

## KTO WYGRYWA A KTO PRZEGRYWA W PARLAMENTARNYCH WYBORACH: OD FORMALNEJ TEORII DO ANALIZ EMPIRYCZNYCH

### WHO WINS AND WHO LOSES IN PARLIAMENTARY ELECTIONS: FROM FORMAL THEORY TO EMPIRICAL ANALYSES

#### 1. Scientific aims

The aims of this project stem from innovative matching formal theory of voting in the national parliamentary elections with a unique data set on candidates in parliamentary elections in selected countries of Central and Eastern Europe in order to test specific hypotheses. The formal theory of voting is based on the game theoretical approach from which precise hypotheses are deduced. Theory tells us that by conditioning their ballots on policy outcomes, voters can use elections to control politicians. Presumably, politicians anticipate that they will be sanctioned for poor party-performance, and thus have an incentive to implement policies, through their parties and other political units, that correspond to the preferences of the electorate. Does the system of repeated elections function as a mechanism of electoral control, and if it does, what factors influence its effectiveness? We consider this question in a broad context of studies on parliamentary elections.

To this day most studies on parliamentary elections have three major shortcomings. First, they have focused on electoral success by limiting analyses to “winners” and not realizing that “losers” are equally important for the entire electoral process. From a formal point of view “who wins” and “who loses” are inseparable dual problems. Only operating on the full set of candidates for a particular election one can properly assess the determinants of winning and losing. The second shortcoming stems from ignoring the “history” of elections despite the fact that, for voters, the decision for whom to vote is usually based on the assessment of the past performance of candidates’ political parties. In consecutive elections the reappearances of “old” candidates and appearances of new ones on the political party lists are crucial for the winning/losing outcomes as this is well documented in the fragmented studies. The third shortcoming pertains to the lack of appropriate contrasts in cross-national settings. Only by choosing different electoral systems and types of political culture the researchers can properly assess to what extent our knowledge about the determinants of winning and losing can be generalized.

After a thorough review of the relevant literature, we claim that ours is the first attempt to overcome these three shortcomings. There is no single piece of work (journal article or a monograph) that combines the formal theory of voting with empirical data that includes all candidates for a given election, takes into account several consecutive elections, and it is cross-national with meaningful contrasts of electoral systems and political cultures. Although the studies on voting in parliamentary elections are plenty, the recent progress is minimal because of very limited scope of them. In contrast, our study opens new horizons from theoretical (hypotheses), methodological (analytical tools), and empirical (data) points of view.

In theory domain, the aim of this project is to specify how and to what extent the winning and losing in the parliamentary elections depend on a combination of candidates' party affiliation, party involvement in the government, a type of the representation rule, and local economic performance. The extended list of determinants, the main and auxiliary ones, include individual characteristics (party affiliation, age and gender, education and occupation, list position, result(s) of previous election(s)), party characteristics (being in the government or not, size and type of the party in terms of memberships, ideological distance from the center), electoral system characteristics (method and rules of counting votes to determine the outcome of elections), and country/district level characteristics (measures of economic growth, unemployment, income inequality, and corruption). For legislators, additional characteristics include affiliation with parliamentary faction, membership in legislative committees, and sequence of roll-call votes. Specific hypotheses derived from the game theoretical approach are provided in section 2.

In methodology domain, this project's aim is to make a contribution to sociology's use of the advanced statistical methods of multilevel modeling. In particular, we will apply this modeling to the harmonized data set, with individuals, parties, elections, and countries/districts as units of analyses. To our knowledge, this multi-level modeling was not yet applied in sociology for a particularly complex case. We take into account all elections [elections?] in the post-communist period in countries that are from the same region of Central and Eastern Europe but differ with respect to not only to the party and electoral systems but also to the economic performance of the local (district) level. Specifically, our data will comprise all candidates for parliamentary elections for Poland (1989, 1991, 1993, 1997, 2001, 2005, 2007, 2011), Hungary (1990, 1994, 1998, 2002, 2006, 2010), and Ukraine (1994, 1998, 2002, 2006,

2007, 2012). The data on individual characteristics of all candidates will be matched with data on the electoral laws, party systems, and main political events in each country for the period covered, from the first election after the communist rule to 2010-2012. We will also record the “performance measures” on the district levels (41 districts in Poland, 15 in Ukraine, and 106 in Hungary, according to the current law). We plan to have around 25 individual variables for all candidates ( $N > 100,000$ ). In addition we plan to have around 15 contextual variables, for 20 to 500 period-country/district points, depending on a variable. Altogether this will be a very large data set with more than 4 million entries, giving enough cases for complicated analyses.

