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Electoral Competition and Redistribution with Rationally Informed Voters

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Abstract

In spite of the negligible probability that everyone has to cast a decisive vote, political information can be relevant for a number of private decisions. Under quite mild assumptions, the demand for information is increasing in income. Being informed affects responsiveness to electoral platforms and vote-seeking political parties should take this into account in their optimization process. As a consequence, redistribution is generally lower than what the median voter theorem predicts. Moreover, in contrast with what most literature takes for granted, an increase in inequality does not unambiguously increase redistribution. This is consistent with most empirical research in this field. Finally, an increase in the cost of information induces a reduction in redistribution.

KEYWORDS: redistribution, welfare spending, median voter, information, inequality.

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1 Introduction

According to models of elections based on the median voter theorem, income inequality should increase redistribution as long as it expands the distance between the mean income and the income of the pivotal voter (Roberts, 1977; Meltzer and Richard, 1981). This result has been applied to a variety of situations to explain the size of the public sector, low growth rates, increasing intergenerational transfers and so on. It is fair to say, however, that this theory does not receive good support from empirical research. Even though the reduced forms referring to specific situations are generally compatible with the data, when one moves to structural-form analysis (linking inequality to measures of redistributive transfers), empirical support becomes generally weak and the sign of the coefficients is often opposite to what expected[1]. It seems clear that this theory, though representing a useful benchmark, provides a simplistic representation of how democratic systems work.

This paper proposes a possible explanation for this discrepancy between the theory and the data, namely the fact that not all citizens are equally informed about electoral platforms and, therefore, equally responsive to them. I will argue that rich voters have more incentives to be informed about electoral platforms, are more responsive to the candidates' announcements and therefore receive a higher weight in the objective functions of the politicians. Incentives to gather political information and preferences over redistribution are correlated, which implies that the rich play a greater role in the process of redistributive policy formation. If political awareness increases with income then more inequality determines a greater dispersion in electoral responsiveness, which could balance the drive for redistribution induced by inequality.

To illustrate the main argument of this paper it is useful to start from Anthony Downs' observation that in a sizeable electorate "the returns from voting are usually so low that even small costs may cause many voters to abstain"[2]. This low incentive to participate in political life translates into low desire to be informed about political issues. If there is a cost in acquiring information about the candidates and their platforms, then we should expect not only "rational abstention" but also "rational ignorance". The fact that many people vote and that political information is available in newspapers would simply be reduced to a matter of tastes and would, therefore, be kept

[1] For examples of reduced form analysis see Alesina and Rodrick (1994) and Persson and Tabellini (1994). Estimations of structural relationships between redistributive transfers and inequality are given in Perotti (1994 and 1996) and Lindert (1996).

[2] Downs (1957).

outside the domain of standard economic theory: political information can, after all, be enjoyable *per se*, not unlike sport news.

I will argue instead that, apart from the obvious role of personal preferences, the demand for political information can be explained in terms of incentives. The premise that political information is rarely relevant to useful decision-making relies on an artificial modeling separation between politics and the economy. In fact, political information and expectations on policies are often important for private decision-making. This generates a demand for political information to be used for private purposes. Under quite mild assumptions, this demand is positively correlated with income, as empirical research seems to confirm[3]. This paper, therefore, provides a microfoundation for the rather popular idea that the rich have more influence on elections than the poor, which is, for example, a crucial assumption for a number of results derived in Benabou (2000). Moreover, if more information increases the likelihood of participating in elections, as recent theoretical and empirical literature seems to suggest, then our model can also provide a rationale for a number of stylized facts about electoral turnout[4].

Our main point is that information that proves relevant when voting is often acquired for other purposes. For example, information on fiscal variables may be relevant to investment decisions but at the same time conveys information on economic policy and can therefore affect voting choices; information on the quality of public services may be useful to know whether it is worthwhile using privately available alternatives and at the same time conveys information on the effort of the current administration to provide good services[5]. Moreover, at election time, political information can be acquired to form more accurate expectations on future policies: investment decisions today depend on expec-

[3]See for example Delli Carpini and Keeter (1996).

[4]A vast empirical literature, starting with the classic study by Wolfinger and Rosenstone (1980), finds positive correlations between the probability of turnout and a number of individual characteristics like income, age or education. In Larcinese (2005) I provide evidence on the positive impact of political knowledge on turnout.

[5]Consider for example the decision to buy a house, for many people one of the most important financial decisions to be made in the course of one's life. The value of properties in a given area is determined by variables such as local safety, school quality, future development plans, property taxes etc. Information on those variables is clearly valuable to current and perspective owners. Moreover, although all residents in the area will be interested in those variables, property owners have at stake more than their current quality of life as the value of their asset is influenced by such variables. Moving first in or out of a given area can lead to large financial gains and therefore any information on policies that might affect those variables is valuable for private decision-making. The value of such information is clearly correlated with one's income and wealth.

tations on future taxes; choosing a public or a private school today involves expectations over the condition of the educational system in a few years; and so on. Sometimes the behavior of political agents may also reveal information about variables that are unobservable (or too costly to observe) and that are relevant to private decision making. Political actors have incentives to collect information for their own action, so accurate observation of their choices can convey useful information to the private citizen[6].

