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### Political economics in the laboratory

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# Chapter 1

## Introduction

*Voting* is likely the tool most strongly associated with the idea of democratic decisions, be it at national or local elections, decisions within a parliament, committees, juries or even at company boards. In turn, the outcomes of voting processes potentially affect a large constituency. Therefore, understanding voter behavior is of major interest in a variety of fields. In this thesis we approach voter behavior from the perspective of Political Economics. More generally, we will address various aspects of individual behavior in the common arena.

Specifically, this thesis investigates the impact of information on the extent of *strategic voting* (chapters 2 and 3), explores the motives behind *economic voting* (chapter 4) and applies a similar toolbox to understand *contributions to the public good* in a non-trivial scenario (chapter 5). Together, these chapters intend to provide innovative ways to look at important questions in the political economics literature. We believe that our analytical framework is informative not only about the specific environments in which it is used here, but also allows us to develop insights for similar and related policy arenas.

Traditionally, economic science has looked at these problems using a combination of theoretical models, assuming fully rational agents, and applied econometrics. We deviate from the standard approach in both respects, by making use of *behavioral* modeling and experimental methods. By behavioral modeling, we specifically mean modeling the systematic ways in which people deviate from the fully rational agent model. We do so, for example, by assuming some form of bounded rationality. To verify and better understand the implications of behavioral modeling, we bring the study into the economics laboratory. The reason for this is that the environments we study (voting and public goods contributions) are very complex and behavior in these environment is influenced simultaneously by several factors. The experimental laboratory provides a unique possibility to control for and isolate specific aspects of interest. By a combination of theory and experimental methods we try, then, to understand actual behavioral patterns of real economic agents and investigate how the limits of standard economic models can be relevant for (public policy) analysis and help us predict behavioral patterns in other (similar) situations.

Dropping the traditional assumption of full rationality turns out to be very important in understanding behavior. In this thesis, we find strong support for bounded rationality. As an illustration, two chapters (2 and 3) look at a voting game with three candidates in which we vary the intensity of preferences, i.e., how a person's best candidate is compared to her second preferred candidate. Although it is intuitive that the chance of voting for one's best candidate should increase in this distance, a fully rational analysis (i.e., Nash Equilibrium), fails to capture this feature. The reason is that a fully rational agent should always select the best strategy available (thus a *best* response function), regardless of how much 'better' it is. By applying a boundedly rational model (in this case, the Quantal Response Equilibrium, introduced by McKelvey & Palfrey 1995) we switch to a *better* response function, which does react to size differences. Using experimental data, we find strong support for the theoretical analysis both in terms of comparative statics, but also for several of the point predictions. We find, for example, not only that a voter is more likely to vote for her best candidate when the aforementioned distance in preference is larger, but also that in a three-way run, supporters of the least popular candidate are significantly more likely to switch away from their preferred candidate.

The use of experimental methods is also essential. For example, in the chapters on strategic voting (2 and 3) we can manipulate and know, without any noise, peoples' preferences - something that is impossible with observational data. As another example, in chapter 4 we introduce the first experimental environment in which only economic considerations, and no political aspects, can influence voting decisions. Such an environment is the only in which clear causation arguments can be made and in which the voting decision can be made without the many complex layers in which it is usually immersed. We are aware, however, that using the laboratory does not come without a cost. For example, in this thesis the largest electorate contains 15 subjects. More generally, we need to be wary of the external validity of our results. We deal with this first by being upfront about the scope of the analysis and describing it in proper context, second by deriving theoretical extrapolations whenever possible and third, by providing sufficient evidence that the approach is informative for the specific situation so that we can derive valid inferences for related situations.

The use of behavioral modeling and experimental methods allows us also to look at (preference) *heterogeneity* and *complexity*. This thesis explores heterogeneity in (social) preferences in two different ways. Chapters 2 and 3 introduce and manipulate preference heterogeneity with elements of the experimental design, while chapters 4 and 5 try to capture/measure this heterogeneity by observing people's behavior. Chapter 4, for example, investigates and shows how some people demand more information about society and are more likely to vote against their own private interests while others simply support the candidate that is best for themselves. Chapter 5, on a similar vein, show that people can be grouped into those with low or high concerns for society, and that these groups

behave in distinct ways. We observe, also, that as the complexity of the environment increases, people tend to rely on simpler heuristics, or simpler strategies. For example, by increasing the complexity of the model of chapter 2 in chapter 3, we observe that the extent of strategic voting (a more complex strategy) is reduced. In chapter 4 we see that the demand for information about community and national economic indicators is significantly reduced in the most complex scenario, which requires more processing effort from the subjects. This is in line with the general argument in favor of bounded rationality models: since the world is complex, people try to rely on what they perceive as most relevant, or, as chapter 4 reveals, refrain from engaging in complex computations.

