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Institutional, Structural and Psychological Contexts of Attitudes and Behavior

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Electoral System, Political Knowledge and Voter Turnout—Complex Liaisons

Abstract: The purpose of this paper is to discuss the impact of the electoral system on turnout, moderated by political knowledge. Following the introduction of the FPTP system to some city councils in the 2014 elections, we used a quasi-experimental design to compare two sets of economically, socially and culturally similar cities, chosen using the Propensity Score Matching method. Data from two waves of a survey with residents, city councillors and local social leaders after the 2014 local elections showed that, despite widespread public debates, knowledge about the electoral system was very low. The results proved that, although the level of political knowledge was higher in the FPTP system than in the PR system, the turnout in the former was lower, even when controlled by political knowledge. However, the joint impact of the electoral system and political knowledge on turnout was mixed, and depended on the method of measuring political knowledge.

Keywords: electoral system, turnout, political knowledge, local election, FPTP

Introduction

The purpose of this paper is to discuss the impact of the electoral system on turnout, moderated by political knowledge. The relations between these three variables are a classic topic in political science and the sociology of politics, while the impact of legislation on electoral behaviour and on other aspects of the political system has been the focus of scholarly attention for decades. Naturally, the theoretical and empirical output of this reflection is enormous (Duverger 1954; Taagepera and Shugart 1989; Cox 1997; Banducci and Karp 2009; Stockemer 2017).

A plethora of studies have empirically analysed the systemic, institutional determinants of voter turnout. They have found that different electoral rules produce systematic differences in election outcomes such as voter turnout, the number of parties in a legislature, the success of certain kinds of candidates and electoral volatility (Rae 1967; Powell 1982; Jackman 1987; Lijphart 1990; Geys 2006). The Polish context of the discussion on the effects of electoral systems is essential for the research topic discussed here. In Poland, since the transition in 1989, both the proportional (PR) system (in elections to the Sejm, to the majority of collective bodies in the local government and to the European Parliament) and the majority system in single-member constituencies (first-past-the post, FPTP; in elections

to the Senate since 2011 and, in smaller localities, to city councils in local elections since 2014) have been applied.

An important element in the Polish context is also the dynamics and variability of electoral law in Poland. During the last thirty years, it has undergone many changes. Its instability has had a well-described and documented impact on the electoral behaviour of Poles and, more broadly, on the entire political system of Poland (cf. Flis 2014; Cześnik 2018). The proportionality of elections is an essential element of the Polish constitutional law and is a constitutional norm concerning the Sejm elections. However, this aspect of Polish constitutional law has been strongly criticised since the very beginning of the democratic transformation. There have been movements in Poland calling for a broader introduction of the majority system.

Debates on changing the electoral system in Poland usually take place in the context of low voter turnout, characterising Polish elections since the beginning of transition (Kostadinova 2003; Cześnik 2007; Lubecki and Szczegóła 2007; Markowski 2016). For this reason, changes in the electoral system are a critical element of public discourse in Poland. From time to time, there are plans and proposals for its reform. The introduction of the FPTP system is often postulated, with supporters claiming that this change would be invigorating and salutary for Polish democracy. According to the advocates of this solution, it could help revive and decentralise political life, lending it greater transparency and increasing the accountability of representatives to voters in their constituencies (see Lyubashenko and Żerkowska-Balas 2020). It would also strengthen the stability of governments, improve the selection of administration personnel and increase the sense of responsibility for the community, which is essential for building a strong civil society.

This paper investigates one of the most significant changes to the electoral system in Poland, introduced in 2011 and implemented for the first time in the 2014 local elections to city councils. The change involved introducing the FPTP system in cities that do not have the status of a city county,[1] replacing the previous PR system; in city counties, the PR system persisted. Our main objective is to examine the impact of the new electoral system on voter turnout.[2] However, we assume that the impact of electoral change on political participation is moderated by political knowledge. We are convinced that our study enriches the literature on electoral systems, political knowledge, and voter turnout, and contributes to a better understanding of the relationships between them.

In the first part of the paper, we outline the theoretical background of the project. Then, we present our research hypotheses, which are subject to further empirical testing. In the third part, we describe the research design of the project and sample selection using the Propensity Score Matching method. The fourth part contains empirical analyses. The final, fifth part contains a discussion of the results and conclusions.

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[1] In the terminology used in this paper, a 'city county' is a city in Poland that has the status of a county (*powiat*) and 'city commune' (*gmina*)—a city without the status of a county.

[2] It is worth noting at this point that there was not follow-up to the 2014 quasi-experiment. The legislator changed the electoral system again in the subsequent 2018 local elections by limiting single-member constituencies to municipalities with up to 20,000 inhabitants. Therefore, it is unfeasible to examine the long-term impact of the change of electoral system analysed in this paper. For the same reason, we could not test whether the changes in responses observed between two waves of the study were due to experiences acquired through the board's ongoing operations, or due to the upcoming 2018 elections.

Theoretical Background

Contemporary reflection on politics seeks to identify factors underpinning electoral participation, its dynamics, and cross-national variation. Among the many theoretical models, two main approaches can be distinguished, referring to different levels of analysis. On the one hand, there is a macro-analytical perspective, whose models try to explain the cross-national variance of voter turnout. On the other hand, there is a micro-analytical perspective, whose models try to identify individual characteristics which favour electoral participation, explaining the intra-system variance of voter turnout. Therefore, models explaining electoral participation can be divided according to the level of analysis: aggregate or individual.

Aggregate voter turnout is explained primarily by theories focusing on the institutional infrastructure of the political system. It is important to mention here, above all, models that focus on electoral law and its aspects: compulsory voting, mail voting, proxy voting (Franklin 1996; LeDuc et al. 1996; Perea 2002; Blais 2006; Geys 2006; Stockemer 2017). Institutional settings strongly influencing voter turnout also include the nature of the electoral system (proportional *versus* majority) and the possibility to express preferences for candidates (open lists *versus* closed lists).