What these examples have in common is that consumption and investment decisions are long-lasting and costly to adjust. It is obvious that many other economic decisions do not have these characteristics and would therefore not fit our model. However, it seems reasonable to argue that the amount and relevance of long-lasting decisions increase with income, while the utility of poorer agents is disproportionally driven by decisions which are short-lasting and inexpensive to adjust. This renders our main argument plausible, even if it obviously does not apply to all types of economic decisions and policy dimensions.

To give a concrete example, the manifesto of the party Forza Italia, during the 2001 Italian general election, was centered around a fiscal reform proposal. The main points of this reform consisted in corporate tax cuts on investments and on the hiring of new workers, a reduction in income tax rates, and the abolition of the tax on inheritance and donations. Hence, if the probability attached to a win by Forza Italia was high enough, then new corporate investments, new hirings and any donations should have been delayed until the new policies were implemented. Being aware of the political platform of Forza Italia could, therefore, have generated private gains. It seems also clear that rich voters were more likely to benefit from waiting.

Also the candidates' platforms for the 2004 US presidential election contained a number of proposals that would fit well our argument. The Republican party, for example, proposed to make permanent the numerous tax cuts passed during the Bush administration including, among others, income tax

[6]It is also obvious that political information can simply be demanded as a consumption good and not for decision-making: most people enjoy being informed on a number of things, even when this does not enable them to make better decisions. In this case one should ask about the nature of this good and, in particular, whether it is a normal good. This is clearly an empirical matter; if political information can be treated as a normal good, then the rich can be expected to be more informed than the poor and, therefore, more responsive to policy announcements. All the results presented in this work would be valid *a fortiori*. In this paper, however, I do not consider information as a consumption good and do not rely on normality. I refer instead only to information as it is considered in decision theory. All other information can clearly be included in the category of leisure.

cuts, the rollback of estate taxes and a reduction of taxes on dividends and capital gains. The Democratic party proposed instead to repeal some of these cuts, to eliminate tax advantages for companies that move jobs overseas, while at the same time abolishing the tax on capital gains from long-term investments in small businesses. Being aware of the two platforms and forming a correct view on which might win has obvious consequences for the allocation of investments, in a context in which timely and informed decisions can provide substantial advantages. Also in this case, the benefit of learning about the platforms seems to be increasing in income and wealth.

The formal literature on elections has so far neglected private incentives to acquire political information and the consequences that this might have on electoral competition. Most voting models with asymmetric information have typically considered either a representative voter imperfectly informed on candidates (e.g. Harrington 1993) or fixed political alternatives (e.g. Palfrey and Rosenthal, 1985; Feddersen and Pesendorfer, 1996)[7]. Ledyard (1984) presents a model of spatial electoral competition where each voter is uncertain about other voters' preferences and cost of voting, and where abstention is admitted. Voters play a Bayesian game for given candidates' positions; this gives positive turnout when candidates' positions are differentiated. Candidates, however, are driven to convergence by competition for votes and this leads the equilibrium turnout to zero. In McKelvey and Ordeshook (1984) some voters are uninformed about the candidates' positions but they know the preferences of the various subgroups in the population; uninformed voters can make inferences using interest-group endorsement and opinion polls. Under certain assumptions about preferences and preference distribution, all voters choose as if they had perfect information. Hence, McKelvey and Ordeshook conclude that perfect information is not a necessary condition to apply the median voter theorem. Stromberg (2004a) introduces mass media as information sources and argues that, since some voters are more valuable than others to advertisers, they will get better coverage of the issues they are interested in. Electoral competition between office-seeking candidates will then translate the mass media bias into a policy bias.

There is no model, to my knowledge, that introduces the idea of increasing returns to information into the political market, although this idea is clearly not new in other applications[8]. The model of information demand presented

[7] Razin (2003) presents a model where candidates are responsive to the amount of information which is endogenously aggregated. His main focus, however, is information aggregation and normative analysis.

[8] In Arrow (1986), for example, different incentives to acquire information (the asymmetry

in this paper will have some characteristics not often considered in the literature. First of all, information does not come effortlessly: agents must make an effort and spend time to gather and process information. Secondly, acquiring information is an activity with uncertain returns: devoting more time and effort makes it more likely to get better information, but there is no certainty about what and how much is going to be learnt. Third, information is potentially freely accessible to all: this makes our analysis particularly suited for information available in the mass media[9].

The paper is organized as follows. The next section presents a model of electoral competition with endogenous information acquisition about candidates' political platforms. In Section 3 we derive the demand for political information and show that incentives to be informed on politics are increasing in each agent's initial endowment. In Section 4 we solve the model and analyze the role of information on political equilibrium. Section 5 discusses the main implications of the model for the interaction between gross income inequality and redistribution. Section 6 provides a brief discussion of the results and concludes.

