

1. Purpose of the Project

The purpose of this project is to advance the theory, methods, and empirical base for studying the relationship between political inequality and economic inequality via the innovations of (a) developing the concept of political voice inequality and the general model of its determinants and consequences, (b) creating quantitative measures of political voice inequality across nations and time using survey and non-survey data, and (c) building a database for testing specific hypotheses. Two fundamental research questions are: (1) *How and to what extent are the main components of political voice inequality – political participation and party representation – related to each other once main features of political and economic institutions are accounted for?* and (2) *At the macro-level, how and to what extent do political voice inequality and economic inequality influence each other?*

In this study we focus on political voice inequality: the extent of structured differences in influence – directly via political participation and indirectly through parties elected to parliament – over government decisions (Dubrow 2015; World Social Science Report 2016: 5). A basic tenet of modern democracy is the presumption of equal political opportunity, i.e. that the voice of all citizens can be heard in government (Dahl 2006). Yet, a consistent empirical finding in the fields of political sociology and political economy is that, even when democratic rights are equal, some have greater voice in government than others.

Political voice refers to how citizens can express their interests to government and it is usually measured by individuals' direct actions such as voting, protesting, and volunteering in political organizations. Yet there are also other, indirect, avenues of expressing voice that analyses of political inequality overlook. An innovation of this project is to include representation through political parties, a crucial component of political voice (APSA 2004). Parties organize voters' political interests. Through proposing legislation and other governance functions, elected parties carry the voice of their voters into government (Kitschelt 1999; APSA 2004). Voters whose party was elected to parliament are better represented than voters whose party was not; in essence, unequal party representation is an important form of politically inequality of voice.

Empirical studies indicate how economic inequality - as an aggregate property that we define as the skewed distribution of economic resources - associates with the unequal distribution of political voice across the social structure (Verba et al 1978; Przeworski 2012). There is also rich empirical research on how economic conditions – including economic inequality – and political participation connect (Dubrow et al 2008; Schlozman et al 2010; Solt 2015), with due attention to how variation in the stability and effectiveness of political institutions mediate this connection (Acemoglu and Robinson 2012; Piketty 2014). Our project goes further: it aims to explore how political participation connects to a very important aspect of political inequality – that is, party representation. In this way we will join direct and indirect components of political voice inequality.

Although scholars recognize its profound importance (e.g. Teorell and Tobiasen 2007; Gilens and Page 2014), the cross-national and over-time empirical relationship between economic inequality and political voice inequality is not well understood. We identified four critical shortcomings of the literature that have prevented substantial progress (for details, see Section 2): (1) inadequate conceptualization of political voice inequality; (2) poor specification of a theoretical model that addresses the reciprocal relationship between economic and political inequalities; (3) limited measurement of political voice at the micro-level; and (4) empirical parochialism. This project overcomes these shortcomings and advances the fields of political sociology and political economy in terms of theory (hypotheses), methods (analytical tools), and empirical resources (data).

To achieve the purpose of this project in terms of advancements in theory, methods, and database for studying the relationship between political inequality and economic inequality, we propose to establish an international research team and develop a research infrastructure. The research team is based on the resources of Cross-National Studies: Interdisciplinary Research and Training Program (CONSIRT.osu.edu), a joint endeavor of the Polish Academy of Sciences and The Ohio State University. The research infrastructure will enable scholars and other interested actors to access the resources this

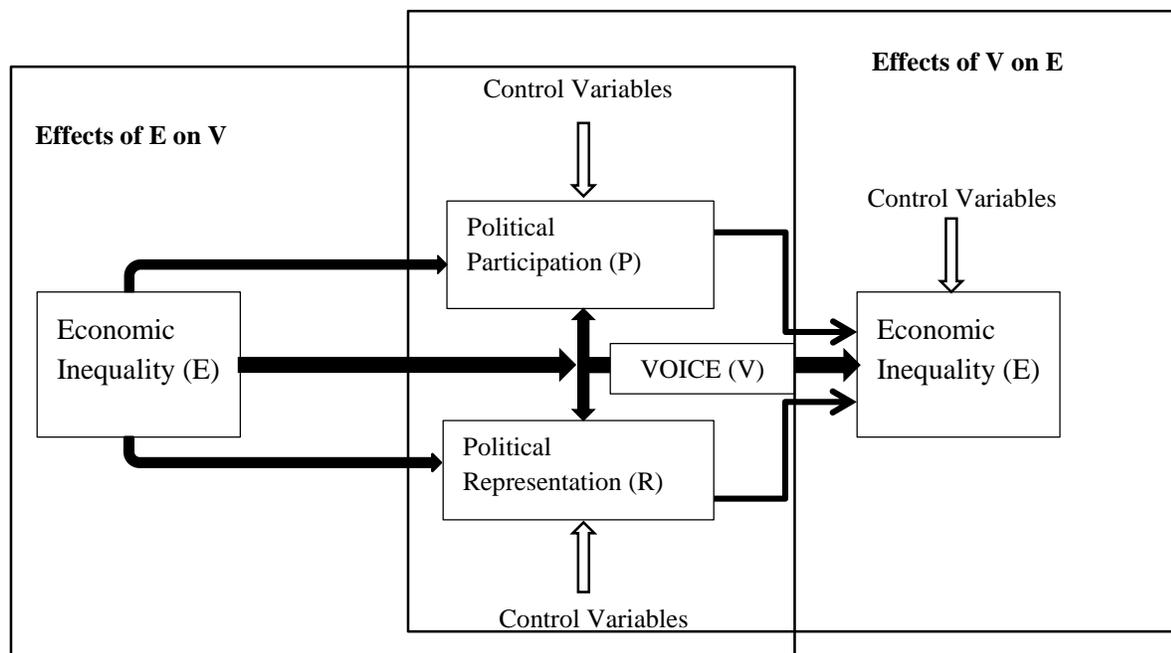
project generates, including the new database containing survey and non-survey data from over 65 democratic countries from 1990 to 2015.