There is a consensus among political scientists that the electoral system is one of the most important features of the political system which affects the levels of voter turnout. Numerous empirical analyses, conducted mostly in relation to parliamentary elections, confirm the influence of this factor (Powell 1986; Jackman 1987; Jackman and Miller 1995; Franklin 1999; Perea 2002; Blais 2006; Geys 2006). Generally speaking, proportional elections enjoy higher voter turnout; in majority elections, the participation in elections is, as a rule, much lower.

Scholarly literature gives several reasons why proportional electoral systems should have higher voter turnout. First, in the PR system the 'weight' of a single vote is greater (Lijphart 1997; Perea 2002; Milner and Ladner 2006; Selb 2009). The main objective of the PR mechanism in the conversion of votes into seats is to reflect the views of the citizenry as accurately as possible; in other words, the PR system ensures that each social group, each minority, is represented proportionally to its size. As a result, every citizen, even a supporter of a small, peripheral, and unpopular party, has a good chance of being represented in parliament. Additionally, in the PR system, fewer votes are wasted (not taken into account when electing political representation) due to being cast for losing candidates or parties. Thus, almost every voter (with the exception of people representing extreme, 'niche' positions) has a good reason to vote.

In the FPTP electoral system, the votes of all citizens who do not support the winner in a constituency are wasted. For many citizens, therefore, it makes no sense to participate in elections. Those who support less popular parties or candidates in a given district, not to mention 'niche' ones, have practically no chance of getting parliamentary representation. Therefore, for these citizens, electoral participation is no longer an effective procedure of influencing politics and governance, but an empty ritual that can only serve to legitimise the democratic order.

However, the representativeness produced by PR systems limits the direct influence of citizens on government, especially their impact on the composition of legislature and

executive. This pertains predominantly to closed list systems in which voters' impact on the personal composition of the parliament is minimal. Moreover, in proportional systems, voters do not see a direct link between their votes and the post-election governance and policies. The programmes implemented after the elections are frequently a result of coalition agreements and compromises and are often composed of two or more electoral manifestos proposed during the campaign. Such a situation may discourage citizens from the electoral process and weaken their sense of candidates' responsibility, thus reducing voter turnout and hindering political accountability. Thus, the electoral system may affect voter turnout in two ways. Proportionality can increase it because it gives every citizen a chance to be represented. PR allows for a proportional distribution of votes into seats: no matter whether voters support a small or a large party, they are enticed to turn out, as the addition of a few more votes could allow parties to win a seat. Moreover, the PR system forces parties to mobilise voters in the whole system: there are no electoral districts which a party can concede, as almost every vote counts. However, proportionality can also reduce voter turnout, because it simultaneously dilutes political responsibility, hinders and complicates the relationship between the vote and the 'product' of the electoral process, that is the government; in complex, confounded systems, citizens are less prone to vote.

The other variable, whose impact on electoral participation is well-documented in empirical research, is political knowledge. Political knowledge is crucial for making informed electoral choices and, therefore, makes voting easier (Verba et al. 1995). Moreover, the sense of competence arising from the knowledge of procedures, actors, and connections in the world of politics enhances political efficacy and encourages participation in elections (Jennings 1996; Kaid et al. 2007; Jung et al. 2011; DelliCarpini and Keeter 1996; Popkin and Dimock 1999; Galston 2001, 2007; Reichert 2016). In some studies, the relationship between voting and political knowledge is shown to be stronger than the relationships between turnout and political trust, efficacy or political interest (Milner 2009).

Rarely have the relationships between these three variables—political knowledge, electoral participation, and the electoral system—been analysed jointly. Meanwhile, political knowledge is a key factor conditioning the impact of the electoral system on voter turnout. Some electoral systems are more likely to motivate voters to acquire political knowledge than other systems. Proportional systems increase the availability and usefulness of information to citizens due to the fact that the parties are interested in the wider electorate, while in majority systems parties concentrate their campaigns in marginal districts. Therefore, regardless of individual voter differences, "individual levels of sophistication are the product of choices which are driven by a contextual incentive structure" (Gordon and Segura 1997: 127).

Proportional systems increase political participation by promoting politically knowledgeable voters (Milner 2009). However, the electoral system can exert a divergent impact on the turnout of people with different levels of political knowledge. Voting in the FPTP system demands greater political knowledge and interest, and therefore strongly discourages the less knowledgeable from taking part. The fact that competition is restricted to swing constituencies, being unnecessary in safe-seat constituencies, lowers the weight of the vote and reduces the incentives of parties and candidates to mobilize voters. This situation particularly affects the least knowledgeable voters, who require greater encouragement to take part in an election (Fisher et al. 2008).

Empirical analyses show that there are significant links between social structure and voting in Poland (Cześnik 2011; Cześnik and Kwiatkowska 2017); substantial segments of the Polish citizenry are underrepresented and thus disadvantaged. Electoral participation turns out to be related, first and foremost, to age, gender, education, and religiosity. Data from consecutive editions of the Polish National Election Study (PNES) show a surprisingly consistent picture; the impact of the discussed variables is similar each time. This fact gives rise to the claim that Poland has a stable distribution of electoral participation in the social structure. Undeniably, there are some differences between election types, but they are of secondary importance. Furthermore, these results are similar to the patterns observed in Western European societies (Perea 2002; Franklin 2004).

The level of political knowledge is determined by the same factors in the social structure that influence electoral participation. The most marginalised groups in society, with the lowest political knowledge, are also least likely to vote (Lijphart 1997). Thus, the introduction of the FPTP system "may not simply contribute to lower turnout overall, but also to greater differentials in turnout between different social groups" (Fisher et al. 2008). Marginalised groups may become excluded from the process of choosing political representation to an even greater extent. On the other hand, it is argued that proportional representation requires more knowledge from voters, as there are more parties to choose from and several candidates on each electoral list (Ibid).

