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The Political Economy of Social Choices

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The Political Economy
of Social Choices

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Introduction

This volume draws from papers presented at *The Political Economy of Social Choices* workshop organized by Maria Gallego and Norman Schofield held in Oaxaca, Mexico, in July 2015 and funded by the Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Banff, Calgary, Canada, and by Casa Matematica Oaxaca (CMO), Oaxaca, Mexico.

The workshop brought together political economists and social choice theorists and empiricists to Oaxaca to share their current research. The group included prominent senior scholars as well as junior scholars doing their Ph.D. at Washington University in St. Louis.

In the Introduction to this volume, we first give a brief overview of the field before providing a brief summary of the papers included in this volume.

1   Overview of the Field

The topics covered in the workshop and in this volume are at the intersection of two broad fields: *political economy* and *social choice*. These two fields combine economic and political science to examine how groups of people and societies make collective decisions on how to allocate scarce resources among competing social needs.

Political economy examines how economic theory and methods influence political ideology and the decisions made by governments and how politics shapes and determines the economic environment in which firms and individuals, groups of people, or societies operate. The questions addressed in political economy combine economics, law, political science, and sociology while taking into account how political institutions, the political environment, and the economic system (capitalist, socialist, or mixed) interact to determine the choices of governments or groups of agents and how these institutions evolve under different political, social, and economic systems. These decisions depend on the political institutions under which agents operate.

Social choice complements political economy as its framework specifies how the opinions, preferences, interests, or welfare of individuals within a group or in a society is aggregated to reach collective decisions or some level of social welfare in a sense specified by the questions or issues being studied recognizing that the interests of all members of the group may not be perfectly aligned and that some may have opposing preferences. Social choice specifies the properties that models must have in order for the model to generate an internally consistent aggregation of the well-being of a group of individuals, e.g., the elites under autocracy or citizens under democracy. It also identifies the properties that these preference aggregation rules must have to obtain certain desired outcomes.

Political economy and social choice study a wide range of questions in different areas using many different mathematical, game theory, and statistical methodologies and actual data about individuals to study many social issues. In this framework, political agents—be it voters, politicians, parties, and/or interest groups—maximize their payoff or utility functions taking into account that their decisions are made in an interdependent world.

The research presented in this volume focuses on developing or testing models in which economic policy and political institutions are the outcome of interactions between different agents with perhaps opposing preferences operating under different economic and political institutions. The analytical frameworks of economics and political science are jointly used as researchers in these areas believe that if economic recommendations are made to governments or political agents without taking into account the political institutions under which they operate, governments or politicians may not find it in their interest to implement these recommendations or the recommendations may not be politically implementable as powerful groups within society may block their implementation.[1] Moreover, if political leaders make political decisions without taking into account how these interact with the economy and the incentives these decisions give to different groups of agents—be it individual voters, groups of agents, or firms—then these political decisions may lead to catastrophic economic circumstances in the future.[2] To address and incorporate these two sides of the problem into the models, political economists integrate the economic and political characteristics of agents, decisions into their models.

Given that agents may have opposing preferences, political economy models use social choice aggregation rules to determine decisions at the aggregate societal or group level. Moreover, using mathematical, statistical, and game theory tools, political economy models the strategic interaction of political agents—voters

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[1]As happened in Greece recently where the recommendations or "demands" made by the European Commission, the European Central Bank, and the IMF (the Troika) on the economic and policy reforms Greece must implement in order to receive various bailout packages have led to the resignation of Prime Minister Antonis Samaras and to early elections after massive demonstrations in the streets of Athens.

[2]For example, the oversized Greek public sector with a large number of employees who may retire at age 55 has been identified as one of the culprits of the recent Greek financial crisis. This crisis has threatened the stability of the Euro and put at risk the European Monetary Union.

and political leaders or parties and interest groups—under various political and economic institutions and shows how agents may use these institutions to their advantage and perhaps to the detriment of other members of society. Using these models, it is possible to examine what happens as the institutions under which these decisions are made vary and study how agents make decisions taking the decisions of other agents into account. It is also possible to model new institutions or variation of existing ones using mechanism design to explore the properties that social aggregation rules must have in order to minimize the negative incentives these institutions generate.