Hypotheses

The **first set of hypotheses** posits the expected effects of political representation and economic inequality (macro-level) on peoples' propensity to engage in politics (micro-level). The main hypothesis for these multi-level models is that political representation and economic inequality as macro-level characteristics will impact political participation at the micro-level, above and beyond the characteristics of political institutions. We expect that a strong association between high inequality in party representation and high economic inequality (at the macro-level) will compound their separate and distinct depressive effect on political participation (at the micro level). A decrease in either inequalities, or a substantial decoupling of them, should increase political participation across the social structure. Two main rival theories about the role of economic inequality on political participation inform our specific *hypotheses* (Dubrow 2008; Solt 2015). In grievance theory, the masses are aware of the maldistribution of resources and this makes the masses angry at the elite. The masses use political participation to air their grievances: thus, *the higher the level of economic inequality and of party representation, the greater the political participation of the masses, ceteris paribus*. Conversely, resource theory - and, similarly, relative power theory - posits that economic resources influence individual decisions to politically participate, and economic inequality is an indicator of the maldistribution of these resources. The privileged few will have greater resources that enable their participation whereas the disadvantaged many will have lesser. Thus, the resource hypothesis is that, *the higher the level economic inequality and of party representation, the lower the political participation of the masses, ceteris paribus*. We will account for main features of political institutions (e.g. government effectiveness, transparency, and accountability) when analyzing the impact of macro-level inequalities on political activity (Solt 2008; Acemoglu and Robinson 2012).

Testing the above hypotheses will clarify the relationship between the two aspects of political inequality of voice, dealing with direct voice (individuals' political participation) and indirect voice (individuals' representation through parties). However, political voice inequality- as any other type of inequality - is not a property of individuals. It is a property of the population; in the case of this study, of the national (a country's) adult population.

Figure 1.1 Relationship between Economic Inequality and Political Voice Inequality through Three Time-Points: Country-Level



The **second set of hypotheses** pertains to national adult populations and addresses the scientific problem of how political and economic inequality relate across countries and over time. The *main hypothesis* is that political voice inequality and economic inequality are dynamic, interactive, and mutually influencing: Changes in economic inequality produce changes – in direction (positive or negative), duration (how long), and magnitude (how strong) – in political voice inequality, and *vice versa*.

Figure 1.1 depicts the relationship between political and economic inequality through three time points. Here, economic inequality (E) is a macro-level phenomenon. The macro indicator of political voice inequality (V) is constructed by aggregating micro-level survey and non-survey data of participation (P) and representation (R). In country-level analyses, economic inequality (E) has a direct impact on voice (V), and separately on the macro-level aggregated measures of P and R. The questions we address can deal with the entire population of a given country, or specific groups in that country – such as women, the young and old, and social classes.

Illustrative *secondary hypotheses* are: (a) Relationships of the two components: Though we focus on the integrative measure of political voice inequality, its two components – political participation and party representation – can have their own dynamic relationship and separate effects on economic inequality. (b) The presence of lag effects: the increase, decrease, and strength of political voice inequality can change, but it takes time before it can visibly impact economic inequality. (c) Asymmetrical association with respect to the magnitude of relationship: economic inequality has a stronger influence on political voice inequality than *vice versa*.

In sum, the purpose of this project is to solve two major and inter-related scientific problems in the fields of sociology and political sciences: (a) Inadequate conceptualization of political voice inequality and (b) Lack of empirical research about how and to what extent political voice inequality and economic inequality influence each other.

2. Importance of the Project

Understanding how economic and political inequalities influence each other is crucial to designing strategies and policy that encourage civic engagement and a ‘healthy’ democracy. Although scholars recognize the profound importance of this topic (e.g. APSA 2004; Gilens and Page 2014), substantial progress has so far been hampered by four critical shortcomings. First is the inadequate conceptualization of political voice inequality. Scholars rarely explicitly define the term, and when they do, it is in terms of only one component, participation. Consequently, there are no macro-level indicators of political voice inequality that aggregate voice expressed directly through participation, and voice expressed indirectly through party representation. Second is the poor specification of a theoretical model that addresses the mutually influencing relationship between economic and political inequalities. Scholars study extensively how economic inequality affects political participation, and, by extension, political voice inequality (cf. *Current state of knowledge*). However, there is no research on how political voice inequality in turn impacts economic inequality. The third shortcoming pertains to the limited measurement of political voice: researchers employ various measures of individuals’ actions (e.g. attending demonstrations, voting), but do not account for political party representation as a crucial component of voice. The fourth limitation is the empirical parochialism of political inequality research. The consequence of studies focusing primarily on the USA and Western Europe is that such analyses have yielded interesting national-specific insights, but have hampered the development of a theory that explains how modern democracies at different stages of consolidation function. This project overcomes these shortcomings and advances the fields of political sociology and political economy in terms of theory (hypotheses), methods (analytical tools), and empirical resources (data).

