51.03% of the votes, which gave him victory and guaranteed him a second term in office. R. Trzaskowski received slightly less, 48.97% of the votes.

5. Characteristics of the Greater Poland Voivodeship as a spatial reference system in the context of the elections of the President of the Republic of Poland in 2020

The selection of spatial reference systems is determined by many factors and largely depends on the goals set by the researcher (Matykowski, 2018, p. 155). There are 49 district electoral commissions designated for the presidential elections, and 5 of them are located in the Greater Poland Voivodeship. It should be noted that the specificity of presidential elections involves casting votes for candidates from one candidates list, and the division serves only for practical reasons when organizing the elections. Therefore, it was considered more appropriate to operate with territorial units rather than electoral commissions' operational units.

In the first round, voter turnout in the Greater Poland Voivodeship was 65.49% compared to 64.51% in Poland. The President of the Republic of Poland, running for re-election, received the highest support in the Greater Poland Voivodeship and in Poland. In the surveyed voivodeship, A. Duda obtained 37.85% and it was a lower result than the nationwide result of 43.50%. R. Trzaskowski took second place, receiving 33.83% of the votes regionally, and his nationwide result was lower (30.46%). S. Hołownia received the third highest support. In the voivodeship, 16.64% of voters voted for him, i.e. by almost 3 percentage points. more than in Poland in general. The fourth result went to K. Bosak, who won 6.04% of the votes in the discussed voivodeship, and 6.78% in the country overall. The remaining candidates obtained results below 3% of the votes. Of these, W. Kosiniak-Kamysz, R. Biedroń and W. Witkowski received higher support in the voivodeship than their nationwide result. Tanajno received support at the same level in both cases, and S. Żółtek, M. Jakubiak and M. Piotrowski had higher national results than regional ones.

In the second round of elections, M. Jakubiak declared his support for A. Duda. R. Trzaskowski was supported by R. Biedroń, S. Hołownia and W. Kosiniak-Kamysz. The repeated vote brought A. Duda's victory, with support at the level of 51.03%, and thus guaranteed the re-election of the President of the Republic of Poland. R. Trzaskowski lost, receiving the remaining 48.97%. The nationwide turnout was 68.18%, and the provincial turnout was 69.25%.

In the Greater Poland Voivodeship, the results of the second round of elections again differed from the national ones, as R. Trzaskowski took first place with support of 54.93%, and A. Duda received the remaining 45.07%. It should be noted, however, that compared to previous election years, the disproportions between the electoral results of candidates supported by PiS and PO have decreased in many counties. There were also more counties where the candidate supported by PiS won. A. Duda won in 15 counties (in the south-eastern part of the voivodeship and Grodzisk County). He achieved the highest electoral result in the Konin, Koło and Kalisz counties (above 67%). R. Trzaskowski won in the remaining 20 counties, and the highest result was in the city of Poznań (almost 72%) and Poznań county (over 67%). The intensity of support is shown in Figure 1.

Summing up the discussed election results, it is worth noting that they are consistent with the clearly emerging trends in 2010–2020. Firstly, each time in the presidential elections during this period, both in the first and second rounds of elections, the can-