Thus, in empirical data domain our aim is to construct a unique data set that consist of enough cases for complex analyses of the problem who win and who loses parliamentary elections in Central and Eastern Europe – analyses with individuals, parties, electoral systems, and country/districts units for multilevel modeling. Since we plan to deal with the exact populations (in contrast to samples), the multilevel modeling will be treated in its descriptive mode, with standard errors of parameters considered only as indicating the degree of population heterogeneity. All restrictions on inferential statistics become void.

Summarizing, the theoretical (hypotheses), methodological (analytical tools), and empirical (data) aims described above show that our project is innovative in all these three dimensions. The project as a whole, potentially, could reorient political sociology in the domain of electoral studies since it will demonstrate how to go from the development of formal theory to the empirical analysis, with substantive results that enrich our knowledge about one of the crucial aspects of democracy – elections. “Who wins and who loses in parliamentary elections?” is a fundamental question not only for social science but also for civil society as such. We are prepared to give a theoretically-based answer to this question, using appropriate analytical tools for a comprehensive data set.

Although this project is mainly meant to reorient political sociology – in Poland and abroad – it also has an obvious interdisciplinary component. In theoretical and substantive domains, it joins sociology with political science; in methodology, it contributes to all disciplines that use multi-level modeling. This project’s linkages to the area studies on Central and Eastern Europe are obvious: it will enhance our knowledge on the functioning of democracy in Poland, Hungary, and Ukraine.

## 2. Original contribution

Theory. We elaborate on game-theoretic approach to elections proposed by Fearon (1999; see also Banks and Sunderam 1990, and Ferejohn 1986). Our contribution consists of connecting this approach with characteristics of the parties and electoral systems.

The basic assumptions of the theory are as follows:

1. Those in parliament, representing party  $p$ , select a policy  $\zeta_1 \in \mathfrak{R}$ , and the electorate experiences the consequences  $z = -(\zeta_1)^2 + \eta_1$ . Here,  $-(\zeta_1)^2$  is the electorate's utility for the policy (the electorate's ideal point is  $\zeta_1 = 0$ ) and  $\eta_1 \in \mathfrak{R}$  is a random shock drawn from a symmetric, unimodal, probability density function  $g$  with mean equal to zero and variance equal to  $\varphi$ . Significantly, the voters do not observe the policy chosen by the incumbent.

2. Having experienced the consequences  $z$ , voters decide whether to elect the representatives of party  $p$ , or to elect representatives of different party. To this end, they select an election threshold  $k$  such that the  $p$ -party representatives wins if  $z \geq k$ .

3. Once the election is over, the elected politician (either from  $p$ -party or from non- $p$ -party) selects a policy  $\zeta_2$  which generates consequences  $z = -(\zeta_2)^2 + \eta_2$ , and the game ends.

Representatives of  $p$ -party care about winning and about policy, and so their utility function is  $W - (\omega - \zeta)^2$ , where  $W > 0$  is the value of holding office and  $\omega \in \{0,1\}$  is their ideal point. Moreover, politicians are of two kinds: good types with  $\omega = 0$  and bad types with  $\omega = 1$ . Good politicians are good because their policy preferences are identical to those of the electorate; bad politicians have policy preferences that do not match those of the electorate. The electorate is uncertain about the types, and believes that politicians are good with probability  $\alpha = (\alpha_i, \alpha_c)$ , where  $\alpha_i$  is the ex-ante probability that the politician from  $p$ -party is good and  $\alpha_c$  is the ex-ante probability that the politician from non- $p$ -party is good. Let  $\Gamma_{ec}$  be the “electoral control” game so defined.