Current state of knowledge

A basic tenet of modern democracy is the presumption that all citizens have equal opportunity for voice in government and thus, in theories of democracy, political equality is a central concept (Dahl 2006; for critical analysis of this literature, see Dubrow 2015). Voice refers to how constituencies, directly or through

representatives, can express their interests to government. Voice has two main components: direct participation such as voting, attending a demonstration, or joining a political organization, and participation through party representation (APSA 2004). Representation means that designated organizations listen to the political voice of the citizenry and transmit that voice to government. In modern democracies, representation is via political parties since they organize and express the interests to be pursued in the political process (Kitschelt 1999).

Political inequality of voice is the extent of structured differences in influence –directly via political participation and indirectly via party representation – over government decisions (Dubrow 2015; World Social Science Report 2016: 5). A fundamental question in the fields of political sociology and political economy is how and why economic inequalities manifest into political voice inequality. Democracy theorists have long argued that unequal economic distribution leads to inequities in the distribution of political power (Przeworski 2012: 25 – 29). Stratification theorists tell us that inequalities of all kinds are substantially related: Economic inequality opens gaps between social groups in access to political decisions, thereby creating and deepening political voice inequality.

There are two major rival theories that posit why and how economic inequality at the country-level should impact political participation at the individual level (for a summary, Solt 2015). In grievance theory, the maldistribution of economic resources incites participation: the higher the level of economic inequality, the greater the political participation of the masses. Conversely, resource theory posits that, because economic resources are crucial to political participation, unequal economic distribution lowers the probability of political participation for everyone except for the economically privileged. Cross-national studies using multilevel models to assess the effect of economic inequality on the likelihood of political participation yielded mixed results. Most studies found that, for disadvantaged groups, macro-level economic inequality depresses electoral and non-electoral political participation (Anderson and Beramendi 2008; Dubrow et al 2008; Solt 2008, 2015). Some found that it can slightly increase political participation (Karakoc 2013) whereas others found no relationship (Dalton et al 2010).

The interdisciplinary field of political economy has long recognized the impact of economic inequality on politics (e.g. Anderson and Beramendi 2008; Jacobs and Soss 2010: 345-347) and suggests that the quality of political institutions is a mediating factor between economic inequality as a macro-characteristic, and political voice at the individual-level. For example, Acemoglu and Robinson (2012) argue that cross-national differences in economic development are due to national-specific configurations of political institutions, as well as international linkages. Their theoretical arguments suggest that economic inequality and voice inequality go together, and that important features of political institutions, such as political stability and government effectiveness, are likely to mediate the impact of inequalities at the micro-level.

Recently, there has been renewed interest in the strength and dynamics of the relationship between political voice inequality and economic inequality, led by Skocpol et al (2004) and Dahl (2006), as well as Schlozman et al (2012) and Gilens and Page (2014). Part of their argument is about political financing, i.e. the “money in politics” problem, which is an important issue but is not directly addressed in this project. We directly address these scholars’ larger argument that pluralistic aspects of democracy are imperiled by economic inequalities when the disadvantaged are less involved in the political process and there is a disconnection between the diversity of parties in government and the support of the citizenry for those parties.

Indeed, decades of empirical research show that structural position impacts political participation (Teorell and Tobiasen 2007, Paxton et al 2007). However, direct participation is only one component of political voice; the other is party representation, as the APSA Task Force clearly states (2004). Thus, it is reasonable to expect that economic inequality will impact the representation side of political voice, too. As politics is largely about the power to distribute economic resources, economic inequality shapes the diversity and mobilization efforts of political parties and the party preferences of voters (APSA 2004; Beramendi and Anderson 2008).

While the literature about measuring inequality of political voice is scant, there is rich research on general measures of inequality to draw on. Allison (1978) presents strong arguments in favor of using a

scale invariant measure of inequality, such as the coefficient of variation (see also Coulter 1989). This coefficient satisfies such criteria as anonymity population independence, and Pigou-Dalton transfer principle (Campano and Salvatore 2006). Using the proportion of explained variance, R-squared, as measure of inequality, is well grounded in the literature on social stratification going back to the classical study of Blau and Duncan (1967). Advanced textbooks of statistics or econometrics (e.g. Cameron and Pravin 2005) provide explanations for how the partial R-squared should be interpreted in terms of inequality. For measuring one aspect of inequality in political representation we use index of dissimilarity. In our case, the index of dissimilarity captures how much the parliament and the population differs in terms of party membership and party affiliation. New applications of this index take into account its sensitivity to randomness (Mazza and Punzo 2014) that we intend to apply. Finally, for measuring the second component of inequality of voice – inequality in party representation – we use the Gini-Simpson diversity index (Rao 1982; Tuomisto 2010): the diversity of party membership of parliamentarians is compared with the diversity of party preferences of citizens.

Methodological literatures on measuring economic inequality and democracy using existing survey and non-survey cross-national data (e.g. Munck 2009; Galbraith 2009; Davidov, Schmidt, and Billiet 2012), on ex-post survey data harmonization (e.g. Granda et al 2010; Ruggles, McCaa, Sobek and Cleveland 2015), structural equation modeling (Bollen 1989), multilevel modeling (e.g. Rabe-Hesketh and Skondral 2008) and cross-sectional time series (Hox 2010) inform this project.