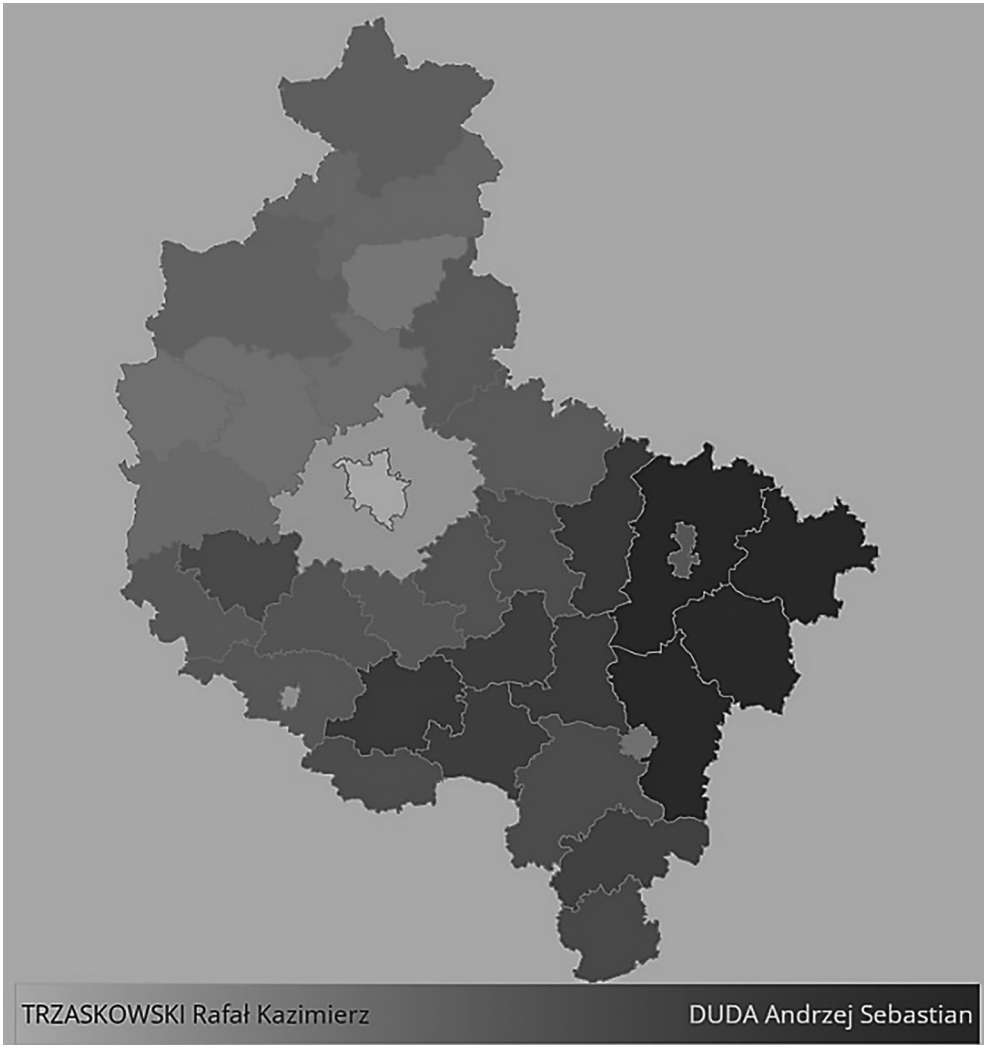


Figure 1. Results of the second round of the 2020 presidential elections in the counties of the Greater Poland Voivodeship

Source: www.prezydent20200628.pkw.gov.pl.

didate supported by the Civic Platform obtained a higher result in the Greater Poland Voivodeship than his nationwide result. The opposite tendency concerned candidates supported by Law and Justice, who each time obtained lower results in the voivodeship. Secondly, in five out of six cases (counting both rounds of elections in the years in question), the highest provincial result among all candidates was achieved by a candidate supported by PO. The only exception was the first round of the 2020 elections, when A. Duda took first place (with the support of PiS). Thirdly, in the first rounds of elections, from one election to the next in the Greater Poland Voivodeship, there was a decrease in support for PO candidates and an increase in support for PiS candidates. The

