# Understanding political behavior: Essays in experimental political economy

Gago Guerreiro de Brito Robalo, P.M.

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# Chapter 1

# Introduction

*Each person wants to participate and at the same time to be left alone. And because it is not possible to have it both ways, there is always a conflict.* [1]
Thomas Bernhard, *Aus Gesprächen mit Thomas Bernhard* (1991)

Understanding political participation is one of the big challenges in the social sciences. The above quote alludes to the tension that individuals face whenever they are called upon to intervene in political affairs: on the one hand, a desire to participate - to vote, protest, campaign, or speak out; on the other hand, a propensity to be "left alone" and let others take responsibility and bear the costs of the political process. In this respect, political participation constitutes a collective action problem (Olson 1965): outcomes depend on the sum of costly individual efforts, which leads to an incentive to free-ride on others' actions. What is remarkable about political participation instances is how often they successfully overcome the collective action problem. The fact that most democratic elections, small and large, exhibit substantial turnout runs counter to the inescapable nature of collective action. Understanding what motivates people to take part in politics can enlighten the conditions under which collective action broadly understood is poised for failure or success.

This thesis explores how non-standard preferences (Chapters 2 and 3) and decision making biases (Chapter 4) might influence the decision to participate and the optimality of political choices, respectively. The standard models in political economy and public choice have mirrored the central tenets of the neoclassical view, namely self-interested preference orderings and full rationality (Rowley et al. 1993 ). This paradigm has yielded substantial insights into the political process. However, some phenomena seem to elude the paradigm, chiefly among them the inability to

[1] This translation is borrowed from Alexander Düttmann, to whom I'm thankful for the original German reference (Hofmann 1991).

fully explain individual political participation. The reasons underlying this failure have been the subject of lengthy arguments and counter-arguments (e.g. Green and Shapiro 1994 and Friedman 1996). This thesis aims at extending the neo-classical model by providing directions in which its microfoundations can be enriched. The ultimate goal is to increase its explanatory content and predictive power.

The work presented in this thesis follows the spirit of much of behavioral and experimental economics: it seeks to improve the psychological realism of political economy through the extension of models and their empirical testing (Camerer et al. 2004). The improved realism is achieved by extending the game theoretic workhorse of political participation (Palfrey and Rosenthal 1983, 1985) to incorporate social preferences (Chapters 2 and 3) and by questioning an assumption shared by all models of voting under uncertainty (Chapter 4).

Relaxing the self-interest assumption is important because other-regarding motives may play an important role in political choices. In fact, social scientists agree that some motives matter more than others depending on context. In the political realm, where collective choices are the product of countless individual inputs, other-regarding motives are likely to play a prime role. This is explained in part by the nature of collective action, as one's actions have little instrumental power and considerations other than self-interest naturally come into play (Caplan 2007, Feddersen et al. 2009). In fact, as actions map imperfectly into outcomes, individuals will be more willing to entertain expressive or other-regarding motivations. This should not overshadow the fact that collective decisions bring people together and can make them more public-spirited, as they consider how political outcomes might affect others. The extension presented in Chapter 2 investigates whether other-regarding and group-discriminating preferences influence the decision to participate. Chapter 3 asks whether reciprocity and compliance with normative appeals drive a response to mobilization efforts. Chapter 4 questions the realism of a common assumption in most models in political economy, namely that the cost of information should not affect the way it is used in situations of choice under risk, like elections and other instances of political choice.

## 1.1 Methodology: Game Theory, Decision Theory and Laboratory Experiments

Despite looking for new directions to improve the microfoundations of political economy models, the work in this thesis retains the economic approach's "conventional techniques and goals: formal theoretical and empirical analysis using tractable mod-

els, with a focus on prediction and estimation" (Rabin 2013a, 2013b). All chapters use a combination of theoretical models and laboratory experiments. However, primacy is given to what can be learned from the experimental data - the models are developed to the extent that they can make predictions regarding what to expect in the laboratory. In this sense, these are experiments with a theoretical underpinning rather than experimental tests of theoretical models. Chapters 2 and 3 present a game theoretic framework, while Chapter 4 employs a decision theoretic framework. All chapters use the data of laboratory experiments as the source of empirical evidence.