Furthermore, in order to understand how the large number of moving pieces in these models—the decisions of many agents with perhaps opposing preferences—interact in these highly complex multi-agent multidimensional policy models, theoretical and empirical models make extensive use of mathematical and game theory tools.

Unforeseen random events may affect the decisions of some or all agents and thus the aggregate social choice (e.g., a recession in China affects US consumers and thus the outcome of the presidential election in the USA), or agents may not have complete information on how their decisions affect other agents (e.g., candidates do not know with certainty how voters will vote). Under incomplete and/or imperfect information, researchers model events as being stochastic assuming that players have an implicit understanding of the distribution of stochastic events affecting players' decisions. This approach has been used, for example, to model the decisions of undecided voters where it is assumed that each voter's utility function is affected by a random shock that is known only to the voter with parties or candidates knowing only the distribution of the shocks affecting voters' preferences. This is an approach that has been used in empirical analysis as researchers have less than perfect information when estimating agents' decisions.

The objective of deterministic or stochastic models is to find the equilibria that will be implemented, i.e., the political economy solutions of these complex social choice problems as they pertain to the issue studied. Using these models and the equilibria they generate, it is then possible to examine what happens as the assumptions or the parameters of these models change. These comparative statics not only increase our understanding of how these models work but also generate testable predictions.

In order to see if these political economy and social choice theories and their predictions reflect the social phenomena being modeled, these theories must be tested. One way of testing these theories is to examine if the predictions generated by these theories are observed in the real world, that is, to use actual data to test these predictions based on the observed behavior of voters, parties, interest groups, or firms.

Alternatively, some test these predictions using laboratory experiments. In these experiments, researchers vary the assumptions in their models to examine the behavioral responses of individuals and investigate if the actual behavioral responses of individuals correspond to those predicted by the theory. Others experiment with

the response of individuals as they vary the institutional setup under which decisions are made.

Rather than testing theories using empirical data and sophisticated econometric techniques, some prefer to test their theories by using simulations making use of the parameter values estimated in other research. Variations in these parameter values lead to a deeper understanding of how theories work and of how their predictions relate what others have observed in real life or estimated in their empirical models. These simulations are also used to examine what happens as the parameters of model or institutions change. These counterfactuals allow researchers to evaluate, for example, whether changes to institutions produce an outcome deemed desirable when a parameter changes.

Different empirical techniques and models have been developed to gain greater understanding of the hypotheses and predictions generated by theoretical models. If these predictions do not accord with what is observed, then the theory is missing some important aspect of reality which usually leads to the theoretical model being modified. There are different ways of modifying these models with the most common being that of relaxing some of the simplifying assumptions embedded in the base model.

Empirical models where a theoretical framework is applied to different countries with different political institutions are included in this volume. Other works compare predictions of theoretical models under different political regimes to examine if political leaders value policies differently under different political institutions and political regimes.

This volume contains papers embedded within the political economy and social choice traditions. There are theoretical and empirical papers, with some papers using actual data and empirical tests and others using laboratory experiments or simulations. While some study specific issues, others examine broader social issues.

We now provide a broad overview of the papers included in this volume. Then group the papers along different themes so as to give a general sense of the topics and issues covered in this volume.

2   Issues Covered in This Volume

The topics covered in this volume address social issues from either a theoretical or an applied framework or use theories to guide applied work. Theoretical papers develop models from a social choice and/or a political economy perspective; empirical ones take institutions as given and so are mostly in political economy. This section highlights that the papers included in this volume cover a great variety of topics and issues.

In "Autocratic Health Versus Democratic Health: Different Outcome Variables for Health as a Factor Versus Health as a Right," Rosenberg and Shvetsova document that autocracies and democracies implement different healthcare policies under these two political regimes.

In "Comparison of Voting Procedures Using Models of Electoral Competition with Endogenous Candidacy," Bol, Dellis, and Oak survey the literature to compare the theoretical properties of different voting procedures when candidates choose whether or not to run in the election.