initial support for the PO candidate in 2010 was 47.00%, then in 2015 it was 41.78%, and in 2020 33.83%. In 2010, the PiS candidate obtained 28.38%, then 28.60%, and in 2020 as much as 37.85%. In the first rounds of the elections, a downward trend for PO and an upward trend for PiS also occurred at the level of nationwide results. In the second round of elections, just like in the first votes, trends at the provincial level were confirmed, although they did not appear in the national results. In the second rounds, the PO candidate first obtained support of 60.55%, then 58.43%, and in 2020 54.93%. Similarly, the PiS candidate in 2010 received 39.45% of the votes, then 41.57%, and in 2020 45.07%. Fourthly, regarding candidates obtaining lower support than those represented by PiS and PO, a general conclusion can be drawn that in the Greater Poland Voivodeship, candidates of left-wing parties usually enjoyed higher support than in the national results. The candidates of far-right parties were in the opposite situation. Candidates supported by the Democratic Left Alliance always achieved a higher result in the Greater Poland Voivodeship than the national result. This situation occurred in the case of G. Napieralski, M. Ogórek and R. Biedroń. A similar situation occurred in the case of J. Palikot (Twój Ruch, translated to Your Move) and W. Witkowski (Labor Union). Right-wing candidates usually had lower results than the national results in the Voivodeship. Almost every candidate who was associated with the groups currently forming the Confederation (Konfederacja) obtained a lower result in the voivodeship than the national result, and this concerned Janusz Korwin-Mikke (twice), Grzegorz Braun, Marian Kowalski, M. Jakubiak and K. Bosak. Only Jacek Wilk obtained slightly higher regional support in 2015. Additionally, other right-wing politicians also achieved lower results: Marek Jurek, S. Żółtek and M. Piotrowski.

These observations may be additionally reinforced by the results of Paweł Kukiz and S. Hołownia, non-party candidates who obtained high support in 2015 and 2020, taking third places in the elections. The first of them scored lower in the voivodeship than the national one, partly representing demands closer to the right, while the situation of S. Hołownia, which represented some of the demands closer to the left, achieved a regionally higher result than the national one. The presented conclusions indicate a certain profile of electoral preferences of the inhabitants of the Greater Poland Voivodeship. The results of the candidates they supported (and the groups they represented) indicate that, compared to the nationwide results, the inhabitants of the Greater Poland Voivodeship more often prefer politicians representing liberal and left-wing demands, and less often conservative and right-wing politicians.

6. Selection of partial indicators

In the first stage of work, the key task was to select partial indicators illustrating the standard of living in counties, because they were used to construct a synthetic indicator. The model for selecting partial indicators was the Better Life Index (BLI), created by the OECD (Organization for Economic Co-operation and Development).¹⁰

¹⁰ BLI is the world's first indicator enabling the study of quality of life at an international level. The OECD uses it to regularly report on member and partner countries. The complexity and innovative approach to examining the quality of life in the case of BLI are a response to the need perceived by

The main difference between the BLI indicator and the one used in this work is the thematic scope of research. The specificity of conducting research at the local level and the availability of data forced the modification of the above-mentioned indicator. 9 out of 11 categories proposed by the OECD were maintained: environment, housing, education, income, employment, social involvement, community (in this study as demography), safety and health (as availability of health services). Two categories were modified: "life satisfaction" was replaced by the "material situation" category and "life balance" was replaced by the "migration" category. In this way, the studied areas, originally containing qualitative data in the quality of life study, were replaced with quantitative data, which at the same time made it possible to use available secondary data.¹¹

Analysis of the electoral preferences of the inhabitants of the Greater Poland Voivodeship in the 2020 elections for the President of the Republic of Poland.

7. Perkal's synthetic index as an indicator of the standard of living

In order to determine the standard of living in counties, the synthetic Perkal's index was used. The adoption of such a calculation method allowed for reducing various indicators with different measurement units to values that can be compared with each other. This then made it possible to determine the standard of living in the form of single numerical values, reflecting eleven partial indicators.

researchers to look at the issue of quality of life in a holistic way, deviating from directly linking this indicator only to the material and economic situation of countries and individuals (Czyż, 2016, p. 12).

The Better Life Index is distinguished by the use of data from as many as eleven areas of human life. Each area is examined using several partial indicators. This approach allows for the assessment of the quality of life in the studied countries, both in individual areas and as a whole. The indicator was created in 2011 and has been used by the OECD to develop reports since then. The ranking published in 2020 included forty countries from six continents. One of the countries surveyed is Poland, which in the last report was at a level close to the OECD average. The value of indicators in two areas exceeded the average, while the remaining areas were below the average.