A game theoretic framework has obvious advantages and disadvantages for the study of political participation. The disadvantages have been the object of lengthy discussions (see Green and Shapiro 1994). Here I would like to single out a few of the numerous advantages. First and foremost, the game theoretic formulation stays true to the structure of the actual phenomenon. One can add infinite layers of complexity to the participation problem, but it ultimately boils down to the question of which group manages to gather more support (e.g. which candidate obtains more votes in a plurality rule election). Misrepresenting the situation is likely to create more problems than solve the existing ones. This is not to say that the model in its primitive form is satisfactory (it does not seem to be). Rather, we must find ways to extend it meaningfully. A second and corollary advantage is that the precise nature of the game theoretic formulation helps us achieve both clarity and parsimony, which is key to isolate causal links in empirical tests. A third advantage is that it takes into account the strategic interaction that takes place among individuals. This point is important because equilibrium behavior might often run counter to intuitive or educated guesses.

Despite substantial resistance by many social scientists, the experimental method is by now recognized as one of the great sources of knowledge in the social sciences (Falk and Heckman 2009). Its use is increasing in both economics and political science. Laboratory experiments are important because they are the research method where controlled variation is most easily achieved. By means of random assignment of subjects to treatment conditions, one can rule out unobservable characteristics as the explanation for the correlation among variables of interest. In other words, laboratory experiments allow us to establish causality in a convincing way. As an illustration, Chapter 2 reports an experiment that manipulates the group identity attachment of different groups. This is done by creating groups that differ along a measured personality characteristic. Groups are defined by this characteristic, and nothing else. In the field, any intervention leading to the same partition of

groups would likely entail varying other confounding factors, like the group-specific interaction between its members that is precluded in the laboratory.

Aside from the standard justifications, there is a feature of the laboratory experimental method that I find particularly compelling and which is present throughout this thesis: artificiality. The artificiality of the laboratory environment allows for manipulations that would be hard to achieve in the field, or would be at least ethically reproachable to pursue. The last two chapters provide an illustration. Chapter 3 decomposes mobilization efforts into a material effort component and a normative appeal component, implementing environments in which both or only one is present. This allows us to assess which plays a more prominent role in the success of political mobilization. In the field it is impossible to separate these two components. Chapter 4 implements a treatment in which a costly piece of information is imposed on subjects, i.e. money is deducted from a subject's earnings for something he or she did not agree to acquire. In the context of a laboratory experiment this is a deontologically reasonable practice, but the same cannot be said of an analogous intervention outside of the laboratory. For many research questions, the artificiality of the laboratory can be an advantage, not the drawback it is considered to be.

## 1.2 Overview

In what follows I will briefly describe the research questions, methodology and main results of each chapter.[2] Chapters 2 and 3 deal with political participation, while Chapter 4 investigates a phenomenon with potential relevance for political choices.

Political participation in this thesis is understood in a broad sense: any situation in which an individual is given the opportunity to make a costly effort to help the group of which he or she is a member achieve an advantage over a competing group. Examples include large and small scale elections, two-sided rallies and campaigning for a candidate. The institutional features and the incentives of such situations is captured by the participation game of Palfrey and Rosenthal (1983), which is described in detail in Appendix 1.A. In brief terms, each player has to decide whether to participate or to abstain. Participation is costly for the individual. The group who wins the game is the one in which more players chose to participate. Players in the winning group get a reward that is higher than the one that accrues to players in the losing group. Rewards are irrespective of individual participation, i.e. only depend on victory or defeat.

[2]For the sake of brevity I will avoid providing references as much as possible in what remains of this chapter. All arguments and the supporting references can be found in the referenced chapters.

Chapter 2 deals with the effect of group identity and altruism on the decision to participate and is based on joint work with Arthur Schram and Joep Sonnemans. When groups with diverging interests settle their disputes via democratic politics, which is the case in *any* election, the allegiances each individual has to the group should matter for her decision to participate. More broadly, how much more she cares about an individual of her group than an individual of the other group should determine her willingness to endure the costs of participation. In fact, group identity seems to be a driving force of participation: in the United States, African-Americans participate at higher rates than their socioeconomic status would predict (Leighley and Vedlitz 1999). This constitutes a puzzle because socioeconomic status is typically the best predictor of individual political participation. One of the candidate explanations for this puzzle is a heightened sense of group identification. However, field data make it extremely hard to identify the causal effect of group identification per se on participation, as it evolves concomitantly with mobilization and socialization processes. A laboratory experiment grants us the control necessary for this investigation.