Innovative nature of the research

New Theory: This project will: (1) clarify the concept of political voice inequality, (2) develop theory for how the main components of political voice inequality – political participation and party representation – relate to each other once main features of political and economic institutions are accounted for; and (3) develop theory about the dynamic and reciprocal relationship between two major macro phenomena, political voice inequality and economic inequality. We creatively connect insights from current literature to posit two sets of hypotheses, one dealing with macro-micro relations and the other with relations measured at the macro-level (detailed in Section 1).

Ours is the first comprehensive research of this type. Although case studies of economic inequality and inequality of the political process are many, there is no single scientific item (journal article or monograph) that combines theories of political voice inequality and economic inequality to analyze the extent to which these inequalities correlate, how they shape each other, and to what extent.

Improved Methods: The social sciences do not have appropriate cross-national and over-time measures of political voice inequality and thus has never adequately addressed our research questions or sufficiently tested our hypotheses. As such, this project will: (1) refine the operationalization of political voice by accounting for its multidimensional nature; (2) create macro-level measures of political voice inequality that include both components of voice, participation and representation. To date, no such measures exist; (3) advance quantitative cross-national research via harmonization from non-survey sources we will select administrative data for all countries and years and merge them with survey data. We will apply ex-post harmonization of cross-national survey data, which overcomes the problem of unequal representation of countries and periods in comparative social sciences, enhances the effective and efficient use of extant datasets, and facilitates the construction of measures of participation and representation that are comparable across countries and time (Tomescu-Dubrow and Solmczynski 2016).

In our innovative approach to the measure of political voice inequality, we account for both components of voice and use a variety of measures to address the different questions that inequality implies. For example, with regard to unequal political participation, the implied questions is, To what extent is voice expressed through political participation unequally distributed? We would address this with an operationalization of the relative inequality of participation distribution using variance type measures. We discuss the specific measures in Section 4.

New Database: This project will produce a unique empirical resource in the social sciences – the Political Inequality Database (POLINQ). To test the hypotheses specified in Section 1 requires the combination of two types of data: (1) survey data containing individual-level indicators of political

participation (including voting) and support for political parties, that feature substantial coverage of varying types of modern democratic countries (to provide variation in the degree of institutional efficiency) and sufficient measurement points (i.e. survey years) to apprehend social change; and (2) theoretically-informed characteristics of countries (e.g. political parties in government, economic inequality, economic development, and population size, among others).

As detailed in Section 4, POLINQ will comprise a multi-country multi-year dataset, along with the methodology and code used to construct it. The dataset will contain (a) individual level variables selected from major international survey projects (e.g. WVS, ISSP) harmonized ex-post to ensure their cross-national comparability; (b) administrative data (i.e. variables measuring characteristics of countries) from sources such as the Standardized World Income Inequality Database (SWIID); (c) for the first time in the social sciences, a comprehensive set of country-level measures of political voice inequality.

POLINQ will be available to the community of users free of charge, through the infrastructure this project will build. Thanks to the variables POLINQ will feature, its broad geographic and time coverage, and its historical relevance, the contribution of this database to the social sciences will be on par with that of cross-national data on the level of democracy (e.g. Munck 2009) and economic inequality (e.g. Galbraith 2009), whose detailed methodological literatures inform this project.

International Research Team and Research Infrastructure: This project will build an international team of researchers and an innovative infrastructure that relies on physical and virtual platforms to enable young and established scholars to produce high quality research and training products. The project's team will consist of experts from Poland, the US, and other countries, and doctoral students and post-doctoral scholars appointed through open competition in Poland and throughout the European Union. The principal investigator, Joshua Kjerulf Dubrow, is a US citizen educated in the United States who works at the Institute of Philosophy and Sociology, the Polish Academy of Sciences since 2007, and has extensive experience with interdisciplinary research (Dubrow 2011) and international collaboration, including in his capacity as a CONSIRT program coordinator. CONSIRT is unique: there is no other organization within the Polish Academy of Sciences that explicitly bridges the U.S. and Europe with as deep and worldwide a social science scholarly network, and whose sole focus is the creation of high quality academic products on interdisciplinary cross-national research and methods.

Positive Impact for Science and Society

Scholars and professional organizations, such as the International Sociological Association, put forth the following postulates for how to further develop the social sciences: (a) link theoretical thinking with empirical practice, (b) find new creative uses for existing data and make the data public, (c) increase international cooperation, and (d) engage mass publics (see Burowoy 2004). We claim that our project fulfills these postulates of the significance of research for the scientific community and for society.

The impacts for the social sciences are: (a) addressing, through a series of high profile publications, critical issues in sociology and political science on political inequality; (b) archiving and publicizing the unique dataset featuring cross-national measures of political voice inequality for the international social science community to use and build upon. While we construct this database for a specific purpose of testing hypotheses, it can potentially be used in a variety of other projects, including consequences of these inequalities for social, economic, and political attitudes; (c) training the next generation of PhD students and post-doctoral scholars in the social sciences on substantive and methodological issues of the grant project. A key result will be to open a new field of empirically-based and cross-nationally-oriented studies on the causes and consequences of political voice inequality.

This project will avoid the shortcoming of using the method of case studies to analyze political inequality. Although case studies usually are rich with respect to the content of variables, they do not allow for rigorous testing of statistical hypotheses and have limited capacity for generalization. In contrast, quantitative cross-national studies enable hypothesis testing and yield generalizable empirical results. The combination of this project's advanced statistical methods and the rich dataset it will create and analyze by an international team is likely to profoundly shape comparative studies in the social sciences.