¹¹ One socio-economic indicator was assigned to each of the eleven presented categories, which means that eleven partial indicators were used in the study. The selection of these indicators was intended to provide the best possible illustration of the standard of living of residents in a given category. Further research stages required the division of indicators into those whose growth is assessed as a positive phenomenon, called "stimulants" in statistics, and those whose growth is assessed negatively, called destimulants. In this way, on the basis of the quality of life index created by the OECD, an indicator was created to examine the standard of living in counties in Poland.

The following indicators were the stimulants: 1) Housing – Average usable area of the apartment per person [m²]; 2) Income – Income of communes in the district per capita [PLN]; 3) Education – Expenditures of communes in counties on education and upbringing per capita [PLN]; 4) Natural environment – Share of legally protected areas in the total area [%]; 5) Social involvement – Foundations, associations and social organizations per 1,000 inhabitants; 6) Health – Clinics per 10,000 population; 7) Migrations – Balance of inter-county permanent migrations per 1,000 people.

The destimulants were: 1) Labor market – Registered unemployment rate [%]; 2) Age social structure – Population of post-working age per 100 people of working age; 3) Income polarization – Beneficiaries of community social assistance per 10,000 population; 4) Security – Local threats per 1,000 inhabitants.

Table 1

Living standard index in counties of the Greater Poland Voivodeship in 2020

Perkal's index									
Poznański	1,26	Ostrzeszowski	0,09	Wrzesiński	0,01	Grodziski	-0,15	Obornicki	-0,31
Poznań city	1,12	Szamotulski	0,09	Gostyński	0,00	Rawicki	-0,15	Wągrowiecki	-0,33
Leszczyński	0,86	Ostrowski	0,08	Kaliski	-0,01	Gnieźnieński	-0,22	Turecki	-0,38
Leszno city	0,61	Krotoszyński	0,08	Czarnk. -trzcianecki	-0,01	Koniński	-0,22	Chodzieski	-0,44
Wolsztyński	0,33	Kościański	0,07	Słupecki	-0,07	Pilski	-0,26	Jarociński	-0,48
Nowotomyski	0,29	Kępiński	0,05	Kalisz city	-0,12	Kolski	-0,31	Pleszewski	-0,59
Międzychodzki	0,15	Konin city	0,02	Średzki	-0,12	Śremski	-0,31	Złotowski	-0,64

Source: Own study.

The obtained results were classified (Table 1). Five classes were adopted to define the standard of living in counties: very low, low, average, high and very high. The division is presented in the cartogram (Fig. 2).