Finally, the overall impact of a change in the electoral system on voter turnout is only identifiable after a few electoral cycles. The discussed scholarly literature suggests two alternative theses concerning the effects of such changes over time. The first thesis predicts that a change in electoral system from proportional to majority voting will have a clear and rapid impact. It assumes an immediate increase in turnout at the aggregate level and in the propensity to vote at the individual level. In the short term, the 'institutional novelty' itself may trigger curiosity and, as a result, greater participation of citizens in elections. By contrast, the second thesis envisages no quick, clear or direct effect from such a change. It predicts that the level of electoral participation, its variance and stability will remain unchanged, at least in the first election after implementing the new electoral system.

Research Hypotheses

The main research question of this paper refers to how the change from the proportional to majority system affected electoral participation. We assume that the introduction of the FPTP electoral system in the 2014 local elections is the main independent variable and the general propensity to vote (so called Sunday vote) declared in a poll by respondents is the main dependent variable. We further hypothesise that the relationship between these variables is moderated by the level of political knowledge.

The scholarly literature reviewed above suggests two possible effects of introducing the FPTP system. On the one hand, it foresees a lower voter turnout: in the FPTP system, there may be only one winner of the electoral ballot, so more votes are wasted, which increases electoral abstention. On the other hand, it envisages an increased voter turnout: a new, hitherto unknown and unused voting system attracts citizens (the novelty effect), and

a more straightforward and more transparent FPTP system 'personalises' elections (citizens vote for persons, not parties), making the electoral process easier. However, we assume that the novelty effect will not outweigh the discouraging effect of the majority system.

H1: Controlling for political knowledge, declared turnout will be lower in cities in which the FPTP system was introduced.

We assume that the novelty of the FPTP system and the corresponding media attention it receives will be reflected by a greater interest of residents in politics and their greater knowledge of the subject. Over time, as the novelty effect weakens, we expect a higher political knowledge to persist in cities with a proportional system. However, we are aware that the duration of the study is too short to capture the long-term effects of the electoral system on political knowledge.

H2: The level of political knowledge will be higher in cities with the FPTP system than in cities with the PR system.

An additional issue that needs to be theorised is the moment when the electoral change becomes effective. The impact of the new electoral system on the behaviour of individuals could be instantaneous. But it could be also delayed: in this case, the first election under the new electoral system and the subsequent electoral cycle will show relatively stable electoral participation, changing only after several electoral cycles, in which citizens gradually assimilate the norms and restrictions of the new electoral law. We believe, however, that due to public attention being drawn to the system change, this effect will already be visible in the second wave of the survey.

H3: The differences in the level of political knowledge between cities with the PR system and cities with the FPTP system will be greater in the second wave.

Finally, based on the literature review, we also assume that the single-member majority system strongly discourages people with low political knowledge from voting. Thus, the level of political knowledge will be more strongly correlated with electoral participation in city communes.

H4: The level of political knowledge affects turnout more strongly in the FPTP system.

Research Design and Sample Selection

The introduction of the FPTP electoral system in city communes while keeping a proportional electoral system in city counties has created a quasi-experimental research situation. Observation of similar cities with their electoral system changed (the quasi-experimental group) and unchanged (the control group) made it possible to examine the impact of the changing the electoral system on political knowledge and turnout. For the selection of city pairs for research and statistical analysis of differences in the political attitudes of their residents, the PSM method (Rosenbaum and Rubin 1983) was used. This method aims to estimate the net impact of the experimental stimulus (the change of electoral system) by comparing observations in the experimental and control group with a similar distribution of key measured and unmeasured variables.

To obtain a similar distribution of variables in the experimental and control groups, the propensity scores were estimated for each city, aligning key features in the selection of cases

to both groups. The propensity score is a predicted probability that the electoral system in the city will be changed, given the characteristics of the city. These characteristics consisted of economic, social and cultural variables obtained from the Local Data Bank of the Central Statistical Office [Główny Urząd Statystyczny 2014], the National Electoral Commission [Państwowa Komisja Wyborcza 2014] and the Klon/Jawor Association's database of Polish non-governmental organizations [Klon/Jawor 2015].

Multivariate logistic regression models built on the full set of cities returned, however, a perfect separation of cases, which violated the assumption of PSM that each city has a positive probability of being in the experimental group. This was due to the fact that city counties (the quasi-experimental group) and regular towns (the quasi-control group) are so different from each other, with a given combination of predictors, that there is a perfect prediction of group membership. City counties have bigger populations, higher incomes, as well as a richer social and cultural offer than regular towns. This meant that small cities had zero probability of getting into the experimental group, and large cities—into the control group.

In order to better break down the probabilities, a logistic regression model was built on a group of medium-sized cities: from the smallest city county (Krosno, 47.2 thousand inhabitants) to the largest city that is not a county (Piaseczno, 76.7 thousand inhabitants).[3] Thus, the set of propensity score values was narrowed down to the common support region (cf. Trzciński 2009: 38). We also abandoned some variables that differentiated city counties and non-county cities too acutely. Finally, the model with the following independent variables was selected: population, income per capita change in the last five years, number of registered unemployed, number of social services users, number of clinics, number of places in kindergartens, number of libraries, turnout in the previous local elections (2010, first round) and the previous parliamentary election (2011) and the number of NGOs registered in a given city.