The model represents the interaction between politicians and voters as a “principal-agent” relation. Voters are the principals, and they elect their agents, politicians, to implement a policy. Voters, however, are uncertain about the policy chosen by the politicians and about the politicians' preferences over various. In short, they are simultaneously confronted with the problem of “moral hazard” and the problem of “adverse selection.” As a result, voters have to perform two tasks in a single stroke: they have to induce politicians to implement a good

policy, and they have to sort between good and bad politicians. To accomplish all this, voters have only the right to vote the representatives of p-party out of office and to replace him or her with the challenger. This is the essential problem of electoral control. Consequently, we want to know what factors influence voters' ability to use elections to sort politicians.

To guide our intuitions, we characterize a perfect Bayesian equilibrium –  $(\zeta_1(\omega), \zeta_2(\omega), k, \alpha'(z))$ . Here  $\zeta_1(\omega)$  and  $\zeta_2(\omega)$  represent the policy chosen by the representative of p-party as a function of his or her type  $\omega$ ;  $k$  is the threshold chosen by the voters, and  $\alpha'(z)$  are the beliefs about the p-party representative held by the voters after they experience the policy consequences  $z$ . The central result of the model is that, in the equilibrium, voters condition their voting decision on the policy consequences  $z$ . However, this is not just a matter of simple retrospective voting. Rather, voters use their information about policy consequences to update their beliefs  $\alpha'(z)$  about the p-party representatives. If they conclude that these people are more likely than their challengers to be “good” ( $\alpha'(z) > \alpha_c$ ), then they elect them. Otherwise, they opt for the challengers. In short, when  $z$  is high, voters elect the representatives from p-party because good policy consequences indicate that they are likely to be “good” and thus likely to behave well in the future. Conversely, when  $z$  is low, voters elect the challengers because bad policy consequences indicate that the p-party representatives are likely to be “bad” and thus behave poorly in the future. By using their past information prospectively, however, voters induce “bad” incumbents to behave better. In the equilibrium, “bad” incumbents implement policy  $\zeta_1(1) \in (0,1)$  that is between the “bad” p-party representative's ideal point  $\omega = 1$  and the voters' ideal point  $\omega = 0$ . In short, by sorting politicians, voters also sanction them. In the model, however, sanctioning is a byproduct of sorting.

In addition to this central theoretical insight, the model generates two comparative static results that motivate the statistical model described below. The first result is that the reelection threshold  $k$  set by the voters depends on the quality of information that voters have about the policy selected by the incumbent. In the equilibrium, therefore, the reelection of p-party representatives threshold  $k$  is a decreasing function of the variance  $\varphi$ . The second result is that the reelection threshold depends on voters' beliefs  $\alpha_c$  about the quality of the challengers (non-p-party representatives). When voters believe that the challengers are likely to be good, they

set a higher standard for the p-party representatives. Conversely, when they are convinced that the challengers are likely to be “bad,” they become more lenient towards the p-party representatives. In the equilibrium, therefore, the election of p-party representatives threshold  $k$  is an increasing function of beliefs  $\alpha_c$ .

Of course, the winning and losing in parliamentary elections should be considered in broad context of demographic characteristics of candidates, characteristics of the party which they represent, and the electoral system characteristics. The election of p-party representatives is less likely if this party is seen as involved in corruption. Changes in electoral model to the compensatory system worsen the probability of winning for candidates from small parties. For example, if in Hungary the current electoral system was in place in 2010, Fidesz-KDNP would have received 71% of mandates (141 mandates) in a parliament with 199 parliamentarians even without “winners’ compensation.” The new compensatory system raises this to 76%, which amounts to 152 mandates. This is in the situation in which the ruling party alliance (Fidesz-KDNP) holds 68% of mandates in the current parliament. Thus, we take into account not only economic performance characteristics that may be attributable to parties’ policies but also other characteristics of parties and electoral systems. We will still work on the model of winning and losing in the parliamentary elections within the proposed game theoretical approach.