We allow for group-directed other-regarding preferences and implement them in the participation game. We manage to induce different levels of group identification in our treatments. Competition in the participation game takes place either between groups which are composed of dissimilar subjects (in which case group identity is high), or between groups of similar subjects (in which case group identity is low). Based on the theoretical results and the extant evidence, we hypothesize that both individual and aggregate participation should be increasing in the level of individual group identification and treatment-level group identity, respectively. Concurrently, our experiment also allows us to test whether individuals with altruistic preferences tend to participate more often. At the aggregate level, no differences in participation are observed between high group identity and low group identity environments. At the individual level, there is a modest effect of group identification on participation. A more robust effect is found for non-group-specific altruistic concerns. This is in line with altruism theories of voter turnout (e.g. Evren 2012). A by-product contribution of this study is methodological, as we propose a novel procedure that manages to induce different levels of group identity in the laboratory without resorting to natural groups.

Alongside a concern for others, having been asked by others to participate also seems to provide a reason to do so. In fact, changing mobilization patterns were thought to be the key to the diminishing participation observed in the United States in the last three decades of the 20th century. In their influential work, Rosenstone

and Hansen (1993) claim that a disintegration of mobilization activities is responsible for the decline in participation of a population who was getting richer and more educated (and should as a consequence get more involved in politics). The gist of their argument is that citizens who had been reached by campaigns or activist groups participate at higher rates. The changing nature of campaigning - from labor-intensive methods like canvassing to capital-intensive methods like mass-media advertising - could then explain the decrease in turnout. This study has a major methodological flaw as it ignores the endogeneity of strategic contact and participation, i.e. those more likely to be contacted are also more likely to participate. This flaw is underlined and addressed by a large field experimental literature (spanned by the seminal work of Gerber and Green 1999), which shows more convincingly that the old tactics of mobilization (e.g. door-to-door canvassing) indeed work much better than the contemporary automated ones (e.g. mass mailings). However, the question remains as to what drives people to respond to mobilization efforts. Chapter 3 investigates the psychological mechanisms underlying this phenomenon. The starting point is the observation that all mobilization efforts involve a material effort and a normative appeal. Mobilization could then work either via reciprocity concerns, i.e. as a token of appreciation for the material effort; and/or via compliance with normative appeals, i.e. to avoid the disutility associated with violating the participation norm.

The participation game is extended to allow for mobilization and participation. This requires that one of the subjects in each group is appointed with the task of mobilizing others in his or her group. This subject is assigned a budget that she can either keep or use to mobilize others. Mobilizing others increases the chances of winning the participation game at the expense of a forgone budget. For a given activation patter, the remaining subjects play a standard participation game. The proposed extension is devised having in mind the laboratory implementation, but can also serve as a first step towards a model that includes both mobilization and participation. Existing models of group mobilization eschew the collective action dimension of the participation decision, because they focus on the behavior of leaders and do not confront the fact that individuals may react strategically to different levels of mobilization. In particular, mobilizing an extra citizen will affect the participation probabilities of all others, which is something that the framework I propose takes into account.

The experimental treatments consist of varying the mobilization method (human-driven or automated) and the normative appeal conveyed by the mobilizing subject to others in his or her group (present or absent). The main results show that the

normative appeal is successful in increasing participation, in particular when it is coupled with the mobilization effort. Mobilization alone is not enough to increase participation, which disconfirms the reciprocity conjecture. I also carry out an assessment of the model's point and comparative statics predictions, to conclude that the behavior of leaders is not in line with the point predictions, while most comparative statics results seem to hold.

Information is a crucial determinant of correct decisions, be they individual or collective. Chapter 4, which is based on joint work with Rei Sayag, proposes a first approach to the question of whether the costs of information affect the way it is incorporated in decision making. The findings are potentially relevant for two well-known and related results in political economy: rational ignorance and the Condorcet jury theorem. Rational ignorance involves individuals not acquiring costly information prior to an election because their vote is unlikely to be pivotal, rendering an informed vote and an uninformed as virtually identical. On the other hand, the basic formulation of the Condorcet jury theorem argues that increasing the size of an electorate in which each member has access to free information leads to better collective decisions via more efficient information aggregation.

The literature dealing with these topics, as most of the literature on individual decision making, assumes that information is incorporated in individuals' judgments via Bayes' Rule. It is further assumed that Bayes' rule is uniformly applied irrespective of the cost of information. In our study we ask whether this presumption is legitimate. We construct an individual decision making task under risk and vary the way in which information is made available to subjects: for free, optionally at a cost or imposed at a cost. The laboratory allows us to circumvent the problematic selection issues present in the field, where the subjects who acquire information are the ones most likely to benefit from it. We find that the assumption that Bayesian updating does not depend on information's cost should be questioned: subjects overweight both the signals they choose to acquire and the signals that they were forced to acquire. In sum, costly information is weighted more heavily than free information, and leads to more extreme shifts in posterior beliefs. Whether this leads to more optimal decision making depends on how far the posterior under free information lies from the normative optimum. Future work should investigate whether this phenomenon is also observed when the strategic complexities of a voting situation are introduced.