After estimating propensity scores for the cities, cities with a changed electoral system were matched to similar cities with an unchanged electoral system. Using the limit balancing vector, we matched observations from the group of cities with the introduced change of electoral system and cities with no changes in the regulations. Finally, eight pairs of cities were chosen (one city county and one regular town in each), that were most similar to each other and at the same time the most distant from other pairs. The city counties included in the study were: Mysłowice, Suwałki, Siemianowice Śląskie, Łomża, Żory, Biała Podlaska, Piekary Śląskie, Świętochłowice; the city communes included were: Ostrów Wielkopolski, Puławy, Lublin, Głogów, Starogard Gdański, Starogard Gdański, Ostrowiec Świętokrzyski, Inowrocław, Kędzierzyn-Koźle.[4]

In each city type, two waves of the survey were conducted among residents: in the summer of 2015 and in the summer of 2017. In each wave, about 100 interviews were carried out in each city. The sample selection was two-stage, random-quota. From a representative TERYT database a random sample of addresses was selected, which were then allocated to gender and age quotas, separately in individual cities. In addition, in each of the

[3] Two outliers, Świnoujście and Sopot, were excluded from the analysis.
[4] Match Balance: Before Matching Minimum p.value: 0.002; After Matching Minimum p.value: 0.216.

analysed cities, questionnaire interviews were conducted with seven members of the city council elected in 2014 and with ten local social leaders (representatives of NGOs, media, and business organizations). When selecting councillors, their position in the city council (opposition councillors and councillors of the ruling coalition) and experience in the city council (first term councillors and councillors with previous experience) were taken into account. Comparative data from these supplementary studies are treated only illustratively due to the small sample size and non-random sampling.

The empirical tests began with simple bivariate analyses. We then examined differences in political knowledge and turnout between the two kinds of municipalities (quasi-experimental and control group). Finally, multivariate analyses were used to test the impact of the main independent variable and the mediating effect of political knowledge. We were particularly interested in the interactions between the electoral system, political knowledge, and turnout.

Results

Difference in Political Knowledge after the Electoral System Change

The change in voter turnout, if any happened, should be identifiable on both the individual and aggregate levels. Analyses of official data on the local elections in 2010, 2014 and 2018 show that the introduction of the FPTP system had a small positive impact on the turnout; however, these analyses are restricted by differences between the entire group of city counties and city communes regarding their size and socioeconomic status (Gendźwiłł 2020). When we limited the analysed sample to eight pairs of comparable cities from both groups to reduce the bias due to large economic, demographic and social differences between them, the average official turnout in the FPTP system was slightly lower than in the PR system.

Based on the literature reviewed, we assumed that the decision to take part in elections depends on political knowledge, but the strength of this relationship depends on the electoral system. We used four measures of political knowledge relating to the change of electoral system: awareness of the change in how the city council was elected, correct identification of the electoral system used to elect a city council, recognition of candidates running for the city council, and a sense of being well-informed about city council activities.

The awareness of the electoral change through the introduction of single-mandate constituencies in city communes was very limited, as the majority of residents stated that the council was elected in the same way as in previous elections (Table 1). In city communes, only 5.2% of the residents in the first wave of the survey and 10.6% in the second wave indicated that the council had been chosen by different means than before ($\chi^2 = 16.04$, df = 1, p = 0.000). Only a few individuals among them were able, without prompting (in an open question), to identify the change as the introduction of the FPTP system. In city counties, in which the proportional system remained, 14.8% of residents in 2015 and 7.0% in 2017 ($\chi^2 = 25.21$, df = 1, p = 0.000) indicated that the council had been chosen differently from the previous one. Nevertheless, explanations of the perceived difference indicated in

the open question referred to other aspects of the election ('the election was not rigged,' 'councillors were chosen from among the most active candidates,' 'the new councillors are more humane'). Therefore, in city counties with unchanged electoral regulations, almost three times more people in the first wave were convinced that the method of choosing the city council had changed, compared to the cities in which FPTP had actually been introduced ($\chi^2 = 40.69$, df = 1, p = 0.000). In the second wave, more people in city communes than in city counties indicated that they noticed a change in elections to the city council ($\chi^2 = 6.54$, df = 1, p = 0.011). Nonetheless, in both waves of the study, the proportion of correct answers was significantly higher in cities with proportional representation (2015: $\chi^2 = 497.50$, df = 1, p = 0.000; 2017: $\chi^2 = 274.12$, df = 1, p = 0.000).

Table 1

Awareness of a change of the electoral system to the city council

Group	Survey wave	Electoral system	In your opinion, was the current city council elected in the same way as before?			N
			Yes	No	Hard to say	
residents	2015	PR	57.0	14.8	28.2	798
		FPTP	56.3	5.2	38.5	794
	2017	PR	48.0	7.0	45.0	809
		FPTP	66.8	10.6	22.6	814
councillors	2015	PR	83.9	12.5	3.6	56
		FPTP	30.4	51.8	17.9	56
	2017	PR	82.1	5.4	12.5	56
		FPTP	35.7	62.5	1.8	56
social leaders	2015	PR	90.0	1.3	8.8	80
		FPTP	60.5	26.3	13.2	76
	2017	PR	76.3	3.8	20.0	80
		FPTP	66.7	21.8	11.5	78

Source: own calculations.

An even more unexpected phenomenon was observed in our parallel survey of councillors elected to city councils in 2014. In city communes, 30.4% of city councillors in the first wave and 35.7% in the second wave of the study incorrectly claimed that the city council had been elected in the same way as in previous elections. Among those councillors who noticed the change, 68.8% in the first wave and 100% in the second identified the change, in an open question, as a change of electoral system. For comparison, we asked the same question in city counties in which the electoral system remained unchanged. In the first wave of the survey, 12.5% of councillors claimed that the city council had been elected differently. In the second wave of the survey, this percentage fell by more than half to 5.4%.

The highest awareness of the change of electoral system was observed among the social leaders: in cities with the FPTP system, 26.3% of them in the first wave and 21.8% in the second wave correctly stated that the city council had not been elected in the same way as before, while the percentage of persons indicating a change of the electoral system in cities where it remained the same was very small (1.3% in the first wave and 3.8% in the second wave).

Following this question, the respondents were also asked to specify the current electoral system used to elect a city council in their town. The closed question format with only three options to choose from (proportional, majority, mixed) probably prompted some responders to guess the answer.[5] Nevertheless, the percentage of correct answers among residents was very low (Table 2).