Methodology. Ours is a major contribution to sociology’s use of the advanced statistical methods of multilevel modeling. Working with the two-level modeling, with  $X$  on individual level ( $i$ ) and  $Z$  on higher level ( $j$ ), we will deal with equations of the type:

$$\text{Prob}Y_{ij} (y = 1) = \gamma_{00} + \gamma_{10}X_{ij} + \gamma_{01}Z_j + \gamma_{11}X_{ij}Z_j + u_{1j}X_{ij} + u_{0j} + e_{ij}$$

where  $\gamma_{00}$  is a constant,  $\gamma_{10}$ ,  $\gamma_{01}$ , and  $\gamma_{11}$  are appropriate weights, and  $u$  and  $e$  – disturbance terms. In this equation  $X_{ij}Z_j$  is an interaction term. Our contribution consists of introducing interaction terms of higher order that will need to be interpretable in a substantive manner. Interpretation of these terms in sociology is still underdeveloped, although the book by Domanski and Pokropek (2011) is a step in right direction. See section 5.

Data. In this project we will contribute to building a large data set that consists of enough cases for complex analyses of the problem who wins and who loses in parliamentary elections in Poland, Hungary, and Ukraine. This data set will include individuals, parties, electoral systems, and country/district units for multilevel modeling. We plan to deal with the exact populations. The data gathering is described in section 4.

### 3. Importance

If we look at the recent debates about sociology, initiated by Michael Burawoy at the International Sociological Association, the main postulates for the further development of the discipline are (a) to link theoretical thinking with empirical practice, (b) to harmonize existing data and make them public, (c) to increase international cooperation, and (d) to move academic sociology into public sociology (see ISA forums). We claim that our project fulfills these postulates of significance (importance) of the sociological research:

1. This proposed project provides a clear link between a game-theoretic model and a statistical model that allows us to test specific hypotheses derived from a formal theory. Our theoretical framework consists of statements in the form of a mathematical model and a set of rules of correspondence that link the terms of these statements to observable data. Despite the wealth of theoretical insights formal models provide, it is rare in the social sciences that a formal model is used to derive statistical predictions. Our combination of formal modeling with statistical analysis of a large data set is therefore innovative. Potentially, it will have an impact on political sociology in Poland and abroad.

2. In this project, we intend to construct a unique and valuable electoral database for three countries: Poland, Hungary and Ukraine. To our knowledge, no social scientist has used data about parliamentary candidates that are matched across elections and contain contextual variables about party systems and countries' performance during the inter-election periods. Two features of the database are particularly important, completeness and historical relevance: (a) we include *all* free elections that have taken place in Poland, Hungary, and Ukraine between 1989-1994 and 2010-2012, and (b) we cover a long period of time during which party-system institutionalization has occurred. Although we construct this database for a specific purpose of testing hypotheses about the impact of party systems on electoral accountability, it can be used in a variety of other projects, including consequences of accountability for gender, political, and economic inequalities.

3. The proposed project, located in Warsaw, Poland increases international cooperation. The principal investigator, Joshua Kjerulf Dubrow, US citizen and educated in the United States, works at the Institute of Philosophy and Sociology of the Polish Academy of Sciences since 2007. The principal investigator proposes to form a research team consisting of experts from Poland (Dr. Justyna Nyćkowiak), Hungary (Dr. Carsten Schneider), and Ukraine (Dr.

Natalia Pohorila) – three countries studied. In addition, the project will include two specialists from the United States: Jakub Zielinski and Sheri Kunovich. The project will also involve doctoral students appointed through open competition in Europe. See sections 4 and 6.

The team will avoid various shortcomings of the two most frequently used methods in comparative politics: case studies (limited to one or two countries) and multinational studies with high number of countries. Although case studies usually are rich with respect to the content of variables, they do not allow for rigorous testing of statistical hypotheses about the effects of country characteristics. In contrast, multinational studies process information on a very high level of aggregation. For instance, they rarely allow for testing hypotheses about individuals. It is very likely that the combination of our multilevel modeling approach and the rich data we collect and analyze by an international team will have a profound effect on comparative studies in the social sciences.

4. Substantively, our main hypotheses pertain to the relationship between the party system and political control. The effects of party systems on electoral control – a crucial dimension of democracy - have been under-explored. In fact, our project is the first comprehensive study of the impact of party systems on the ability of voters to hold politicians responsible for their actions. We propose to study political accountability in an innovative way, focusing on parliamentary candidates and their chances of winning, dependent on their own or their party's performance in the past. We plan to organize a conference for a large audience and to be engaged in debates of public sociology.