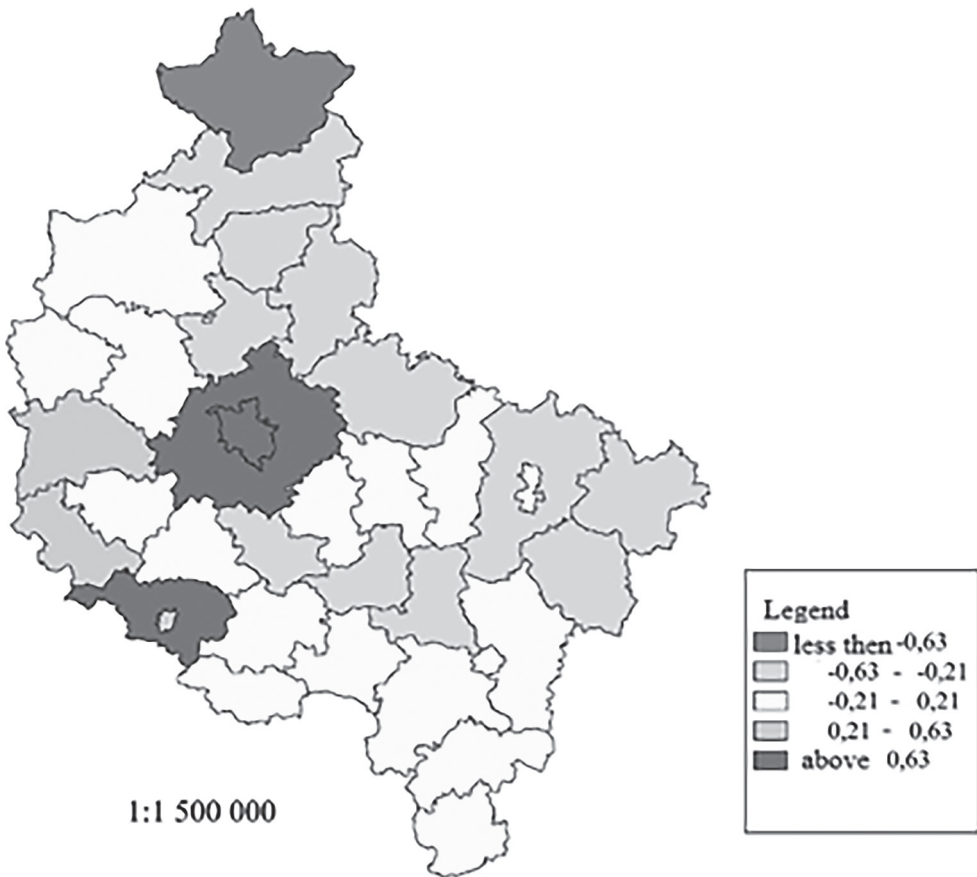


Figure 2. Living standard in counties of the Greater Poland Voivodeship in 2020

Source: Own study.

Correlation of the standard of living with the results of electoral committees in the first round of elections

The first stage of the correlation study involved determining the relationship between the standard of living in counties and the electoral results of candidates in the 2020 Presidential elections.¹²

Statistically significant results were obtained for the results of five candidates: R. Biedroń, A. Duda, P. Tanajno, R. Trzaskowski and W. Witkowski. There were no relationships between the standard of living and the results of the remaining six candidates (level of significance too low).

The strongest tested relationship was noted between R. Trzaskowski's election results and the standard of living in the studied counties. There was a high positive correlation ($r = 0.513$), with a significance of 0.002, which proves that the higher the standard of living, the higher the electoral result of the PO candidate. The coefficient of determination (r^2) was 0.263 (one variable explains the other in approximately 26%). Such research results correspond to the PO program profile and the structure of the party's electorate, in which poorer people are less represented.

A weaker, but also positive relationship was noted for R. Biedroń's results. In this case, we are dealing with an average positive correlation ($r = 0.479$) with a significance of 0.004, which also indicates that the higher the standard of living, the higher the electoral result of the candidate supported by left-wing parties. The coefficient of determination was 0.229.

Another positive relationship was noted in the case of W. Witkowski's results and the standard of living of residents. The average positive correlation was 0.472 ($p = 0.004$). The coefficient of determination was 0.223.

In both of the above cases, it can be concluded that the obtained indicators do not correspond to the program profiles of these candidates. This may indicate that currently left-wing parties and their candidates have largely lost electoral support among people with a lower standard of living. The leftist program of these candidates is currently based mainly on worldview demands, because the naturally left-wing "social" electorate was largely lost by them and taken over by PiS.

The last significant, positive relationship was recorded in the case of P. Tanajno. Average positive correlation ($r = 0.451$), with significance at the 0.007 level. In this case, the standard of living explains the electoral result in approximately 20% ($r^2 = 0.203$). In this case, it is difficult to clearly assess the candidate's views.

The only candidate whose electoral results recorded a negative correlation with the election results was A. Duda. In this case, a high negative correlation of -0.507 was obtained, with a significance of 0.002. This means that the higher the level, the lower the electoral result of the President of the Republic of Poland. The coefficient of deter-

¹² Calculations were made using the SPSS statistical program. It should be emphasized that, according to the principle adopted in applied sciences, including social sciences, a significance level result higher than 0.05 means no relationship between the variables. Therefore, only those results that were characterized by appropriate significance were analyzed, then it was possible to determine the strength and direction of the relationship. In addition to determining the strength and direction, for each of the existing relationships, a coefficient of determination was also determined, which determines the extent to which the variability of one variable is explained by the other variable.

mination was 0.257. This result confirms the thesis that PiS and the candidate it supports have become the greatest representative of the demands and views of the electorate with a relatively lower standard of living.