Only 15.1% of residents in 2015 and 20.4% in 2017 were able to correctly answer the question about the electoral system used to elect to the city council. Lower political knowledge in this regard was observed in cities with proportional representation, where only about 11% of residents (10.2% in the first wave, 12.4% in the second wave, $\chi^2 = 1.93$, df = 1, p = 0.165) correctly indicated the type of electoral system. Additionally, in the 2015 study, the correct answer was the least frequently chosen from all the possible options. Correct responses in cities where the FPTP system had been introduced were twice as high and improved over time: 20.0% of respondents in the first wave and 28.3% in the second wave identified the electoral system as a majority system ($\chi^2 = 15.05$, df = 1, p = 0.000). In both types of cities, the percentage of 'hard to say' answers was very high, however, in cities with the PR system it increased over time, and in cities with the FPTP system it decreased.

Table 2

Knowledge of the electoral system in city council elections

	residents				social leaders			
	2015		2017		2015		2017	
	PR	FPTP	PR	FPTP	PR	FPTP	PR	FPTP
proportional	10.2	8.3	12.4	11.2	44.3	24.7	28.7	13.9
majority	26.3	20.0	12.9	28.3	19.0	46.8	23.8	43.0
mixed	20.8	11.5	10.4	15.6	12.7	13.0	10.0	27.8
hard to say	42.7	60.2	64.3	44.9	24.1	15.6	37.5	15.2
N	794	794	806	810	79	77	80	79

Source: own calculations.

Answers to the question: In your city, is the current electoral system in elections to the city council a proportional, majority, or mixed system?

We believe that the debate in the city communes about changing the rules of selection of councillors and its consequences translated into greater awareness of election rules: knowledge about the electoral system (a higher percentage of correct indications and fewer 'hard to say' answers) increased between 2015 and 2017 primarily in cities where the FPTP system was introduced. The media attention focused on the majority system could also have confused political knowledge in cities where the change was not introduced. In the first wave of the survey, in both types of cities, the majority system was indicated most frequently (even more frequently in cities with proportional representation); then, after two years, in city counties, the responses indicating the majority system dropped by more than half, while in cities with the FPTP system the percentage increased by a third. In both waves

[5] This question was asked only to residents and social leaders. We refrained from asking the councillors as we did not want to make them feel tested on basic political facts and to discourage them from taking part in the study.

of the study, the proportion of correct answers was significantly higher in cities with the FPTP (2015: $\chi^2 = 29.72$, df = 1, p = 0.000; 2017: $\chi^2 = 62.93$, df = 1, p = 0.000).

As in the previous question, the answers of social leaders were much more frequently correct. In city counties, 44.3% of social leaders in the first wave of the survey and 28.7% in the second wave correctly identified the electoral system as proportional. In cities with the FPTP system, the percentage of correct answers remained similar in the first (46.8%) and second (43.0%) wave.

An additional measure of political knowledge used in the study was recognition of candidates running for the city council. We asked the respondents to estimate the percentage of candidates on electoral lists from their district that they could recall from the 2014 election (Table 3). We assumed that the level of recall by the respondents would be influenced by two contradictory tendencies. On the one hand, respondents would forget the names of some candidates as the time interval since the campaign increased. On the other hand, candidates who had won seats would be better known to residents because of their presence in public space, thereby positively affecting the recognition of candidates to the council.

A large proportion of residents in the first wave of the study recognized 'almost nobody or nobody' (34.2% in PR, 35.4% in FPTP) and the difference of means between the inhabitants of both types of cities was not statistically significant ($\bar{x}_{PR} = 1.90$, $\bar{x}_{FPTP} = 1.91$; t = −0.14, df = 1489, p = 0.886). In the second wave, the level of recall was much lower, especially in city counties, where almost half (48.8%) of respondents declared they recognised 'almost nobody or nobody,' while in cities with the majority system there were 42.2% answers of this type. The difference of means between electoral systems was statistically significant ($\bar{x}_{PR} = 1.73$, $\bar{x}_{FPTP} = 1.83$; t = −2.25, df = 1546, p = 0.024).

Table 3

Recognition of candidates running for the city council

	residents				councillors				social leaders			
	2015		2017		2015		2017		2015		2017	
	PR	FPTP	PR	FPTP	PR	FPTP	PR	FPTP	PR	FPTP	PR	FPTP
almost nobody or nobody	34.2	35.4	48.8	42.3	0.0	9.1	0.0	8.9	0.0	0.0	1.3	2.5
minority	43.3	36.4	27.9	34.6	21.4	16.4	12.5	14.3	27.5	33.8	15.0	27.5
approximately half of them	16.3	15.4	12.5	14.0	21.4	27.3	8.9	16.1	33.8	26.3	27.5	21.3
majority	3.9	5.3	4.9	4.6	41.1	14.5	42.9	35.7	30.0	30.0	42.5	38.8
all or almost all	0.3	0.4	0.2	1.0	16.1	27.3	33.9	25.0	7.5	5.0	10.0	10.0
hard to say	2.1	7.2	5.7	3.6	0.0	5.5	1.8	0.0	1.3	5.0	3.8	0.0
N	799	794	810	813	56	55	56	56	80	80	80	80

Source: own calculations.

Answers to the question: Generally estimating, what proportion of the candidates running for the city council from your district did you recognize, at least by name?

Councillors and social leaders showed much greater knowledge of candidates in the election. In both waves of research, more councillors from city counties than from city communes declared they recognized 'the majority' or 'all' of the candidates (2015: 57.2% versus 41.8%; 2017: 76.8% versus 60.7%). There was a difference in the proportions of councillors who recognized 'nobody or almost nobody,' which was indicated by about 9%

of councillors from city communes, while not one from the city counties chose this response. We suppose that this difference was largely due to the newness of the FPTP electoral system and, consequently, the entry of new candidates from outside major political parties. (On the other hand, in the PR system, some candidates are placed on the lists only to fill the allowed number of candidates or to meet the statutory requirements, and do not actually seek a mandate). In the case of local social leaders, the recall of electoral candidates was high, and increased over time.