This thesis hopes to contribute to the literature on political economics. It reflects important steps into analyzing the specific problems presented here and hopes to be helpful in providing insights for related topics. Elements presented here can also be useful for revisiting theoretical models and incorporating some of the systematic deviations from these models that we observe, improving prediction and policy development.

We now turn to describing briefly each of the remaining chapters of this thesis.

In chapter 2, *Information and Strategic Voting*, we theoretically and experimentally study voter behavior in a setting characterized by plurality rule and mandatory voting, where voters choose from three options. We are interested in the occurrence of strategic voting in an environment where Condorcet cycles may occur. In particular, we focus on how information about the distribution of preferences affects strategic behavior. We also vary the relative importance of the second preferred option to investigate how this affects the strategic vote. Quantal response equilibrium analysis is used to analyze the game and proves to be a good predictor for the experimental data. Our results indeed show that strategic voting arises, the extent of which depends on (i) the availability of information; (ii) the relative importance of the intermediate candidate; (iii) the electorate's relative support for one's preferred candidate; and (iv) the relative position of the plurality-supported candidate in a voter's preference ordering. Our results show that information serves as a coordination device where strategic voting does not harm the plurality-preferred candidate's chances of winning.

In chapter 3, *Strategic Voting and Heterogeneous Preferences*, we study voter behavior in a similar setting. In contrast to chapter 2, voters in the same electorate may now differ in how much they relatively value the three options. This introduces preference heterogeneity in the electorate. Three information conditions are tested: *no information*, in which voters know only their own preference ordering and the own benefits from each option; *aggregate information*, in which in addition they know the aggregate realized distribution of the preference orderings and *full information*, in which they also know how the relative importance given to the options are distributed within the electorate. As a general result, heterogeneity seems to decrease the level of strategic voting in our experiment. We observe however, both theoretically and experimentally that our main

results from chapter 2 are robust to the preference heterogeneity introduced. Moreover, information about the aggregate distribution of preferences seems to be the element that best explains the observed differences in voting behavior.

Despite the vast literature on economic voting, spanning decades, there is little agreement on the influence of economic considerations on approval of the government and vote choice. Part of the reason for this disagreement is the inherent complexity of the political environment. To isolate the effects of economic considerations we develop and present in chapter 4, *Information and Economic Voting*, a laboratory experiment that allows us to vary these considerations at three levels: the individual, community and national economy. Choices by a policymaker directly affect outcomes at each of these levels, allowing us to test for ‘egotropic’, ‘communitropic’, and ‘sociotropic’ voting. Our design allows us to specifically observe which information is considered relevant by voters and to what extent ‘the economy’ matters. Chapter 4 offers what we believe to be the first experimental study to explicitly investigate the question of how multiple levels of economic considerations influence vote choice. We observe significantly positive demand for information, in a setting where standard economic reasoning would predict no information demand and pure egotropic (selfish) voting. We observe that the demand for information decreases with the complexity of the environment and that informed voters vote more sociotropically. Moreover, voters seem more ‘extreme’ in approval surveys than in actual voting.

In chapter 5, *Preference for Efficiency or Confusion?*, we ask whether the hypothesis of preference for (group) efficiency can account for subjects’ contributions in public good games or if this can be attributed to noisy behavior. Using a boundedly rational equilibrium approach, we estimate the relative importance of efficiency concerns relative to noise. Using data from a voluntary contribution mechanism experiment with heterogeneous endowments and asymmetric information, we estimate a quantal response equilibrium extension of a model in which subjects have preference for group efficiency. Under the hypothesis of a homogeneous population most of the over-contribution seems to be explained by noisy behavior. A different picture emerges when we introduce cross-subject heterogeneity in concerns for group efficiency. In this case, a majority of the subjects makes contributions that are compatible with the hypothesis of preference for (group) efficiency. A formal likelihood-ratio test strongly rejects the models not allowing for noise in contributions and homogeneous subjects for the more general QRE extension with heterogeneous preferences for (group) efficiency coupled with noise in subjects’ behavior.