To sum up, in four out of five cases of recorded relationships, the correlation turned out to be positive. The strongest correlation was observed in the case of the results of candidates supported by the two largest political parties in Poland.

Correlation of the standard of living and partial indicators with the results of electoral committees in the second round of elections

In the second stage of the union analysis, the electoral results of candidates in the second round of elections were taken into account. It was noted that there was a relationship between A. Duda's electoral result and the standard of living in the studied counties (again, a high negative correlation, this time at the level of -0.513 , with a significance of 0.002 and a coefficient of determination of 0.263). Similarly, in the case of R. Trzaskowski, there was a relationship of the same strength, but in the opposite direction. Therefore, there was a high positive correlation ($r = 0.513$), with a significance of 0.002 and a coefficient of determination of 0.263. The strength of the correlation in A. Duda's case increased slightly compared to the one in the first round, while in R. Trzaskowski's case it remained at the same level.

In order to deepen the analysis of relationships, an additional stage of the analysis was to examine the relationships between the candidates' results and the levels of partial indicators in a standardized form. Of the 11 partial indicators used in the study, 4 showed a level of significance indicating the existence of relationships with the election results of both candidates in the second round. These turned out to be indicators from the following categories: Income ($p = 0.006$), Education ($p = 0.007$), Social involvement ($p = 0.042$) and Health ($p = 0.009$).

A. Duda's results always showed a negative correlation. Each of the relationships had average strength: Income ($r = -0.455$), Education ($r = -0.447$), Social Engagement ($r = -0.346$) and Health ($r = -0.435$). This means that the higher the standard of living in a given category, the lower the electoral results of the candidate supported by right-wing and conservative parties. Determination indices ranged from 0.119 to 0.207.

R. Trzaskowski's results were similarly opposite. Each time there was an average positive correlation. This means that the higher the standard of living in a given category, the higher was the electoral result of the candidate supported by liberal and leftist parties. The determination indicators were identical to those of the opposing candidate, so the results were explained by the standard of living in given categories from approximately 12% to 21%.

Standard of living in counties with the highest results of candidates in the second round of elections

In the last phase of the analysis, the electoral results of candidates taking part in the second round of the presidential elections were compared with the standard of living classes in the counties.

A. Duda's highest electoral result was recorded in Konin County and amounted to 68.28% of the votes. The second highest result of 67.93% occurred in the Koło district. Both counties were classified as having a low standard of living (-0.22 and -0.31 respectively).

R. Trzaskowski's best results were recorded in the city of Poznań and the Poznań district, where he obtained 71.94% and 67.51% of the votes, respectively. The mentioned units constitute two out of three units with a very high standard of living (indicators 1.12 and 1.26).

A. Duda won in the Greater Poland Voivodeship in 15 out of 35 counties. Five of them are counties with a low standard of living, and the remaining 10 are classified as average. R. Trzaskowski therefore achieved a better result in the remaining 20 counties. This means that it received more support in all counties with a very high standard of living and all counties with a high standard of living. Additionally, he won in 7 average counties, 6 with a low level and 1 county with a very low level.

R. Trzaskowski won in all 4 cities with county rights. In Poznań, the largest disproportion between the support of both candidates was recorded in the entire voivodeship – A. Duda received 28.06% of the votes, with 71.94% for R. Trzaskowski. In Leszno and Kalisz, these differences were smaller. The most similar results occurred in Konin, where R. Trzaskowski won 51.62% to 48.32%.