#### **4. Research Plan**

The planned research is divided into three major steps:

1. Improving the theory. Although our basic theoretical framework is well developed, still some improvements are needed. We will organize special seminars to discuss all necessary elements of the theory for this study.

2. The most laborious part of the project – in terms of manpower – is data gathering and data management. In Table 1, we provide basic information on countries and periods covered by our project as well as on sources of data. We would like to obtain data on over 100,000 parliamentary candidates, competing in *all* 19 free elections that have taken place in Poland, Hungary, and Ukraine since 1989-1994. The main sources of appropriate data on parliamentary candidates are official records from the government and other state agencies responsible for

maintaining election archives. For elections conducted in the early 1990s, these records typically are in the form of paper documents, while in later years they are stored as electronic files.

For each country, the data for all elections must be pooled so that the candidate is the unit of observation and all characteristics of his or her participation in consecutive elections are the values of variables. This arrangement of data will allow us to track the political experience of candidates, including their partisan affiliation, across consecutive elections. The matching of candidates across elections is a time-consuming activity since it requires careful examination of about 3-8% of cases in which either different candidates have the same names, or the same candidates have different names, or there are various errors and inaccuracies in the variables identifying the candidates. In practice, each instance of matching candidates must involve examining several auxiliary characteristics such as dates of birth, education, occupation, party affiliation, and electoral district. For each country, we expect that the actual matching of electoral candidates across elections will require intensive consultation with local experts.

**Table 1. Basic information about data on parliamentary candidates**

Country	House of Parliament	Number of deputies	Research project on parliamentarian candidates			
			Period covered	Number of elections	Estimated number of candidates	Source of data
Poland	Sejm	460	1989-2011	9	48,000	Państwowa Komisja Wyborcza
Hungary	Országgyűlés	386	1990-2010	7	36,000	Nyilvános és Valasztási Hivatal
Ukraine	Verkhovna Rada	450	1994-2012	7	40,000	Центральна виборча комісія

We have already obtained and preliminarily analyzed data for Poland (Shabad and Slomczynski 2001, 2002); however we must add data for 2007 and 2011. For Hungary, we currently have data for all candidates that ran for the 386 seats in the Hungarian National Assembly (Országgyűlés) in 1990, 1994, 1998, 2002, and 2006. The file has information on the conditions under which the candidate won including the number of votes received in round 1 and round 2 when necessary. We have to extend this data set to the 2010 election. The

Ukrainian dataset encompasses all competitive elections for the 450 member Verhovna Rada that took place in 1994, 1998 and 2002, since Ukraine became an independent state in 1991 (Slomczynski, Shabad, Zielinski 2008). We have to extend this data set for 2006, 2007, and 2012.

**Table 2. Units of Analysis, Types of Information, Source of Data, and Status of Data Collection**

Levels and units of analysis / Variability	Type of information	Source of data	Status of data collection	
			Collected / Already funded	Not collected / Seeking funding
<b>A. Individual level / Variability within elections</b>				
Parliamentary candidates	Demographic characteristics, education and occupation, party affiliation, list position, result of election	Official records from national electoral offices and other state agencies responsible for maintaining election archives	1989-2001 elections in Poland; 1990-1998 elections in Hungary; 1994-1998 elections in Ukraine	All remaining elections
Legislators	Affiliation with parliamentary faction, membership in legislative committees, a sequence of roll-call votes	Official records of parliamentary offices	Poland, 1995-2001; Hungary, 1996-2000	Poland, Hungary, Ukraine, remaining periods
<b>B. Country and District level / Variability between elections</b>				
Party systems	Number of new and old parties, ideological distance between parties, index of party involvement in scandals	Official materials of political parties and local experts	Partially (to assess availability)	Partially (to assess availability)
Country and District Performance	Periodic measures of economic growth, unemployment, income inequality, corruption	World Bank data archives, <i>Human Development Reports</i> , national statistical yearbooks, and other public sources	Partially (to assess availability)	Partially (to assess availability)

3. Data analysis, preparing publications. The last step of this project is to analyze data according to the methods described in previous sections and Section 5.