The project as a whole, potentially, could reorient political sociology in the domain of economic and political inequalities since it will demonstrate how to go from the development of theory to its empirical analysis, with substantive results that enrich our knowledge about one of the crucial aspects of modern democracies: the link between economy and polity.

This project strengthens multi- and interdisciplinary research: in theoretical and substantive domains, it joins sociology with political science and economics; in methodology, it contributes to all relevant disciplines that combine data ex-post from diverse sources.

The project has a positive impact potential for society via public engagement that takes various forms. We will produce videos and other media-friendly publications to detail the project and its products, and to update progress throughout its duration, all of which will be disseminated via blogs (e.g. politicalinequality.org) and social media (Twitter, Facebook, ResearchGate, Academia.edu) and archived in perpetuity at IFiS PAN and OSU. We plan to organize a conference for a large audience and to be engaged in public social science.

Our examination of the dynamic relationships between economic and political voice inequality is fundamental not only for social science but also for society. As the International Social Science Council recently wrote in their World Social Science Report (2016), a research agenda about rising inequalities, and the intersection of these inequalities, is fundamental to understanding and improving societies. We are prepared to give theoretically and empirically-based answers to main questions on this research agenda, using appropriate analytical tools applied to a comprehensive dataset.

Societies advance based on solid scientific research. This project identifies and fills a major gap in scientific knowledge about the relationships between economy, democracy, and polity. Thus, products of this project will enhance our knowledge on the functioning of society in Poland and abroad.

3. Plan of Research

Preparatory phase: Creating the project's organizational structure

To ensure that the four major stages of the planned research and the specific objectives listed below will be carried out efficiently and effectively, during this phase the PI will build an international team of researchers – established scholars, post-doctoral scholars, and PhD students – who work in supporting fields and are familiar with the project's data sources. In terms of specialties, members will represent sociology, political science, and economics, with experiences that complement each other. Added value of the members' composition stems from cooperation between specialists in quantitative social science and deep knowledge of the regions of the world. The research team will draw on the resources of CONSIRT at The Ohio State University and the Polish Academy of Sciences.

The Principal Investigator (PI) will regularly monitor progress in the project, via yearly evaluation reports and in consultation with the Scientific Advisory Board. The Board will be appointed from the pool of best scholars in the fields of political participation and cross-national methodology, such as the following professors in the CONSIRT network: Pamela Paxton (U Texas, Austin), Peter Granda (ICPSR, U. Michigan), Radislaw Markowski (Institute of Political Studies PAN), Amy Alexander (The Quality of Government QoG Institute, Sweden) and Francesco Sarracino (STATEC, Luxembourg).

Our efficient communication structure enables the design and preparation of this project. We will solidify and strengthen it via regular Skype meetings, email, and annual multi-day face-to-face meetings to coordinate activities, assign personnel to tasks, mentor PhD students and Post-docs, and monitor the timely completion of products.

General Plan

The research is planned to be carried out over three years. We divide it into four major stages that follow the core principles of scientific innovation (King 2014): (I) Theoretical elaboration; (II) Data management; (III) Methods and Analyses, and (IV) Dissemination of results, in a virtuous cycle which continually provides crucial information for refining answers to the main research questions stated in Section 1. The

end products of this project will be the state-of-the-art in the field of political inequality for social scientists and the general public. We will develop research infrastructure to enable scholars and other interested actors to access the major resources this project generates, including the new database.

I. Theoretical elaboration: Improving the definition and measurement of the concept of political voice inequality; refining the theorizing about how the components of political voice - participation and representation - relate; refining the theoretical thinking about the link between economic and political voice inequality across countries and time. Although our basic theoretical framework and operationalization of concepts are well developed, still some improvements are needed. We will do this with the participation of key thinkers and methodologists from Poland, the USA and other countries. We will organize special seminars and workshops to discuss all necessary elements of the theory and methods for this study.

II. Data management: This stage involves creating, maintaining and updating the Political Inequality Database (POLINQ; see Section 4). Together with ‘Methods and Analyses’, these are the most laborious parts of the project. As detailed in Section 4, we begin with six datasets (see Table 4.3) that the PI has previously published research from or is familiar with, and will add more datasets as needed. This project will partner social scientists with database management experts.

III. Methods and Analyses: During this stage we will carry out all empirical analyses that test the hypotheses and solve the scientific problem (introduced in Section 1 and detailed in Section 4). This includes the application of advanced statistical methods such as structural equation modeling, multilevel regression, and cross-sectional time-series, as appropriate. In this stage, we will organize three major international training events, and produce the empirical results that drive many of the project’s products (cf. *Specific Objectives*).

IV. Dissemination of results: This stage involves preparing research products for dissemination to targeted audiences, including preparation of the final conference. Products from this project are of two kinds: research and training (detailed below, under *Specific Objectives*). We distinguish two groups of potential users of the project’s research and training products. In the first are researchers who will collaborate with us or will participate in the project-organized events. The second group consists of authors of publications using data from the Political Inequality Database (POLINQ). This heterogeneous group also consists of new users of the data, including scholars versed in cross-national quantitative analysis.

Specific Objectives

This project will produce research and training products with substantial scientific and social impact.

Research products

A. Papers prepared for high quality publication outlets, including individual articles in high impact factor journals listed in the Web of Science and an edited book.