# Appendix

## 1.A Participation Games

Palfrey and Rosenthal (1983) put forward the following game theoretic model of political participation. There is a finite set of players and each player belongs to one of two groups. Define the set of players as $I = [1, ..., M_i, M_i + 1, ..., M_i + M_j]$, where $M_i$ and $M_j$ are the number of players in groups $G_i$ and $G_j$, respectively. The action space of a player has two elements: participation and abstention. All players decide simultaneously (and individually) whether or not to participate. Participation is costly ($c$), abstention is not. The group where more players participate, wins. Players on the winning side obtain a payoff ($B^W$) that is higher than that accruing to players on the losing side ($B^L$). In case of a tie the winner is decided by a fair coin toss. The structure and payoffs of the game are common knowledge to all players.

From the perspective of a player $i$, define $m_i$ as the number of other members in $i$'s group who participate, and $m_j$ as the number of players in the other group who participate. The expected utility of participation and abstention are, respectively:

$$E[U_i^{Part.}] = \Pr[m_i + 1 > m_j]B^W + \Pr[m_i + 1 = m_j]\frac{(B^W + B^L)}{2} + \Pr[m_i + 1 < m_j]B^L - c \quad (1.1)$$

and

$$E[U_i^{Abst.}] = \Pr[m_i > m_j]B^W + \Pr[m_i = m_j]\frac{(B^W + B^L)}{2} + \Pr[m_i < m_j]B^L \quad (1.2)$$

In words, an individual who chooses to participate increases the chances of creating or breaking a tie but has to pay a cost. In equilibrium, player $i$ must be indifferent between participating and abstaining, and therefore we equate equations 1.1 and 1.2, which simplifies to:

$$\Pr[m_i = m_j] + \Pr[m_i = m_j - 1] = \frac{2c}{(B^W - B^L)} \quad (1.3)$$

This condition defines a Nash Equilibrium (NE) in the participation game. It tells us that a player will participate if the probability that she breaks ($\Pr[m_i = m_j]$) or creates ($\Pr[m_i = m_j - 1]$) a tie, multiplied by the expected benefit, $(B^W - B^L)/2$, equals the cost of participation, $c$. NE existence depends on how costs relate to

benefits. For $c > (B^W - B^L)/2$ the only equilibrium is pure and has no player participating. For $c \leq (B^W - B^L)/2$ there exist NE, either in pure strategies, mixed strategies, or both.

The two most relevant classes of NE are pure strategy equilibria and 'totally quasi-symmetric equilibria', i.e. equilibria in which all players use mixed strategies and players in the same group employ the same strategy. Namely, for $(M_i, M_j) = (1, 1)$ there exists a unique NE where both players choose to participate. The same equilibrium exists for all cases where $M_i = M_j >> 1$. When $M_i \geq 1$ and $M_j = 0$ (and vice-versa) the game reduces to a public goods game (Isaac and Walker 1988). For such games there exist $M_i$ pure strategy NE in which one player in $i$ participates and the others abstain. For $M_i \geq 2$ and $M_j = 0$ (and vice-versa) there also exist mixed strategy NE. In the more general case of $(M_i, M_j) >> 1$, $M_i \neq M_j$, several mixed strategy NE exist (see Palfrey and Rosenthal 1983 for an extensive description).

The computation of equilibria requires a specification of the probability terms in equation 1.3. This will be done for the model's implementation in Chapters 2 and 3. In the laboratory, the participation game was framed as a 'disc buying game', following part of the literature (e.g. Schram and Sonnemans 1996a). Buying a disc corresponds to participating. This formulation makes the game easy to grasp, while avoiding potentially charged words like 'participation' and 'abstention', which would involve losing control as to what attitudes and beliefs subjects hold with respect to them.

## 1.B Quantal Response Equilibrium

As for many other games, the experimental data obtained from participation games does not always coincide with NE predictions (e.g. Schram and Sonnemans 1996a). An equilibrium concept that usually performs better in explaining experimental data is Quantal Response Equilibrium (QRE, McKelvey and Palfrey 1995). QRE has shown to predict the data obtained from tests of political participation models particularly well (Goeree and Holt 2005).