2 The model

Consider a polity consisting of a very large number of agents. Each agent's preferences are represented by a continuous utility function

$$u(\mathbf{x}, e, a|m) = U(\mathbf{x}|a) + Z(a|m, \theta) - ve \quad (1)$$

where $\mathbf{x}$ is a vector of private goods (with prices $\mathbf{p}$), $a \in A \equiv [\underline{a}, \overline{a}]$ represents the public policy (e.g. a public good), m is the agent's initial endowment, $e \in \mathcal{E}$ is effort devoted to information gathering and v is a parameter of effort disutility that for simplicity we assume equal for all agents. The parameter θ represents an exogenous shock in tastes that, with m, determines individual preferences over a. We assume $\theta = \eta + \varepsilon$, where η is a common shock for the whole population, distributed according to the function $p(\eta)$ with $S_\eta =$

between fixed costs and increasing returns) lead portfolio allocation choices to increase income inequality. A related study is that of Verrecchia (1982), where agents may acquire private signals about the return of stocks on top of what equilibrium prices already reveal. In Verrecchia's model, however, there is no wealth effect.

[9] The revenue of most newspapers and broadcasters comes mainly from advertising. The consumer in this case does not pay information in cash; in any event, this cost is quite low compared with other opportunity costs.

$\{\eta|p(\eta) > 0\} \subset \mathbb{R}_+$, and ε is an idiosyncratic shock symmetrically distributed around zero with $S_\varepsilon = \{\varepsilon|p_\varepsilon(\varepsilon) > 0\} \subset \mathbb{R}$.

The function $U(\mathbf{x}|a)$ is the utility associated with private commodities, contingent on the value of the public policy variable. We also assume that people have direct preferences over a represented by a strictly concave function $Z(a|m)$. Since we want to focus on redistributive politics, we assume that preferences on a depend on the agents' initial endowment.

Let us focus first on $U(\mathbf{x}|a)$ neglecting for a moment both $Z(a|m)$ and e. We make the following assumption:

Assumption 1 *$U(\cdot) \in \mathbb{R}_+$ is quasi-concave and homogeneous of degree 1 in $\mathbf{x}$.*

A homogeneous function has the property that the cost of deviations from the optimum is increasing in the initial endowment. This is a relatively simple way to obtain that information is more valuable for rich voters. Although Assumption 1 clearly restricts the behavioral pattern of our agents, the class of utility functions we consider is fairly general, comprising some of the standard functions most widely used in economic models. It should also be noted that homogeneity of degree 1 is only required for the purpose of tractability: in fact, any homogeneous function of degree above zero would deliver that the value of information is increasing in the initial endowment.

We assume that people have an identical utility function over private commodities $U(\mathbf{x}|a)$: hence the only ex ante source of heterogeneity is their initial endowment m. Interpreting the initial endowment as full income, we summarize income distribution in the population by a continuous density function $\varphi(m)$. An agent with endowment m maximizes $U(\mathbf{x}|a)$ having the following choice set

$$\mathcal{X}_m \equiv \{\mathbf{x}|\mathbf{px} \leq m(1 - \pi e)\} \tag{2}$$

where π is a positive parameter, equal for all agents[10], that reflects the possible monetary costs induced by information gathering (for example, via a reduction in labour supply). Since the maximum amount that can be spent in information gathering is m we have $e \in \mathcal{E} \equiv [0, \frac{1}{\pi}]$.

[10]Having π equal for all agents does not imply that the monetary cost is the same for everyone, but that such cost is proportional to the initial endowment. For example, if we assume only work is a source of income then m is full income (i.e. the income earned if all available time is spent at work), e is time devoted to information gathering and $m\pi$ the wage rate. This is a consequence of having homothetic preferences.

From the constrained maximization of $U(\mathbf{x}|a)$ it is possible to get the optimal private choice $\mathbf{x}^*(a, m, \mathbf{p})$ and the indirect utility function $V(a, m, \mathbf{p})$. Preferences over a are then defined by the function $W(a, m, \mathbf{p}, \theta) = V(a, m, \mathbf{p}) + Z(a|m, \theta)$ and we assume the following:

Assumption 2 *$W(a, m, \mathbf{p}, \theta)$ satisfies the single crossing condition for any θ. This means that $\forall\theta,\ \forall a' > a,\ \forall m' > m$:*

$$\begin{aligned} W(a', m', \mathbf{p}, \theta) &\geq W(a, m', \mathbf{p}, \theta) \Rightarrow W(a', m, \mathbf{p}, \theta) \geq W(a, m, \mathbf{p}, \theta) \\ &\quad \textit{and} \\ W(a', m', \mathbf{p}, \theta) &> W(a, m', \mathbf{p}, \theta) \Rightarrow W(a', m, \mathbf{p}, \theta) > W(a, m, \mathbf{p}, \theta). \end{aligned}$$

Assumption 2 implies that richer agents prefer lower levels of a than poorer ones. Given the continuity of the functions involved, we can represent the preferred policy of an agent with income m as a function $a = h(m)$ with $h' < 0$. For the rest of this section we indicate the distribution of the ideal a (the argmax of the function $W(a, m, p)$) across the population with $y(a|\eta)$, where conditioning on η indicates that the distribution of preferences depends on the common shock η.