B. The Political Inequality Database (POLINQ) will consist of the multi-country multi-year dataset with cross-national measures of political voice inequality, along with the methodology and code used to construct it. The dataset will be archived at the Polish Archiwum Danych Społecznych, and available to the research community for free. The data will be part of doctoral dissertations, including those of students at the Graduate School for Social Research IFiS PAN, and post-doctoral scholar publications.

C. Project website, politicalinequality.org will communicate our project’s progress and findings to scholars and the public.

D. International workshops and specialized courses. The project will organize three international workshops. The first workshop, in Year 1, sets the agenda for dealing with the research nexus of economic inequality-political voice by carefully examining approaches to the problem and creating a network of researchers who will use the project’s database. During the next two workshops, in project’s 2nd and 3rd year respectively, selected participants and advanced graduate students will study the database and statistical issues in cross-national data analysis.

E. Seminars held at the Graduate School for Social Research, IFiS PAN, will run regularly throughout the project’s timeline and feature guest speakers and graduate student discussions of theories and scientific literature related to political and economic inequality.

F. A concluding international conference, held in the third and final year, will publicize the findings of the research and set the agenda for future research on the topic.

G. Media-friendly audio and visual products include videos and other publications, and the project website that will present media-friendly visual presentation of the results, all of which will be disseminated via blogs and social media (Twitter, Facebook, ResearchGate, Academia.edu).

Training products

Our project has an important professional training component. At least two graduate students interested in comparative politics and political sociology will be in the project team and participate in all stages of the project, from creating computer files, planning and executing statistical analysis, to writing reports and preparing papers for publication. We will offer the seminar about this project for graduate students in the social sciences at the Graduate School for Social Research IFiS PAN, and the University of Warsaw. The project will hire a full-time post-doctoral scholar working in the field of politics and inequality who will work at IFiS PAN and be a key member of the research group.

Impact on academic careers

This project will have a measurable impact on young scholars in Poland. The PI, who has submitted his habilitation on political inequality, plans to write a book related to this project. The other members of this project will advance their careers in connection with Poland and therefore enhance Poland's role in international scientific collaboration. They will co-author papers with Polish colleagues and thereby contribute to the visibility of Polish sociology and political science.

The PI and other PhD holders involved in the project will collaborate with Polish PhD students according to international standards. These young trainees will acquire skills that are marketable in academia in Poland and abroad. At present, there is a shortage of young social scientists who are well versed in management of large-scale datasets and advanced statistical analyses. This project will ease this situation by forming an original international research team for which the training in database building and advanced statistical analysis are important components. Young researchers – PhD students and a post-doctoral scholar – will work alongside experienced scholars in the network on all steps of the project, including organizational matters, data preparation and analysis, and preparing and disseminating scientific output.

Preliminary and initial research indicating feasibility of research objectives

The PI and his collaborators worked extensively on the issues pertaining to this project. The relevant research includes:

- (i) Dubrow, K. J., K. M. Slomczynski, and I. Tomescu-Dubrow. 2008. "Effects of Democracy and Inequality on Soft Political-Protest in Europe: Exploring the European Social Survey Data." *International Journal of Sociology*;
- (ii) Dubrow, J. K. 2010. "Cross-National Measures of Political Inequality of Voice." *Ask: Research and Methods*;
- (iii) Dubrow, J. K., I. Tomescu-Dubrow, K. M. Slomczynski, M. Kołczyńska, and J. Craig Jenkins. 2016. "Effects of Inequality on Attending a Political Demonstration: Harmonized Survey Data on 142 Countries, 1966-2014," presentation at the International Political Science Association.

Preliminary Results

Building on the study by Dubrow et al (2008), Dubrow (2010) conducted analyses on the European Social Survey 2008 for 20 countries based on measures of political voice inequality of and procedures described in Section 4. Results indicate (i) low variance of political inequality of voice that may be explained by the relative homogeneity of European countries in terms of democratic rights and the strong association between economic resources and political participation; and (ii) a regional effect, as Northern European countries tend to have the lowest levels of political voice inequality while post-communist Central and Eastern European countries have the highest. As expected, most European countries cluster in the high

democracy, low political voice inequality quadrant, with democratically challenged countries of the Russian Federation and Turkey as outliers.

We conducted preliminary analyses using multilevel regression techniques on the Harmonization Project Data (see Section 4) to explain ‘attending a demonstration’ (Dubrow et al 2016). In one set of regression models, the harmonized dependent variable measured whether respondents participated in demonstrations within the last 12 months or one year (yes = 1, else =0). In the second set of regression models, the harmonized dependent variable captured respondents’ participation in demonstrations in the last 8, 10 years, or ever (yes = 1, else = 0). At the individual level, our models contained gender, age, urban/rural locality, education (via the International Standard Classification of Education ISCED), and interest in politics. Country-year variables included the Freedom House Democracy Index, GDP per capita PPP US \$ (World Bank) and Gini from SWIID (Solt 2015). In some models we also included country-level variables: regions or micro-regions. We estimated two types of multilevel logistic regression models: (a) three-level models, where people are nested in country-years and country-years are nested in countries; and (b) two-level models, where people are nested in countries and we controlled for time.

The effects of individual-level determinants conformed to the theorizing developed since the 1960s, irrespective of whether the dependent variable was attending demonstrations in the last year, or having demonstrated ever, and irrespective of the modeling choice (3-level or 2-level). Under the more restrictive models (3-levels), the effects of the Freedom House, GDP, and Gini are usually insignificant. Under the more relaxed models (individuals nested in countries and controlling for time) the Gini Index was significant with effects that varied across world regions, and vary slightly by different formulations of the dependent variable.