Gomberg, Gutierrez, and Thepris, in their paper "Negative Advertising During Mexico's 2012 Presidential Campaign," use a unique data set to illustrate the effect of negative campaign advertising on the presidential election.

In "Legislative Leaders as Condorcet Winners? The Case of the US Congress," Erikson and Ghitza examine the probability with which a Condorcet winner is elected in open pairwise vote (tournament) under the US congressional institutions.

Ferris, Winer, and Grofman study electoral competitiveness when members of parliament are elected in single-member districts under plurality rule in multiparty settings in "The Duverger-Demsetz Perspective on Electoral Competitiveness and Fragmentation: With Application to the Canadian Parliamentary System, 1867–2011."

In "Modelling the Effect of Campaign Advertising on US Presidential Elections," Gallego and Schofield examine candidates' policy platform and advertising (ad) campaign choices.

Morton, Tyran, and Wengström investigate why women tend to be more leftist than men in their political choices in "Personality Traits and the Gender Gap in Ideology."

In "Statistical Utilitarianism," Pivato shows that social welfare can be estimated with a certain degree of accuracy in societies with a large number of individuals.

Barutt and Schofield study non-candidate and traditional campaign expenditures in the 2014 US congressional elections in "Measuring Campaign Spending Effects in Post-Citizens United Congressional Elections."

Kim and Schofield study the role of activists in "Spatial Model of US Presidential Election in 2012" examining the effect that changes in campaign law had on the election.

In "Modeling Elections and Referenda in Ireland," Schofield and Simoneau examine how the Irish reacted to the streamlining of European institutions proposed in the Lisbon Treaty in the 2007 Irish election and in the 2008 and 2009 referenda.

We now give a more detailed summary of these papers while also linking them according to common themes.

3   Thematic Topics

The papers included in this volume can be grouped into three major themes. Section 3.1 gives an overview of the topics dealing with the well-being of individuals examining measures of social welfare, political differences across genders, and public policy differences across political regimes. The performance of different electoral systems is examined in Sect. 3.2. The role of campaign advertising and

expenditures on candidates' policy platforms and voters' choice of candidate is examined in Sect. 3.3.

3.1 Social Choices: Welfare, Gender Differences, and Healthcare

This section summarizes papers dealing with preference aggregation in society under incomplete information, differences in political preferences across genders, and on the differences in healthcare preferences across regimes.

3.1.1 "Statistical Utilitarianism" by Pivato

Within the "utilitarian" approach to measuring social welfare, Pivato shows that if social welfare is calculated as the average of individuals' cardinal utility functions in a society with a large number of individuals whose utility functions satisfy certain statistical properties, then it is possible to get an accurate estimate of a utilitarian social welfare function. He shows that averaging utility data from a large population of voters gives a good approximation of utilitarianism with high probability. This is true even when the utility functions of individuals are miscalibrated or noisy.

Pivato's results hold even when he assumes that utilities are subject to multiplicative or additive noise or when there are measurement errors (with zero mean and bounded variance) associated with the utilities of different voters. These results hold even when voters' utilities are highly correlated which leads to correlation among the preference intensities and measurement errors of the utilities of these voters (while imposing constraints of the covariance of the random errors). Under these circumstances, he shows that the probability of a socially suboptimal decision not only decays to zero in large population but does so quickly when the number of voters becomes large.

Pivato's positive results give credence to the utility functions used in the various theoretical and empirical studies presented in this volume and elsewhere in attempts to measure the well-being of individuals or societies under various political regimes and voting systems. These utilities are then used to formulate how agents make decisions and are aggregated in electoral processes.

3.1.2 "Personality Traits and the Gender Gap in Ideology" by Morton, Tyran, and Wengström

Morton, Tyran, and Wengström model personality traits as mediating variables (indirect effects) between the effects of gender and political ideological preferences in a sample of Danish citizens. Their objective is to estimate the indirect effect

of gender on ideological preferences through personality trait differences between males and females.