The public policy variable a is determined by majority voting. There are two parties (L and R) competing for office. They are able to commit to their platforms and care only about maximizing their expected plurality. Parties' platforms are announced publicly but are only observable if some effort e is devoted to information gathering. More precisely, we assume that the probability of observing the vector of announcements $\{a_L, a_R\}$ is given by $q(e)$, where $q(\cdot)$ is an increasing and concave function. The concavity of $q(\cdot)$ captures the decreasing returns (in terms of information) from exposure to media; it should not be confused with the increasing returns (in terms of utility) from information, which is instead embedded in the assumptions we make on the utility function.

The timing of the model is represented in figure 1: first of all Nature selects η for the whole community and the idiosyncratic shocks ε for each citizen. The distributions of η and ε are common knowledge but citizens only learn their own θ. The distribution of η can then be updated by Bayes' rule to

$$p(\eta|\theta) = \frac{p(\theta|\eta)p(\eta)}{p(\theta, \eta)}.$$

Politicians can instead observe the realization η. In period 1 the two parties simultaneously announce their platforms. Citizens spend their desired amount of effort in acquiring information and afterwards decisions are made, i.e. private choices are undertaken and people cast their votes on the basis of the information they have. Finally the announced policy of the winner party is implemented and payoffs are realized for all citizens.

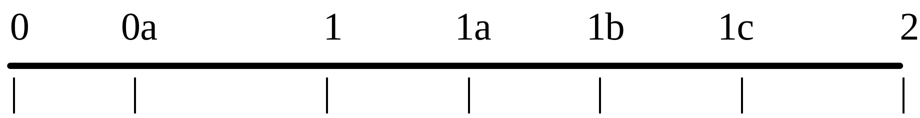

Figure 1: Time Line

0: Nature selects realization of η for the whole population and ε for each citizen.

0a: Political parties learn η, citizens learn θ.

1: Parties simultaneously and independently announce political platforms.

1a: Citizens gather information on platforms.

1b: Private decisions.

1c: Voting decisions.

2: Winning platform is implemented. Payoffs realized.

We will start by deriving the information demand, given its central role in this model. We will then proceed to solve the model backward.

3 The demand for information

Solving backward the individual decision problem of an agent, we start by considering a generic value of e fixed at $\widetilde{e}$. A platform announcement by parties L and R is defined as a pair $\{a_L, a_R\}$. For a given η, every announcement will induce a population partition: let us indicate with $N_L(a_L, a_R|\eta)$ and $N_R(a_L, a_R|\eta)$ the size of the population that, if informed on the content of platforms, would vote respectively for party L and party R when $\{a_L, a_R\}$ is received. In fact, not all the people in $N_L(a_L, a_R|\eta)$ and $N_R(a_L, a_R|\eta)$ will be informed on the platforms and, since there are no priors on the location of parties, uninformed citizens are not responsive to parties' proposals[11]. We then indicate with $n_L(a_L, a_R|\eta)$ and $n_R(a_L, a_R|\eta)$ the size of the informed population voting for party L and party R respectively when $\{a_L, a_R\}$ is received. The probability that the platform of party i wins given that the platforms announced are $\{a_i, a_j\}$ is equal to 1 if $n_i(a_i, a_j|\eta) > n_j(a_i, a_j|\eta)$ and to $\frac{1}{2}$ if $n_i(a_i, a_j|\eta) = n_j(a_i, a_j|\eta)$. Accordingly we can determine the winning platform $a^*(a_i, a_j|\eta)$.

Information is used by our agents in the best possible way. Voters know the population partitions induced for each $y(a|\eta)$ and therefore information about the platform announcements improves the forecast of a. To simplify our argument it is worth to anticipate that, as typical of Downsian models of electoral competition, parties propose convergent platforms. Thus, in equilibrium, informed voters can fully deduce a^*.

Lemma 1 *In equilibrium the value of information on platforms is positive.*

Proof. Having rational expectations, uninformed voters will expect to have in equilibrium $a^*(\eta)$. Informed voters can fully deduce a^* from platform convergence. Uninformed voters rationally rule out any other possibility apart from $a^*(\eta)$ but are still uncertain about the actual a^* . This gives a positive value to information about the platforms.■

Let us assume for the moment that $a^*(\eta)$ is a continuous function (this will be proved in Lemma 2). Focusing on the choice of commodities (i.e. on the first component of the utility function), we have that the utility of an agent who observes the platform announcements is[12]

$$V^*(m, a^*(\eta)) = U(\mathbf{x}^*(m, a^*|a^*(\eta)) \tag{3}$$

whereas if platforms have not been observed utility is

$$\widetilde{V}(m, a^*(\eta)) = U(\widetilde{\mathbf{x}}(m)|a^*(\eta)). \tag{4}$$

[11] We will interpret this non-responsiveness as abstention, by assuming that any indifferent voters simply do not vote. Actually, in our setting there is not much an uninformed voter can do apart from voting randomly or abstaining. Random voting by uninformed agents would not change our results.