In land counties, A. Duda achieved the highest results in areas that were once part of the Russian partition and mainly in the south of the voivodeship. R. Trzaskowski could count on the highest support mainly in the north-western and central parts of the voivodeship, i.e. the former areas of the Prussian partition and the former Western Territories.

Summary

When conducting research on socio-economic phenomena, especially when trying to quantify such extensive concepts as the standard of living, one should accept the fact that the results of these studies will only partially explain the analyzed processes. Nevertheless, the obtained conclusions make an important contribution to better understanding the determinants of electoral preferences in the Greater Poland Voivodeship. The analysis carried out and discussed made it possible to answer the questions formulated in the introduction regarding the existence of relationships between the standard of living and the electoral results of candidates for the President of the Republic of Poland in 2020.

In answer to the first research question, it should be noted that relationships of appropriate significance occurred, but only in the case of the results of 5 out of 11 candidates.

Referring to the second question, it should be noted that a higher standard of living in the counties favored higher electoral results for R. Trzaskowski, R. Biedroń, W. Witkowski and P. Tanajno.

Based on the analysis of the second round of elections, the answer to the third question was obtained. Relationships occurred in 4 out of 11 indicators, and the strongest correlation was between Income and Education.

The answer to the fourth research question was clearly yes. The two strongest connections between electoral results and the standard of living occurred in the case of the candidates of the largest parties. A. Duda's results correlated negatively, and R. Trzaskowski's correlated positively.

Additionally, the authors managed to identify general trends regarding residents' voting preferences. They prefer liberal and left-wing candidates rather than conservative and right-wing ones. PO candidates always achieved higher percentage results in regional elections than in national ones, while in the case of PiS candidates it was the opposite. In the discussed voivodeship, in 5 out of 6 cases, the PO candidate had higher support than the PiS candidate, but PO had a downward trend from election to election, and PiS had an upward trend.

The discussed results can serve as a basis for further analyses, and be an inspiration for further research on electoral preferences and the relationships between socio-economic factors and electoral results. The universality of the method used makes it possible to conduct similar analyzes in other voivodeships or to study other choices. With minor modifications, research procedures can also be transferred to territorial units of a different level. The potential of this type of research is significant, and better identification of the determinants of electoral preferences may be a practical dimension for participants in subsequent elections.

Author Contributions

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Poziom życia jako korelat preferencji wyborczych w wyborach prezydenckich 2020 na przykładzie województwa wielkopolskiego

Streszczenie

Celem niniejszego badania jest charakterystyka preferencji wyborczych mieszkańców województwa wielkopolskiego w wyborach na Prezydenta RP w roku 2020. W badaniu podjęto próbę ustalenia korelacji pomiędzy poziomem życia a wynikami kandydatów w pierwszej i drugiej turze wyborów. Przegląd literatury pozwolił na ustalenie podstaw teoretycznych badań nad wyborami z zakresu nauk

o polityce oraz geografii wyborów. Wyniki wyborów prezydenckich w latach 2010, 2015 i 2020 w województwie analizowano na tle kraju. Następnie, w oparciu o metodę Perkala, opracowano syntetyczny wskaźnik poziomu życia w badanych powiatach. Ostatnim krokiem było zbadanie związku pomiędzy poziomem życia i wynikami poszczególnych kandydatów. Badania wykazały korelację pomiędzy tymi czynnikami. Wyniki Andrzeja Dudy za każdym razem korelowały ujemnie, natomiast wyniki Rafała Trzaskowskiego korelowały dodatnio. Dodatkowo zauważono, że najwyższe wyniki A. Duda uzyskał w powiatach o niskim i średnim poziomie życia, a R. Trzaskowski w powiatach o bardzo wysokim i wysokim poziomie życia. Na podstawie analizowanych lat wyborczych preferencje polityczne mieszkańców regionu określono jako liberalne i lewicowe, gdyż chętniej głosowali oni na kandydatów o takim profilu niż na polityków konserwatywnych i prawicowych.

Słowa kluczowe: preferencje wyborcze, poziom życia, wybory prezydenckie, wskaźnik Perkala