As a final measure of political knowledge, we added the sense of being well-informed about the activities of the city council after the 2014 election (Table 4). We assumed that it increases agency and has a positive impact on electoral participation. The sense of being 'definitely well informed,' or 'rather well informed' about the council's activities slightly decreased in cities with a proportional system both among residents (42.4% in 2015, 41.5% in 2017) and social leaders (76.3% in 2015, 71.3% in 2017). By contrast, in cities with a changed electoral system, the percentage of residents feeling well-informed increased (45.9% in 2015, 54.8% in 2017) as did the percentage of social leaders (67.1% in 2015, 77.6% in 2017). Thus, while there was no significant difference between the electoral systems in the first wave ($\bar{x}_{PR} = 2.38$, $\bar{x}_{FPTP} = 2.42$; $t = -1.12$, $df = 1465$, $p = 0.263$), the residents of city counties felt more informed than residents of city communes in the second wave ($\bar{x}_{PR} = 2.48$, $\bar{x}_{FPTP} = 2.61$; $t = -2.96$, $df = 1390$, $p = 0.003$).

Table 4

Feeling well-informed about the city council's activities

	residents				social leaders			
	2015		2017		2015		2017	
	PR	FPTP	PR	FPTP	PR	FPTP	PR	FPTP
definitely not	11.8	12.4	10.3	8.8	3.8	7.6	6.3	3.8
rather not	39.6	32.4	32.8	27.5	26.3	22.8	17.5	17.5
rather yes	37.8	41.1	30.7	45.2	48.8	57.0	50.0	61.3
definitely yes	4.6	4.8	9.8	9.6	17.5	10.1	21.3	16.3
hard to say	6.3	9.4	16.4	8.8	3.8	2.5	5.0	1.3
N	800	799	815	814	80	79	80	80

Source: own calculations.

Answers to the question: Do you feel well-informed about the activities of the city council after the last election?

In order to estimate the significance of changes in the political knowledge of residents taking place over time in both types of cities, four regression models were built, corresponding to the described methods of measuring political knowledge. The models presented here and further in the paper were built on data from two waves of the survey among residents; due to the insufficient sample size, data on city councillors and local social leaders were excluded. For quantitative variables (recognition of candidates running for the city council, feeling informed about the city council's activities) linear regression models were used, and for binary variables (knowledge of the electoral system to the city council, noticing a change in the election to the city council)—logistic regression models. All the models in-

Table 5

Effects of electoral system change on political knowledge

	Dependent variable:			
	Knowledge of the electoral system	Recognition of candidates running for the city council	Feeling informed about the city council's activities	Awareness of a change in the election to the city council
	logistic	*linear*	*linear*	*logistic*
FPTP	0.790***	0.006	0.045	–3.193***
	(0.147)	(0.045)	(0.042)	(0.176)
wave2	0.221	–0.176***	0.103*	–0.364***
	(0.159)	(0.045)	(0.042)	(0.100)
FPTP × wave2	0.233	0.098	0.085	1.139***
	(0.198)	(0.064)	(0.060)	(0.221)
Constant	–2.175***	1.904***	2.376***	0.283***
	(0.117)	(0.032)	(0.029)	(0.072)
Observations	3,204	3,067	2,897	3,215
Log Likelihood	–1,444	–3,979	–3,472	–1,541
Akaike Inf. Crit.	2,896	7,966	6,952	3,091

* p < 0.05; ** p < 0.01; *** p < 0.001

Source: own calculations.

Unstandardized coefficients from logistic and linear regression models, standard errors in parentheses. 'Hard to say' answers in the dependent variable coded as missing data in linear regression models or as incorrect answers in logistic regression models.

cluded as independent variables: the type of electoral system, survey wave, and interaction between these two variables (Table 5).

The impact of the change in electoral system on the political knowledge of residents was varied. Knowledge of the electoral system was greater in the majority system in both waves of the study. Recognition of candidates running for the city council fell in the second wave in both types of cities, when the residents forgot the candidates which they had voted for three years earlier, but this fall was particularly pronounced in cities with a proportional system. On the other hand, in the second wave, the sense of being informed about the activities of the city council increased, and the differences in this respect between cities with proportional and majority rule were not statistically significant.

The biggest shift in the impact of the changed electoral system concerned people's awareness of the system change. Awareness was particularly low in cities with a majority electoral system in the first wave of the study. Paradoxically, more people in cities where the electoral system had not changed indicated that the council had been elected in a different way than it had been previously. In the second wave of the survey, the percentage of people that noticed a change of the electoral system doubled in cities with a majority system, while in cities with a proportional system the corresponding percentage dropped by half.

The Impact of the Electoral System on Turnout, Moderated by Political Knowledge

The main dependent variable was a declaration of willingness to vote in local elections, if they were to take place the following Sunday, measured on a scale of 1 ('definitely no') to 4

('definitely yes'). The differences in 'Sunday voting' between electoral systems in the two waves of the study concerned both averages and dispersion (Table 6). In 2015, the citizens of city counties declared their willingness to participate in an election significantly more frequently ($\bar{x}_{PR} = 2.83$) than residents of city communes ($\bar{x}_{FPTP} = 2.64$; $t = 3.8$, $df = 1414$, $p = 0.000$). Two years later, there were no significant differences between these two types of city ($\bar{x}_{PR} = 2.66$, $\bar{x}_{FPTP} = 2.61$; $t = -1.08$, $df = 1411$, $p = 0.278$), as in city counties the mean turnout dropped to the level observed in city communes, which remained unchanged over time.

Table 6

Declared willingness to participate in an election this Sunday

	2015		2017	
	PR	FPTP	PR	FPTP
Definitely no	8.1	11.6	8.8	15.8
Rather no	26.8	25.7	25.0	23.6
Rather yes	28.5	30.8	31.9	34.9
Definitely yes	27.8	17.9	15.3	18.7
Hard to say	8.9	14.0	18.9	7.0
N	800	799	815	812

Source: own calculations.