[12] From now on we drop prices, as they do not vary in our analysis.

Definition 1 *The expected value of observing the platform announcement is given by the function*

$$\Delta(m|\widetilde{e}) = \int [V^*(m, a^*(\eta)) - \widetilde{V}(m, a^*(\eta))]p(\eta|\theta)d\eta.$$

We do not need to consider $Z(a|m)$ at this stage because the private value of information on a is independent of agents' preferences over the public policy.

It is then possible to prove the following:

Proposition 1 *Assume $U(\cdot) \in \Re_+$ is quasi-concave and homogeneous of degree 1 in $\mathbf{x}$. Then the value of information on platforms is increasing in the initial endowment, i.e.* $\frac{\partial \Delta(.,e)}{\partial m} > 0$.

Proof. See Appendix[13].

We are now ready to turn to the information acquisition stage. Using Definition 1, the problem of a generic agent can be written as[14]:

$$\max_{e \in \mathcal{E}} [\int \widetilde{V}(m(1 - \pi e), a^*(\eta))p(\eta|\theta)d\eta + q(e)\Delta(m, e) - ve] \quad (5)$$

Solving this problem, we obtain the optimal effort function $e^*(m, v)$. This then gives the probability of being informed on political platforms $Q(m, v) = q(e^*(m, v))$.

Proposition 2 *Assume $U(\cdot) \in \Re_+$ is quasi-concave and homogeneous of degree 1 in $\mathbf{x}$. Then effort in information acquisition is decreasing in the cost of effort, i.e.* $\frac{\partial e^*(m,v)}{\partial v} < 0$, *and increasing in the initial endowment of agents, i.e.* $\frac{de^*(m,v)}{dm} > 0$, *and therefore the probability of being informed on political platforms $Q(m, v)$ is increasing in m and decreasing in v.*

Proof. See Appendix.

Since we assume that any incentive to acquire information for voting decision-making is negligible, $Q(m, v)$ fully represents the probability each citizen has of being informed on political platforms.

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[13] This result can be proved whether $a^*(\eta)$ is a continuous or a discrete function. The only reason we are working with a continuous framework is to stress the fact that each agent's probability of being pivotal is zero. However, all the results are still valid with a finite number of citizens (and therefore a discrete $a^*(\eta)$) as long as we assume that the probability of being pivotal in the election is negligible.

[14] In the effort allocation problem we neglect the fact that possible monetary costs of information gathering change the endowment of voters and therefore their preferences over a. This is a second order effect and clearly a negligible one.

4 Electoral competition and voting

In this section we analyze the political competition game and citizens' decisions. We will solve the game backward, deriving agents' best responses and the political equilibrium.

Public Policy

With full commitment to platforms, the policy proposed by the winning party (a^*) is implemented after the election; if the two parties get an equal share of votes then each policy is implemented with probability equal to $\frac{1}{2}$.

At the end of this period the realized utility for each agent is

$$U(\mathbf{x}^*(m,a^*)|a^*) + Z(a^*|m,\theta) - ve^*(m,v) \tag{6}$$

if informed and

$$U(\widetilde{\mathbf{x}}(m)|a^*) + Z(a^*|m,\theta) - ve^*(m,v) \tag{7}$$

if uninformed.

Voting and private decisions

With two parties, agents always have a weakly dominant strategy and their optimal voting strategy $i^*(m,a_L,a_R)$ is

$$i^*(m,a_L,a_R) = \left\{ \begin{array}{c} L \text{ if } W(a_L|m) - W(a_R|m) > 0 \\ R \text{ if } W(a_L|m) - W(a_R|m) < 0 \\ \text{abstain if } W(a_L|m) - W(a_R|m) = 0 \end{array} \right\} \tag{8}$$

The optimal private decisions are

$$\mathbf{x}^* = argmax_{x\in X} U(\mathbf{x}|a^*) \tag{9}$$

for informed agents and

$$\widetilde{\mathbf{x}} = argmax_{x\in X} \int U(\mathbf{x}|a^*(\eta))p(\eta|\theta)da \tag{10}$$

for the uninformed.

Information gathering

Solving the maximization problem (5) we derive the optimal effort of each citizen $e^*(m,v)$ and then the probability $Q(m,v)$ of being informed on platform announcements. At the end of this period the total population will be divided into informed (those who observe the platforms) and uninformed agents.