Their results indicate that—for their sample and what they argued probably for other developed countries—the ideological gender gap can be largely explained by differences in personality traits between women and men. In particular, they find that women are more open to experience, more agreeable, and less emotionally stable than men. They note that these women with these trait differences tend to be more leftist, largely through a direct effect on ideology but also indirectly through the negative effects these traits have on income. Thus, their results also suggest that women are more leftist than men because of these trait differences, that is, because they have different personalities which shape their ideology. Moreover, they find that after controlling for personality traits, women tend to be more leftist because they earn less. In addition, their results measure the effects that personality trait differences have on ideological differences between the sexes that tend to be larger (over three quarters of the observed gender gap in general ideological preferences) than those independent of personality trait differences (such as income or education differences) and so outweigh the non-personality trait effects.

3.1.3 "Autocratic Health Versus Democratic Health: Different Outcome Variables for Health as a Factor Versus Health as a Right" by Rosenberg and Shvetsova

Rosenberg and Shvetsova examine the healthcare policies of autocracies and democracies. The basic premise of this empirical paper is that healthcare policies in autocracies and democracies differ because the government's healthcare objectives differ under these two political regimes. They argue that autocrats value healthcare because it complements their economic policies as they help maintain the health of those working for the economic elites on whose support dictator depends to stay in office. In democracies, politicians face regularly scheduled elections and so are accountable to broader coalitions and thus cannot target the health needs of specific groups of people.

Using disaggregated data on mortality from specific diseases, Rosenberg and Shvetsova show that, other things being equal, while autocracies deal more efficiently with diseases that "damage" the elites' workforce, at the expense of other health problems, democracies do not have such bias, with their healthcare policy priorities being less clear. That is, they find that improved mortality from workforce-affecting diseases in autocracies that have extensive labor markets relatively to nonlabor-intensive autocracies, but not in democracies, under similar conditions. In addition, their results show that the public investment made by the autocrat increases mortality from old-age diseases in these countries and is highly significant jointly

with autocratic labor force participation.[3] Thus, they find substantial evidence that it is the economic elites' preferences that are reflected in health outcomes in autocracies with labor-dependent economies. They also show that in democracies healthcare policies depend on the preferences of their coalitions supporting the governments in office.

The papers in this section dealt with measuring the well-being of individuals in a society, how gender traits influence differences in political ideology across genders, and with differences in healthcare policies across autocracies and democracies. We now turn to papers dealing with the effect that differences in voting systems have on candidates and on electoral outcomes.

3.2   Performance of Electoral Systems

In this section, we describe the contributions in this volume pertaining to general voting rules. The first is a survey paper comparing candidates entrance under different voting rules, the second studies the probability that the Condorcet winner is chosen under US congressional institutions, and the third analyzes electoral competitiveness under plurality rule.

3.2.1   "Comparison of Voting Procedures Using Models of Electoral Competition with Endogenous Candidacy" by Bol, Dellis, and Oak

Bol, Dellis, and Oak survey the literature to examine the predictions made by unidimensional policy models on the number of candidates running for election and on the degree of policy polarization among candidates. Their main focus is on understanding how different voting procedures affect the number of candidates running in the election and the policies they adopt in their effort to win votes. To do so, they classify models according to the assumptions made on candidates' policy or win motivation objectives and on the timing of their entry into the election. They concentrate on models in which there is a national election in a single district and examine variations on the type of ballots voters cast in the election distinguishing whether voters rank or not candidates in their ballot. Their survey focuses on three voting procedures: plurality, runoff, and approval voting.

By comparing the properties of alternative voting procedures between these families of models, Bol, Dellis, and Oak highlight the advantages that endogenous candidacy models have—at the theoretical and empirical levels—over the standard

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[3]This results accords with the theory developed by Gallego and Pitchik (2004) and the evidence provided by Gallego (1998) that the fate of autocrats (their survival in office) depends on the well-being of the elites which she measures through the sum of public and private investment as they are the only ones capable of investing in developing countries.