However, we assume that the impact of electoral change on political participation was not only direct, but also indirect, as a moderator of the relationship between political knowledge and political participation. According to the research hypotheses presented in the paper, we suggest that political knowledge positively affects turnout—people with better political knowledge take part more often in elections, and people with poorer knowledge—less often. At the same time, the majority electoral system has a negative impact on political participation, but this most strongly affects those with low levels of political knowledge. In addition, we expect this negative impact to increase over time and thus be more pronounced in the second wave of the study.

In the regression models in Table 7, we try to examine the impact of the four variables measuring the political knowledge of residents on their electoral participation, measured as declared willingness to participate in a local election if it took place the following Sunday, moderated by the electoral system used to elect the city council. Linear regression models were built to estimate the magnitude of impact of individual variables measuring political knowledge in various ways (models 1–4) and their joint impact (model 5). The models include the main effects, all two-way interaction effects, and three-way (electoral system and wave of the study) interaction effects.

As expected, the influence of the FPTP electoral system on participation is negative and the direction of this relationship is not changed by including variables measuring political knowledge in the models. (The only exception is model 2, containing the 'recognition of candidates' variable, where the impact of the electoral system is not statistically significant). The strength with which the FPTP system affects participation, however, depends on the covariates: it most strongly affects the model which takes into account the feeling of being

Table 7

Effects of the electoral system on turnout, moderated by political knowledge

	Dependent variable:				
	Sunday Vote				
	(1)	(2)	(3)	(4)	Full model
FPTP	−0.235***	−0.205	−0.677***	0.162*	−0. 344*
	(0.056)	(0.121)	(0.164)	(0.065)	(0.174)
Knowledge of electoral system	0.207				−0.049
	(0.113)				(0.110)
Recognition of candidates		0.277***			0.224***
		(0.042)			(0.043)
Informed about the city council			0.249***		0.143**
			(0.045)		(0.047)
Awareness of an electoral change				0.646***	0.588***
				(0.070)	(0.070)
wave 2	−0.193***	−0.168	−0.293	0.013	−0.126
	(0.055)	(0.118)	(0.165)	(0.076)	(0.176)
FPTP × Knowledge of electoral system	0.113				0.165
	(0.144)				(0.141)
Knowledge of electoral system × wave 2	0.145				0.304*
	(0.158)				(0.153)
FPTP × Recognition of candidates		0.023			−0.066
		(0.058)			(0.061)
Recognition of candidates × wave 2		0.007			−0.014
		(0.057)			(0.061)
FPTP × Informed about the city council			0.204**		0.257***
			(0.064)		(0.067)
Informed about the city council × wave 2			0.056		0.056
			(0.064)		(0.067)
FPTP × Awareness of an electoral change				−0.440**	−0.563***
				(0.167)	(0.164)
Awareness of an electoral change × wave 2				−0.283**	−0.288**
				(0.102)	(0.105)
FPTP × wave 2	0.134	0.114	0.438	−0.053	0.132
	(0.080)	(0.164)	(0.234)	(0.092)	(0.249)
FPTP × Knowledge of electoral system × wave 2	−0.136				−0.233
	(0.196)				(0.191)
FPTP × Recognition of candidates × wave 2		0.015			0.109
		(0.079)			(0.084)
FPTP × Informed about the city council × wave 2			−0.145		−0.171
			(0.089)		(0.093)
FPTP × Awareness of an electoral change × wave 2				0.331	0.364
				(0.213)	(0.212)
Constant	2.806***	2.300***	2.227***	2.461***	1.713***
	(0.037)	(0.086)	(0.114)	(0.054)	(0.124)
Observations	2,806	2,705	2,568	2,818	2,440
Adjusted R^2	0.02	0.09	0.09	0.05	0.171
Log Likelihood	−3,831	−3,590	−3,409	−3,814	−3,119
Akaike Inf. Crit.	7,677	7,196	6,835	7,643	6,278

* p < 0.05; ** p < 0.01; *** p < 0.001

Source: own calculations.

Unstandardized coefficients from linear regression models, standard errors in parentheses. ‘Hard to say’ answers in the dependent variable coded as missing data.

informed about city council activities, and the model with all variables. The impact of the electoral system can also be seen through interactions with variables measuring political knowledge, described below. There are no significant three-way interaction effects.

However, the impact of political knowledge on turnout—independently or in interaction with a type of electoral system—depends on the method of measurement. Among the analysed variables measuring political knowledge, two have a positive, consistent effect on turnout: the sense of being well-informed about city council activities and recognition of candidates on city council electoral lists.

The sense of being informed about the council's activities (model 3) has a positive individual impact on the turnout (in both waves) and in interaction with the type of electoral system (in the first wave). In both types of cities, this variable increases the willingness to take part in voting, but in the first wave, this effect is much stronger for cities with a majority system. In the second wave, the impact of the sense of being informed on turnout is similar in both groups of cities. The positive impact of this variable on turnout, individually and in interaction with the electoral system, remains in the full model when other variables are included.

In turn, political knowledge, operationalized as declared knowledge of candidates running for the city council during the 2014 local election (model 2), exerts a similarly strong positive influence on the desire to take part in elections in both types of cities, and its influence does not change over time between the waves of the study. Thus, the impact of this variable is not moderated by the electoral system. People who declared that they recognized, at least by name, more candidates on electoral lists, are more likely to take part in elections to the city council, regardless of the electoral system used.

Another variable measuring political knowledge in the study, whose direction of influence on turnout depends on the electoral system, is awareness of the change in the electoral system (model 4). In cities with a majority system, noticing a change in the electoral system has a moderate positive impact on electoral participation. However, after splitting the data into two test waves, this relationship becomes statistically insignificant. For comparison, in cities with a proportional system in the first wave, the variable has a very strong positive impact on turnout, which in the second wave of the survey decreases to a level similar to that of cities with a majority system, and also becomes statistically insignificant as a predictor of turnout.