Announcement of platforms and political equilibrium

Parties simultaneously announce their platforms. At the beginning of the game they both observed the realization of the random variable η and therefore they know $y(a)$. Parties can also exploit the relationship between observable individual characteristics and the probability to be informed on platforms. We assume parties maximize their expected plurality $P^E(a_i, a_j) = E[n_i(a_i, a_j) - n_j(a_i, a_j)]$. Therefore, the problem of party i $(i = L, R)$ is

$$\max_{a_i \in \mathcal{A}} \left[\int_{\mathcal{A}_i(a_i, a_j|\eta)} Q(h^{-1}(a), v) y(a|\eta) da - \int_{\mathcal{A}_j(a_j, a_i|\eta)} Q(h^{-1}(a), v) y(a|\eta) da \right] \tag{11}$$

where $\mathcal{A}_i(a_i, a_j|\eta)$ represents the set of policies preferred by citizens choosing party i, given η and platforms (a_i, a_j). A Nash equilibrium in platforms (a_i^*, a_j^*) must satisfy

$$P_i^E(a_i^*, a_j) \geq P_i^E(a_i^*, a_j^*) \geq P_i^E(a_i, a_j^*), \; i, j = L, R \tag{12}$$

Characterization of equilibrium

An equilibrium in this game is given by a platform announcement for each party

$$a_i^*(\eta) \quad (i \in \{L, R\}),$$

a vector of strategies for informed citizens

$$\{e^*(m; v), \; i^*(m, a_L, a_R), \; \mathbf{x}^*(m, a_L, a_R)\}$$

and one for uninformed citizens

$$\{e^*(m; v), \; abstain, \; \mathbf{x}^*(m)\}$$

We are interested in the political equilibria, and so we leave in the background the equilibrium in private choices, which does not affect our results.

From Assumption 2 we know that the policy space admits a Condorcet winner[15]. Even if not everybody is informed we can still find a Condorcet winner given that any subset of the population satisfies Assumption 2. The Condorcet winner is the platform preferred by the voter who is median in the set of the ex post informed voters N_I.

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[15] See Gans and Smart (1996).

Proposition 3 *The unique political equilibrium is given by a^* s.t.*

$$\int_{\underline{a}}^{a^*} Q_\eta(h^{-1}(a))y(a|\eta)da = \int_{a^*}^{\overline{a}} Q_\eta(h^{-1}(a))y(a|\eta)da.$$

Hence, for each η, parties converge on the platform preferred by the median informed voter.

Proof. See Appendix.

The argument for this convergence is identical to the standard Downsian one, the only difference being that the relevant population distribution is weighted by the probability that each citizen has of being reactive to political proposals.

We can now prove the following result, which was used (but not proved) in the previous section.

Lemma 2 *The political equilibrium of this game can be expressed as a continuous function $a^*(\eta) : S_\eta \to \mathcal{A}$.*

Proof. See Appendix.

The model can easily accommodate a series of modifications that would not change anything substantial. For example, the source of uncertainty could be different: this would have consequences for the interpretation of the model but not for its logic. Another possibility is to allow only for the observation of a signal ξ on platforms, rather than the platforms themselves. In this case, assuming that the joint distribution of a and ξ satisfies the monotone likelihood ratio property, knowing ξ would reduce uncertainty and the set of possible political equilibria, still making information gathering an activity with positive returns. Finally, results would not change if the function $U(\cdot)$ was represented as $U(\mathbf{x}|\psi(a))$ where $\psi(a)$ is any variable relevant to private decision-making and affected by public policies[16].

[16] This is straightforward if $\psi(a)$ is a monotonic function. Going back to our example about buying a property (note 5), any public policy that affects the interest rate has also a consequence on property demand and therefore on the price of properties. This means that the range of policies that should be of interest for actual or potential home-buyers is not limited to local or property-related policies. Broad redistributive programmes, for example, have consequences for a number of economic variables and those, in turn, should affect the private decisions of most citizens.

5 Implications for redistribution

We start by comparing the equilibrium of our model with that of a standard Downsian model with perfect information.

Proposition 4 *Let us indicate with a_M^* the political equilibrium when the entire population is informed on platform announcements. Then for any possible η we have $a^*(\eta) \leq a_M^*(\eta)$. In other terms, the pivotal voter has income higher than the median.*

Proof. *See Appendix.*

Figure 2 shows how, by weighting the voters by their probability to be informed, the identity of the pivotal voter is shifted, hence leading the political equilibrium towards less redistribution. This provides a microfoundation for the idea that richer agents have more power in the political process. Interpreting non-responsiveness to policies as abstention in general elections, we can link this idea to the stylized fact that abstention is more common among low income citizens. Starting with the classical study of Wolfinger and Rosenstone (1980), a vast empirical literature has consistently found positive correlations between turnout and variables like income or education. Some theoretical research has also linked information to participation. In decision-theoretical terms, being better informed allows better choices and therefore should increase the probability of voting (Matsusaka, 1995)[17]. When strategic interactions are considered, less informed citizens might abstain in order to increase the probability of the better informed being pivotal (Feddersen and Pesendorfer, 1996). This, however, is only true if citizens' preferences are not too heterogeneous.

In terms of our model, if we introduce a cost of voting that is independent of policy preferences, then we can easily link our results on rational ignorance to actual voter turnout. There is in fact some evidence of a link between turnout and redistribution. Evidence that aggregate turnout is a predictor of welfare spending has been provided by Peterson and Rom (1989) for US states and Hicks and Swank (1992) for industrialized countries. Lindert (1996), analyzing a panel of OECD countries, finds that "a stronger voter turnout seems to have raised spending on every kind of social program, as one would expect if one assumed that the social programs cater to the lower income groups whose voter turnout differs most over time and across countries". Hill and Leighley

[17] Costly information acquisition is also considered in Martinelli (2004).