### ***Research team***

1. Dr. Joshua Kjerulf Dubrow (PhD Ohio State University, 2006), Institute of Philosophy and Sociology, Polish Academy of Sciences. Specialist in political sociology – principal investigator for the proposed research (Poland).

2. Dr. Justyna Nyćkowiak (PhD IFiS PAN, 2012), Institute of Sociology, University of Zielona Góra – country specialist (Poland).

3. Dr. Carsten Schneider (PhD European University Institute 2005), Department of Political Science, Central European University – country specialist (Hungary).

4. Dr. Natalia Pohorila (PhD Graduate School for Social Research at the Polish Academy of Sciences 2005), Center of Public Opinion Survey, Kiev - country specialist (Ukraine).

5. Dr. Jakub Zielinski (PhD Chicago University, 2004), Boston Consulting Group, Boston and Warsaw – specialist in game theory and electoral control (USA, Poland).

6. Dr. Sheri Kunovich (PhD Ohio State University 2004), South Methodist University – specialist in voting behavior (USA).

7. Dr. Michal Bojanowski (PhD Utrecht University, 2012), Interdiscyplinarne Centrum Modelowania Matematycznego i Komputerowego, University of Warsaw – specialist in mathematical sociology (Poland).

All members of the team are young scholars in terms of their stage of academic career although they have different academic experience: some of them obtained PhD in the mid-2000s and some this year (2012). They all work in the field and are familiar with the project's data. In terms of specialties, all members represent sociology and/or political science, with experiences that not only complement each other but provide clear synergy. Added value of the members' composition stems from cooperation between specialists in quantitative sociology and deep knowledge of the region of Central and Eastern Europe – Poland, Hungary, and Ukraine in particular. Three members are located in Poland, three abroad, and one in Poland and abroad. All members communicate on daily basis through Internet. However, the research team will also have common meetings (workshops) and a conference.

### **5. Methods**

Here we explain how we progress from a simple equation to the complex model in which we include individuals, parties, electoral systems, and country/district units of observations. We begin with the following initial equation:

$$\text{Prob}(y = 1) = F(\beta'x)$$

Here,  $y \in \{0,1\}$  is a binary dependent variable with  $y=1$  indicating that a candidate enters the parliament;  $F(\cdot)$  is a cumulative distribution function (Normal, Logistic, Weibull,);  $\beta$  is a vector of parameters; and  $x$  is a vector of independent variables. Notice that the dependent variable is defined on the set of all candidates rather than just on incumbents. Information about incumbency is contained in independent variables.

We partition the vector  $x$  of independent variables into three sub-vectors characterizing parties: performance variables  $x^{pe}$ , party-system variables  $x^{ps}$ , and control variables  $x^c$ . Naturally, when we test for interaction effects, the vector of independent variables will include interaction terms. As the name suggests, performance variables measure the performance of candidates, for example, the consequences of the policies selected by the incumbents while they are in office. The first performance variable  $x^{pe}_1$  measures whether a candidate belongs to a political party that is tarnished with a scandal. The second variable  $x^{pe}_2$  measures whether a candidate is a member of a governing party that presided over an economic downturn. More specifically, high values of  $x^{pe}_2$  indicate worse economic performance. If voters use elections to control politicians, then candidates from parties implicated in scandals and candidates from parties responsible for a severe economic downturn should have a lower probability of entering the parliament. In other words, the parameters  $\beta_1$  and  $\beta_2$  should be positive. If this is not true, then we conclude that voters are unable to use elections to control their politicians and thus accountability does not exist.