4. Research Methodology

Table 4.1. Survey and Non-survey Data for Building Cross-national and Over Time Measures of Economic Inequality and Political Inequality of Voice

Concept	Dataset	Countries	Years Covered
<i>Economic Inequality</i>	Standardized World Income Inequality Database SWIID	100 +	1960 - 2013
<i>Political Voice Inequality</i>			
Political Participation	The Harmonization Dataset	120 +	1966 - 2014
Party Representation (combination a, b)	World Values Survey	50 +	1990 - 2014
(a) Support for parties			
(b) Parties in government	International Parliamentary Union	150 +	1945 - 2016
<i>Institutional Characteristics</i>			
Character of political institutions	Quality of Government (QoG)	100 +	1990 - 2015
Controls for level of democracy	Freedom House and Polity IV	150 +	1990 - 2015

As detailed in Section 3 (New Database), the social sciences do not have a single integrated data source containing the micro- and macro-level data that the scope of this project requires. We will create it, using extant international survey projects and non-survey sources.

Data for creating the Political Inequality Database (POLINQ)

In Table 4.1, we provide basic information on the data sources we identified as useful for constructing the POLINQ database. All data that we will draw upon are free and publicly available without use restrictions. Any given dataset covers at least 50 countries (World Values Survey) and at most, over 150 (e.g. Inter-parliamentarian Union, Freedom House, and Polity IV) from 1990 to 2015.

The *POLINQ* Database will include countries that fulfill the following criteria: (a) Freedom House democracy scores of free to partly free sometime within the time period 1990-2015 and (b) participated in a given international survey project sometime between 1990 - 2015. We choose to examine modern democracies from 1990 to 2015 to cover a time (i) of major economic and political changes worldwide and thus potential changes to the relationship between political voice inequality and economic inequality, e.g. economic inequality decreased between nations, yet increased within nations (Milanovic 2016), and (ii) with sufficient cross-national survey data that cover a great diversity of democratic countries (Slomczynski and Tomescu-Dubrow 2006).

Some of the datasets in Table 1 are well-known, such as the International Parliamentarian Union that contains data on all parties in government in all countries of the world, and the World Values Survey that contains variables on party choice. Others are yet to become familiar to the research community, since they are very new: The Harmonization dataset was just completed in 2016. It contains harmonized individual-level measures of political behavior, social attitudes and socio-demographics constructed with information pooled from 22 international projects (including the European Social Survey) that cover a total of 142 countries and territories surveyed at various points from 1966 to 2014; it also contains macro-level characteristics from non-survey sources, and two types of methodological control indicators: control variables for the quality of the source surveys, and controls of the harmonization process (see Tomescu-Dubrow & Slomczynski 2016). The QoG data consists of approximately 300 variables from 75 different data sources and spans 1946 to 2015. Freedom House and Polity IV are the most well-known and respected sources of data on the level of democracy for each country, spanning decades. From the first month of the project, in consultation with experts, we will continue to identify and integrate potential new sources of data, as appropriate.

Each data source taken separately contains only parts of the information necessary to measure political voice inequality and economic inequality (cf. Section 3, New Database). We will overcome this drawback by pulling information together, using the methodology of ex-post harmonization.

Data harmonization is an interdisciplinary methodological field on a rapid rise (Dubrow and Tomescu-Dubrow 2015). Data harmonization is a generic term for procedures that aim to achieve, or at least improve, the comparability of data over time and from different countries (Granda et al 2010; Tomescu-Dubrow and Slomczynski 2016). Ex post data harmonization is a process (a) in which different survey and non-survey datasets that were not specifically designed to be compared are pooled and adjusted (i.e. recoded, rescaled, transformed) to create a new integrated dataset that could be analyzed as a typical single-source dataset; and (b) that is based on clear criteria that specify which datasets are included into the new database, and clear methods for how variables in the new database are created. For these procedures we draw upon the methodology published by Solt (2016) and expertise from members of the Polish National Science Centre funded project (2012/06/M/HS6/00322) “Democratic Values and Protest Behavior: Data Harmonization, Measurement Comparability, and Multi-Level Modeling in Cross-National Perspective” (Harmonization Project, in short), at the Institute of Philosophy and Sociology, Polish Academy of Sciences.

Macro-level Measures

Political Voice Inequality: Constructing the set of macro-level measures of political voice inequality that include participation and representation as the crucial components of voice is a key contribution of this project. We will use information from surveys and non-survey sources to derive these measures, as indicated in Table 4.2.

Table 4.2. Derivation of Political Inequality Measures from the Distribution of Individual Data, for a Country-Level Analysis

Individual Level Data	Country Level Data	Derived Measures*
Index of political participation V_i (on the basis of political behavior) for respondents (j) of the national samples (k), V_{ijk}	Standard deviation S_v and mean value M_v	Coefficient of variation = $E1 = S_v / M_v$
	Coefficients of multivariable regression, $V_{ij} = a + B X_{ij} + e$	$E2 =$ Partial R squared R^2 .controls
Party preferences P_i for respondents (j) of the national samples (k) and party affiliations P_i of members (l) national parliaments (m)	Comparison of proportions $p_r = f(P_{ijk})$ and $p_e = f(P_{ilm})$	Index of dissimilarity $D1 = \frac{1}{2} \sum p_r - p_e $
	Distributional diversity for $P_{ij} \equiv p_e$ and $P_{kj} = p_r$	Diversity ratio $D2 = (1 - \sum p_r^2) / (1 - \sum p_e^2)$
* These measures could be computed for the entire population or for specific social groups, women, the young and old, and social classes, in particular. For example partial R squared could be computed for women, where structural variables will be age and social status, controlled for the place of living and other relevant variables.		