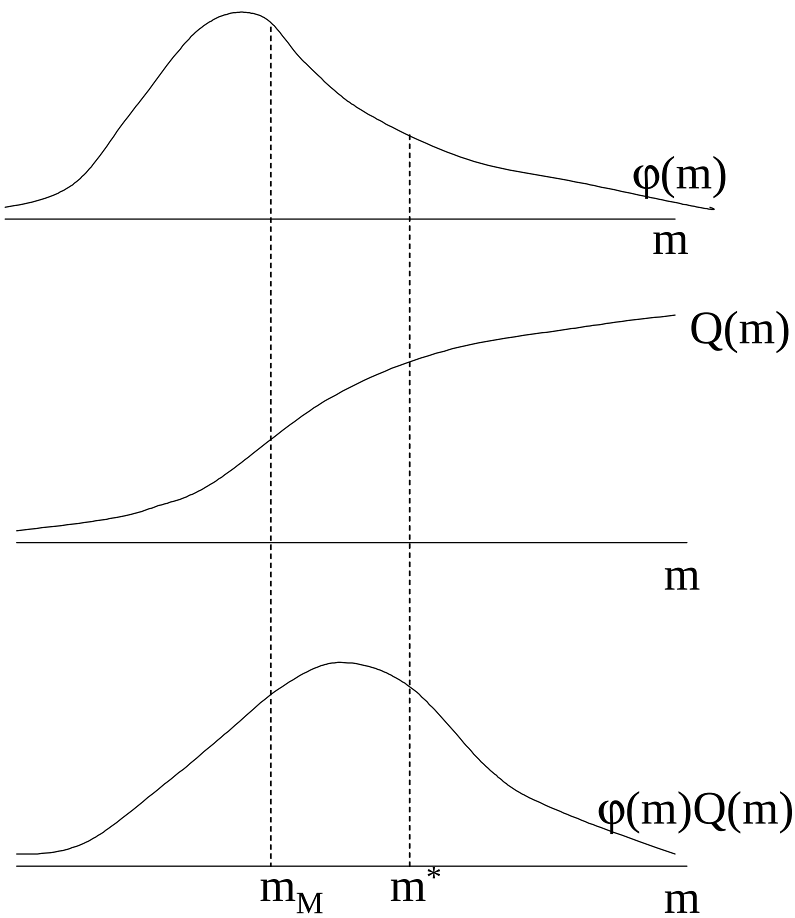

Figure 2: The "weighted" median voter

(1992) and Hill, Leighley and Hinton-Andersson (1995) use US survey data to derive aggregate measures of turnout by social class and combine them with state-level data to provide direct evidence of the effect of lower-class mobilization on welfare spending. Using US state-level data for the years 1950-1988, Husted and Kenny (1997) show how the extension of the voting franchise (thus favouring participation by the poor and the minorities) has caused an increase in welfare spending, leaving all other spending unaffected[18].

Another important conclusion of standard Downsian models of redistribution is that an increase in income inequality (measured as the ratio between

[18]However, on a study on U.S. panel data, Besley and Case (2003) find that turnout has little effect on the party composition of legislature.

the mean and the median income) leads to more redistribution. In comparing two income distributions φ_1 and φ_2 with the same mean, a way to say that φ_2 induces more redistribution than φ_1 is

$$\int_{\underline{m}}^{m_1} \varphi_2(m)dm > \frac{1}{2} \tag{13}$$

where m_1 is the income of the pivotal voter under distribution φ_1. The reason that the change produces more redistribution is that the pivotal voter under φ_2 is poorer (being $m_1 > m_2$, with m_2 s.t. $\int_{\underline{m}}^{m_2} \varphi_2(m)dm = \frac{1}{2}$) and therefore his or her distance from the mean has increased.

In our model, however, φ_2 induces more redistribution than φ_1 if and only if

$$\int_{\underline{m}}^{m_1^*} Q(m)\varphi_2(m)dm > \frac{\int_{\underline{m}}^{\overline{m}} Q(m)\varphi_2(m)dm}{2} \tag{14}$$

where m_1^* is the income of the pivotal voter in the distribution $Q(m)\varphi_1(m)$. It is clear that condition (13) does not imply condition (14) nor the vice versa. In general, the foregoing analysis leads to a result of indeterminacy. A mean-median ratio increase does not necessarily lead to more redistribution as it has two contrasting effects: more inequality increases the desire of the middle classes for redistribution, but it also generates greater dispersion in the probability of being informed, resulting in parties targeting higher-income groups. Unfortunately, it is not possible to better characterize the effects of an increase in inequality, if not in rather obscure ways. Nevertheless, this indeterminacy should counsel a more prudent use of voting models for comparing the redistributive outcomes of different degrees of inequality.

We can summarize this negative result in the following proposition:

Proposition 5 *An increase in the mean-median income ratio is neither necessary nor sufficient for more redistribution.*

New elements come to play a role in our analysis. First of all the shape of the function $Q(m)$ matters. Since the results are driven by the fact that $Q_m^{'}$ is positive, it can be argued that the traditional result is likely to be reversed when $Q_m^{'}$ is large enough. That is, to say anything about redistribution we should be able to determine the impact of income (or wealth) on the decision to acquire information (and to participate).