We are not interested in electoral control *per se* but rather in the impact of emerging party systems on electoral control. In short, we want to know whether emerging party systems influence the electorate's ability to use elections to control politicians. Do different party systems alter the probability that politicians are punished for bad performance and rewarded for good performance? According to our game-theoretic model, if emerging party systems influence the voters' ability to control politicians, they do so by affecting the quality of information (as measured by  $\varphi$ ) that voters have about the policies chosen by the incumbents and by affecting the beliefs  $\alpha_c$  that voters hold about the challengers. To anchor ideas, consider two possible examples of party-system variables:  $x^{ps}_3$  – the frequency with which politicians change political parties, and the  $x^{ps}_4$  – the ideological distance between political

parties. The frequency of party switches may have an impact on accountability because frequent switches might make it difficult for voters to assign responsibility for poor performance. Frequent switches, in other words, may increase  $\varphi$  and thus reduce the quality of information that voters have about candidates. Ideological polarization, in other words, reduces  $\alpha_c$  and thus increases the probability that the challengers are “bad.” When different parties promise to implement radically different policies, voters might be reluctant to punish the incumbent candidates for bad performance or for corruption because they might fear that the opposition would implement even worse policies or behave in a reprehensible way.

Aside from party system variables, we have a sub-vector of control variables  $x^c$ . We partition this vector into three types: candidate variables, institutional variables and legacy variables. Candidate variables measure a candidate's age, education, and political experience. We include them because we know from previous research (Shabad and Slomczynski 2001, 2002) that they influence the probability of winning. Institutional variables measure the formal institutions that characterize a given country in a given election. In particular, we focus on electoral systems (Cox 1997) and constitutional design and legacy (Schugart and Carey 1992) which prove to be important in the study of elections.

Our contribution to methodology of multi-level modeling rests in dealing with the interaction terms involving variables from different level of analyses: individuals, parties, electoral system, countries/districts. This is a contribution to non-hierarchical multi-level modeling, rarely used in social sciences.

## 6. Effects

Products are of two kinds: research and training.

### ***Research products***

1. Papers prepared for high quality publication outlets, including individual articles in the top journals (*American Sociological Review*, *European Sociological Review*, *Sociology*, and other journals with impact factor above 1.5), and an edited volume.
2. The Electoral Database for Central and Eastern Europe will be archived at the GESIS-Berlin and the Polish Archiwum Danych Społecznych.
3. Project website, which will facilitate communication with social-scientists working on the topic of parliamentary elections in Central and Eastern Europe.

4. Workshops featuring the electoral database. The initial workshop, in the first year of the project, sets the agenda for dealing with the under-researched problem of winning and losing parliamentary elections in Central and Eastern Europe by careful examining approaches to the problem and creating a network of researchers who will use the project's electoral database in the future. During the next two workshops and specialized courses, in the second year of the project, selected participants and advanced graduate students will study the electoral database and statistical issues in cross-national data analysis.

5. Data will be part of doctoral dissertations, including those of students in the Interdisciplinary Cross-national Studies (ICNS) specialization at the Graduate School for Social Research.

#### ***Training products and impact on academic careers***

Our project has an important professional training component. At least two graduate students, interested in comparative politics and political sociology, will work with us through all stages of the project, from data collection, through creating computer files, planning and executing statistical analysis, to writing reports and preparing papers for publication.

We also plan to offer a seminar about this project for graduate students of both sociology and political science at the Graduate School for Social Research, Polish Academy of Sciences, and the University of Warsaw.

This project will have a measurable impact on young scholars. The principal investigator, who in 2007 began his work at the Polish Academy of Science just after obtaining his PhD at the Ohio State University, plans to write a book related to this project and start the process of habilitation during the next academic year. Jakub Zieliński (USA, Poland), Justyna Nyckowiak (Poland), Carsten Schneider (Hungary), Natalia Pohorile (Ukraine), and Sheri Kunovich (USA) will advance their careers in connection with Poland and therefore [*'they will enhance' or 'in enhancing'?*] enhancing the Poland's role in the international scientific collaboration. They will co-author papers with Polish colleagues contributing to the visibility of Polish sociology and political science.

Principal investigator and other PhD holders involved in the project - Jakub Zieliński (USA, Poland), Justyna Nyckowiak (Poland), Carsten Schneider (Hungary), Natalia Pohorila (Ukraine) and Sheri Kunovich (USA) will collaborate with Polish PhD students according to the international standards. These young trainees will acquire skills that are marketable in academia

in Poland and other countries. At present, there is a shortage of young scholars, sociologists and political scientists, who are well versed in management of the large-scale data sets and advanced statistical analyses. This project could ease this situation by bridging a construction of the unique dataset and forming an original international research team for which the training in advanced statistical analysis is an important component.

## References

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