The innovative approach to the measurement of inequality by the coefficient of variation and partial R^2 stems from using scores that have interpretation on the ratio scales. We achieve this into two steps. First we construct an index of political participation involving voting, attending demonstrations, signing petitions, contacting politicians, and joining organizations assuming that rare activities are weighted higher than popular activities. Second, the obtained scores are converted into scores placing each respondent into a cumulative distribution so that the final score tell us what proportion of respondents have lower score than a given one. Thus, someone who has a score of 90 is 1.8 times higher than a person with a score of 50; the same ratio is for halves of these scores, that is 45 and 25; and respondents at the bottom receive 0. Such scoring is implied by an assumption about log normal distribution of the underlying variable. It has a natural range from 0 to the value close to 100.

The coefficient of variation measures inequality of political participation. The higher the value, the more inequality in terms of relative variation of political participation among persons in a given population. In our case, the *partial R-squared* measures the marginal contribution of a subset of structural variables to explaining political participation when other variables are controlled. The higher the value, the more inequality of participation between structural groups. Of course, we will consider also alternative measures of inequality of political participation: for the coefficient of variation the alternative will be Theil index; for R^2 – the ratio of the means for bottom (20%) and top (20%) on the income distribution.

Our application of the index of dissimilarity reveals what proportion of parliamentarians from their parties should be transferred to other parties so that these proportions would correspond to the proportion of people in their preferred parties. The higher the value of the index of dissimilarity, the worse the proportional representation of party preferences. One goal of political representation is to preserve diversity of the population by the legislative bodies. For this reason we have chosen the ratio of the Gini-Simpson diversity indexes for party affiliation of parliamentarians and party preferences of the population. The value of the ratio shows how much the diversity of the legislative body diverges from the diversity of the population. The higher the value the worse political representation in terms of diversity of political party spectrum.

We also need measures for the following characteristics of countries through time: (1) Economic inequality: We will use Solt's SWIID (Solt 2016), the most widely used measure featuring household income and household consumption expenditure; it is the Gini with a statistical range from 0 (equality) to 1 (inequality); (2) Parties in government: provides the distribution of parties in parliament for given countries and times; these data are available from the International Parliamentarian Union dataset. (3) Party representation, as main component of political voice, will be constructed by accounting for the 'discrepancy' between 'Political parties in government' and the distribution of peoples' party preferences; (4) Political voice: will combine aggregated 'political participation' with country-level indicators of party

representation; (5) Features of political institutions: We measure the functioning of government, level of transparency, control of corruption, political stability, and overall government effectiveness with specific variables available in the Quality of Governance (QoG) database, and include (i) Economist Intelligence Unit's Functioning of Government index; (ii) Transparency International's Transparency Index; (iii) World Bank Governance Indicators (WGI) of Control of Corruption, Political Stability, and Government Effectiveness. We also compare the WGI variable Voice and Accountability, which measures the hypothetical capacity of citizens to participate in the selection of governments, to our measure, which is based on citizens' actual political behavior.

Individual-level variables

We will construct individual-level measures that are comparable across countries and time by harmonizing ex-post information from extant international survey projects. (1) Political participation: we will construct an overall index that combines information on voting, signing a petition, attending a public demonstration, contacting a political official, boycotting, and joining a political organization; this requires the harmonization of each of the index's indicators, as well as testing whether the structure of the latent construct holds across countries and time; (2) Peoples' support for given political parties: information on voters' party preferences is available in international survey projects, e.g. World Values Survey; (3) Party representation: It is possible to construct indicators at the individual-level, for example via a dichotomous variable taking the value 1 if the party for which a given respondent voted is represented in parliament (cf. 'political parties in government' indicator), else the value 0. Of course, some adjustment procedures for dealing with the extent of a party's presence in parliament will be needed; (4) Political voice: at the individual level, this concept can be constructed by accounting for both political participation and party representation (micro-level variable); (5) Socio-demographic variables: we will create harmonized indicators for respondents' gender, age, education, and socioeconomic status.

Methodological Techniques

In addition to ex-post harmonization of survey data, which the PI and his collaborators have extensive experience with through their participation in the CONSIRT-administered Harmonization Project, this project will employ a variety of advanced statistical techniques to construct the appropriate macro- and micro-level measures and test the stipulated hypotheses. These will include (a) Confirmatory Factor Analysis to construct the index of political participation; (b) Structural Equation Modeling to construct the multidimensional macro-level measures of political voice inequality; (c) Multilevel Regression Models to deal with the nested structure of the *POLINQ* data: people are nested in country-years (i.e. a given country is included in several waves of a given international survey project, such as ESS (2002, 2004, 2006, 2008, 2010, 2012) and country-years are nested in countries. This set-up of the data creates dependencies that need to be accounted for when we estimate the first set of hypotheses (Section 1) about the extent to which party representation, measured at the country level, shapes political participation at the individual level, net of other factors; (d) Cross-sectional Time Series analyses to model the relationship between economic inequality and political voice inequality across countries and time, *ceteris paribus*; in practice this means treating the macro-level data as repeated cross-sectional and analyzing them within the framework of multilevel modeling, where the units of analysis are country-years.

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