Hotelling-Downsian model. Theoretically, they argue that these models can provide more satisfactory micro-foundations for the emergence and/or stability of a specific configuration of parties or candidates under different voting procedures. Empirically, they highlight that these models offer a better account of actual electoral results—namely, that countries using plurality rule (e.g., the UK and the USA) tend to hover around Duverger's prediction of a two-party system, whereas countries using plurality runoff rules (e.g., France) or proportional representation tend to have multiparty systems. They also examine the degree of policy polarization between the parties—differences in one-dimensional policy platforms on a left-right scale—generated by different voting procedures.

3.2.2 "Legislative Leaders as Condorcet Winners? The Case of the US Congress" by Erikson and Ghitza

Using historical data starting from 1789 for the US House of Representatives and the US Senate of the US Congress, Erikson and Ghitza simulate the selection of a Condorcet winner. For each chamber and Congress, they identify the preferences of the legislators using the DW-Nominate scores and examine whether a Condorcet winner exists in the two-dimensional space created by these scores. In addition, using post-World War II data, they examine the existence of a Condorcet winner within each political party for each chamber and Congress. Their objective is to find the frequency with which a Condorcet winner exists and the closeness to the center of policy space of tournament winners in open pairwise elections.

Using congressional roll call voting modeled in two dimensions with many members (currently, 100 in the Senate and 435 in the House), their results show that for the US House as a whole, Condorcet winners usually do *not* exist; for the Senate as a whole and for each party in the House and the Senate, a Condorcet winner exists a little over *half* the time. They conclude that if congressional party caucuses were to choose a winner solely based on who is closest to their views, there would be a clear winner at least half the time. They also show that in the recent past, half of the actual party leaders in the Senate were predicted by their model to be the Condorcet winners in at least one Congress prior to their ascent to the leadership position.

3.2.3 "The Duverger-Demsetz Perspective on Electoral Competitiveness and Fragmentation: With Application to the Canadian Parliamentary System, 1867–2011" by Ferris, Winer, and Grofman

The innovation of Ferris, Winer, and Grofman's paper is to take Duverger's law (1954) and combine it with Demsetz's (1968) theory of natural monopoly to define the competitiveness of electoral system as depending on the contestability of the election. They argue that competitiveness declines in plurality systems as party

fragmentation exceeds the long-run level predicted by Duverger's law. To do so, they develop a new index of electoral contestability and discuss its properties.

To show how their index fares with other measures of competitiveness, they examine the relationship between their index and the concentration of vote shares during the history of the Canadian parliamentary system from 1867. After compiling riding-level electoral data, Ferris, Winer, and Grofman build different competitiveness indices for each legislative assembly and compare their competitiveness measure with that provided by Laakso and Taagepera's (1979) index on the effective number of parties in a legislature. They also compare it with "first versus second place vote margins" at both the constituency and national party level. They show the evolution of party competitiveness in Canada over the last century and a half. In particular, they examine periods in which a large number of parties competed in the elections in different regions of the country. As a by-product, their study also shows the evolution of Canada's federal parties and how competitiveness has influenced their evolution.

The papers in this section examined the performance of different electoral systems by comparing different voting procedures in national elections and by looking at the probability that the Condorcet winner is chosen in the US federal institutional setting and at the degree of electoral competitiveness and fragmentation in multiparty parliamentary countries using plurality rule. The next section summarizes papers dealing with the political campaigns undertaken by candidates in different countries.

3.3   The Role of Campaign Advertising in Elections

The papers included in this section examine the effect that campaign advertising and expenditures have on electoral outcomes in elections first at the theoretical level and then at the empirical level.

3.3.1   "Modelling the Effect of Campaign Advertising on US Presidential Elections" by Gallego and Schofield

Gallego and Schofield extend Schofield's (2007) model to examine the effect that candidates' abilities to directly communicate with voters through campaign ads—delivered directly to their smart phones or social media accounts—have on voters' choices and on candidates' policy positions. In this theoretical paper, voters are endowed with policy preferences as well as preferences over candidates' advertising campaign relative to their *campaign tolerance level*, i.e., their preferences over how many times they wish to be contacted by candidates. In addition, voters' choices are also affected by the *composite valence*—voters' non-policy evaluation of candidates is measured as the sum of the sociodemographic, traits, and competency