We assume that the explanation of this phenomenon is the unequal media coverage of the two electoral systems during electoral campaigns. Media discussion on the introduction of the majority electoral system resulted in increased belief in all cities that the electoral system had changed, and, as we have shown in earlier analyses, an even higher percentage of citizens indicated this option in cities with a proportional system. In both types of cities, people who gave the correct answer to this question were more likely to vote. Thus, in cities with a proportional system, those who thought that the system had not changed were more likely to vote, and in cities with a majority system, those who noticed the change were more likely to do so. In both types of cities and in both waves, the greatest electoral absenteeism was declared by those who were unable to say whether the system had changed.

Finally, political knowledge measured as knowledge of the electoral system for the city council (model 1) turns out to be a weak predictor of electoral participation. Both the in-

dividual impact of this variable and its interactions with other factors are statistically insignificant in both waves of the study and in both types of cities.

Conclusions

The aim of this paper was to analyse the impact of the electoral system on turnout, moderated by political knowledge. As the introduction of the FPTP electoral system in non-county municipalities in the 2014 local elections created a quasi-experimental research situation, we used the Propensity Score Matching method to choose two sets of cities to compare with a similar distribution of key economic, social and cultural variables: one group with their electoral system changed (FPTP, quasi-experimental group) and the other with their electoral system unchanged (PR, control group). The innovation of the study lies in estimating the net impact of the change of electoral system (a quasi-experimental stimulus). Additionally, while previous studies on the impact of changes in the electoral system have focused on elections to national authorities, our study is devoted to the change taking place at the level of local government, which has not been sufficiently studied yet.

We hypothesized that: 1) the turnout would be lower in the FPTP system than in the PR system; while 2) the level of political knowledge would be higher in the FPTP system; 3) differences in political knowledge would increase in the second wave of the study, and 4) the relationship between political knowledge and turnout would be stronger in the FPTP system as a result of discouraging less knowledgeable people from voting. We used four measures of political knowledge related to the change of electoral system: awareness of the change in the way the city council was elected, correct identification of the electoral system used to elect the city council, recognition of candidates running for the city council and feeling informed about the city council's activities. Our hypotheses have been partially confirmed.

The declared electoral participation in cities with the FPTP system was lower in the first wave of the survey. The negative effect of the majority electoral system on turnout remained significant when controlling for the level of political knowledge. These results are consistent with hypothesis 1. In the second wave, however, participation in cities with a proportional system fell to a similar level.

Our analyses prove that, despite widespread debates about the electoral system, as well as tackling this topic in a nationwide referendum, there is little knowledge about it among citizens. Few residents of the cities with the majority system introduced have noticed the change of the electoral system: only 5.2% of the residents in the first wave, and 10.6% in the second wave indicated that the city council was chosen in a different way than before, and only a few people were able to identify the change as the introduction of the FPTP system without prompting. Paradoxically, more people claimed to notice the change in city counties where it was not introduced. Additionally, not only residents failed to notice the change of electoral system: 30.4% of city councillors in the first wave and 35.7% in the second wave of the study who were elected using a new electoral system, claimed that the city council was elected in the same way as in previous elections.

The low level of political knowledge among residents is also evident in the ignorance of the electoral system used to elect the city council, especially in cities with a proportional

system. Only about 24% of respondents in cities with the FPTP system and about 11% of respondents in cities with the PR system managed to correctly identify the electoral system for the city council. Residents were also unfamiliar with the candidates for the city council. About three-quarters of the residents knew at most just a few candidates on the list or in the district, and half of these none or almost nobody. Poor recognition of candidates has increased over time, especially in cities with a proportional system, where almost half (48.8%) of respondents declared they had known almost nobody or nobody. Furthermore, about half of the respondents in the first survey, and about 40% in the second, did not feel well-informed about the activities of the city council.

Overall, the relationship between the electoral system and political knowledge depends on the way we measure political knowledge. The inhabitants of the cities in which the electoral system had been changed twice as often correctly identified the current system used to elect the city council, and this difference was greater in the second wave of the study. We assume the main reason for this difference was the media attention given to the electoral system change. Recognition of candidates for the city council, which was similar in both types of cities in the first wave of the study, fell in a second wave in both types of cities, and this effect was particularly strong in cities with a proportional system. There were no statistically significant differences between the quasi-experimental and control group in regard to the sense of being informed about the activities of the city council. Due to very few people noticing that the electoral system had changed at all, generalizations of differences between types of cities are problematic. However, in general, political knowledge in the FPTP system was greater than in the PR system, especially in the second wave of the study, which is in line with hypothesis 2.

For most variables measuring political knowledge, the difference between electoral systems increased over time, which is consistent with hypothesis 3 of the delayed effect of electoral change. In the second wave of the survey, city dwellers in the FPTP system more often correctly identified the electoral system, felt better informed about the activities of the city council and declared that they had recognized a higher percentage of candidates on electoral lists. Only when it came to noticing that the council was elected differently than in previous elections, the responses of residents from city communes were less accurate than from city counties, although this difference narrowed over time. Therefore, this case requires a longer observation period.

Finally, the joint impact of the electoral system and political knowledge on turnout was mixed, and depended on the method of measuring political knowledge. Recognizing candidates on electoral lists was more strongly correlated with turnout than correctly identifying the electoral system, but the differences between the FPTP and PR systems were statistically insignificant for both variables. For the residents of city communes, there was a higher correlation between feeling well-informed about the activities of the city council and voting, while for the residents of city counties, the relationship between the turnout and ability to identify whether there had been a change of electoral system was higher. Thus, the relationships between electoral systems, political knowledge and turnout were complex and do not support hypothesis 4. This can be explained by the novelty of the system: the notion of safe-seats has not yet developed, parties have not yet diversified their electoral strategies, and voters have not altered their preferences and behaviours.

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