QRE is an extension of NE that accommodates bounded rationality, and is therefore more attuned to the assessment of laboratory data. QRE extends the payoffs of the game by an additive stochastic component, which can be seen as a way of incorporating statistical noise into players' choices. Subjects facing somewhat complex decisions in an unfamiliar environment (the laboratory) are prone to making mistakes. An equilibrium concept that models potential mistakes explicitly can thus

help produce more accurate predictions. In a QRE, best responses are played with higher probability than worse responses, but not with certainty, as in NE. In other words, best response functions, which are deterministic in NE, become probabilistic in QRE.

The main advantage of QRE within our methodological framework is better predictive power. A secondary advantage has to do with equilibrium selection. As mentioned above, participation games typically have several NE. In a game where several classes of NE exist, QRE helps to select the one which tends to have high empirical verification. A third advantage is that QRE retains most of the important features of NE, e.g. the probability of choosing a certain action is increasing in the payoff difference to the alternative(s), beliefs are consistent in equilibrium, etc.

In what follows I provide a sketch of the procedure. As we saw, in a NE player $i$ participates whenever $E\left[U_i^{Part.}\right] \geq E\left[U_i^{Abst.}\right]$, given the actions of all other players $j \neq i$. We add a stochastic element to each expected utility term, $\mu\varepsilon_i^{Part.}$ and $\mu\varepsilon_i^{Abst.}$, respectively, which can be regarded as a random utility shock (e.g. due to unobserved preferences) or bounded rationality (e.g. mistakes on the path to equilibrium). In a QRE, player $i$ will participate whenever $E\left[U_i^{Part.}\right] + \mu\varepsilon_i^{Part.} \geq E\left[U_i^{Abst.}\right] + \mu\varepsilon_i^{Abst.} \Leftrightarrow \left(E\left[U_i^{Part.}\right] - E\left[U_i^{Abst.}\right]\right)/\mu \geq \varepsilon_i^{Abst.} - \varepsilon_i^{Part.}$. For a given $\mu$ and an assumed distribution of $\varepsilon_i^{Abst.} - \varepsilon_i^{Part.}$, the probability of participation is $p = F\left[\left(E\left[U_i^{Part.}\right] - E\left[U_i^{Abst.}\right]\right)/\mu\right]$, where $F(.)$ is the cumulative distribution function of $\varepsilon_i^{Abst.} - \varepsilon_i^{Part.}$.

The parameter $\mu$ governs the extent of bounded rationality (noise) in players' decisions, and the $\varepsilon_i$ represent i.i.d. realizations of a random variable. The parameter $\mu$ and the distribution of the $\varepsilon_i$ are the primitive elements of QRE. The parameter governing the amount of bounded rationality, $\mu$, determines how the participation decision responds to expected payoffs. The equilibrium predictions will change for different values of $\mu$. This value is usually estimated from experimental data obtained in identical or similar conditions. A value of $\mu = 0$ corresponds to a situation of no stochastic noise in decisions, i.e. full rationality. A NE results in this case. As $\mu \to \infty$, the amount of noise increases and players become indifferent between alternatives, playing each with equal probability. Following Goeree and Holt (2005) and Levine and Palfrey (2007), among others, I assume that $\varepsilon_i^{Abs.}$ and $\varepsilon_i^{Part.}$ follow independent extreme value distributions with parameter $\mu$, which results in the difference $\varepsilon_i^{Abs.} - \varepsilon_i^{Part.}$ following a logistic distribution. McKelvey and Palfrey (1995) refer to this as a logit equilibrium, or logit QRE.

In a logit QRE a player's probability of participation is

$$p_i = \frac{\exp\left(\frac{E\left[U_i^{Part.}\right]}{\mu}\right)}{\exp\left(\frac{E\left[U_i^{Part.}\right]}{\mu}\right) + \exp\left(\frac{E\left[U_i^{Abst.}\right]}{\mu}\right)}$$

$$\Rightarrow p_i = \frac{1}{1 + \exp\left(\frac{E\left[U_i^{Abst.}\right] - E\left[U_i^{Part.}\right]}{\mu}\right)}$$

$$\Rightarrow p_i = \frac{1}{1 + \exp\left[\frac{c - \frac{(B^W - B^L)}{2}(\Pr[m_i = m_j] + \Pr[m_i = m_j - 1])}{\mu}\right]} \quad (1.4)$$

This formulation closely follows the standard approach in modeling discrete probabilistic choice (see McFadden 2001 for an overview).