This leads to another consideration, namely that not only relative but also absolute inequality matters. Two distributions with the same degree of relative inequality (as gauged for example by Lorenz curves) may produce different political outcomes, because the function $Q(m)$ will weight the two distributive profiles differently. In section 3 we derived results on $Q'_m(m)$, but nothing general can be said about $Q''_m(m)$. That is, a change in the difference between mean and median income, leaving their ratio unaffected, would change the political equilibrium in our model even when it would not affect a standard Downsian model.

Focussing on median and mean incomes can be misleading also because the identity of the expected pivotal voter can be modified by changes outside the median-mean range: changes in the distribution that leave both median and mean incomes unaltered may nevertheless influence policy choices by affecting citizens' responsiveness in other parts of the distribution, thus changing the identity of the pivotal voter. Thus, our analysis suggests the need to considering the entire distribution. Further research is necessary to derive results in this direction.

Finally, the cost of information also plays a role in determining the electoral equilibrium.

Proposition 6 *An increase in the cost of information decreases a^*.*

Proof. See Appendix.

Hurdles to information acquisitions are particularly harmful for the poorer segments of the population and this is essentially due to the increasing returns associated with political information, which make its costs relatively less relevant for voters with higher income. High information costs should clearly not be intended only as monetary costs: the level of education, for example, is an important determinant of access to information and certainly raises the capability to extract and elaborate information from the news. A sufficiently free press and competition in the information market can increase the availability of good quality news and hence decrease the cost of information gathering[19].

[19]Evidence about the effects of information supply on citizens' turnout in Britain is for example provided in Larcinese (2005). Sen (1981, 1984) has pointed to the role that newspapers may play in preventing famines, by increasing people' awareness and therefore government activity in prevention. Besley and Burgess (2002) find a positive correlation between newspaper circulation and government responsiveness to natural calamities. Evidence on the impact of radio diffusion on New Deal spending in the U.S. is provided in Stromberg (2004b).

6 Concluding remarks

Private decision-making provides powerful incentives to gather political information. This generates a heterogeneous degree of awareness about electoral platforms: in particular, increasing returns make the demand for information increasing in income. Office-seeking political parties tend to target the citizens who are expected to be more responsive to their proposed platforms and, therefore, the political equilibrium involves convergence to the policy preferred by the median informed voter, who will have a higher income than the median voter. Hence, redistribution will be, in general, less than what predicted by standard electoral models based on the median voter theorem. Moreover, an increase in inequality will have two contrasting effects: it will increase the desire of agents with income below the mean for redistribution, but it will also generate greater dispersion in the probability of being informed, resulting in parties targeting higher-income voters. The net effect is undetermined and this can explain why empirical studies consistently show that greater inequality does not lead to more social spending or redistributive taxation. The increasing returns nature of information also implies that high information costs are particularly damaging for the poor: an increase in the cost of political information will reduce redistribution.

Before concluding, it is worth stressing that the equilibrium of our model is not coalition-proof. If a large group of citizens with similar preferences could coordinate on acquiring more information, this would shift the political equilibrium in their direction. This shift in the political outcome could be worth the extra-effort spent in information gathering. The problem is that information above the private needs is a public good, and individuals will fail to coordinate on further acquisitions. In a world in which it is individually costly to gather information on political platforms, it can also be too costly to coordinate people to jointly acquire more information: moreover, there may be other reasons why people might not be willing to coordinate on information acquisition[20].

The form of coordination one can imagine is directed to reducing the costs for some groups: this is typically done by many organizations with an interest in policy choices. Another way this coordination can, at least partially, take place, is by transmitting "cheap" information. If a pre-election stage is added to our model, in which people can simply endorse parties and say "vote for R" or "vote for L", this could change the political outcome, as long as the an-

[20] For example because it can seriously limit individual liberties.

nouncements came from people whose preferences are known[21]. The problem in this case is transferred to the reliability of the sources of such messages. Some agents are able to signal their preferences and many organizations are also able to establish a reputation in this sense[22]. Trade unions, for example, are often able to coordinate people's voting decisions because of their reputation. We can think of this as a possible direction for further investigating the role of ideologies and leadership in the political process.

The fact that this coordination failure can be more pronounced among low-income citizens is consistent with good many stylized facts about voters' turnout in elections, participation in organizations, etc. Moreover, it may tell us something about the historical differences in the way popular parties are organized compared with traditional liberal parties (i.e. parties that were formed before the introduction of universal suffrage). Our analysis may provide a rationale for the strong organization and sense of the leadership typical of most parties that receive their support from low-income groups: this is simply consistent with the necessity for more effective coordination. This analysis calls for a better understanding of mechanisms and institutions that, though not being part of a formal definition of democracy, are nevertheless quite important for its functioning.

7 Appendix

Proof of Proposition 1

Consider the objective function $\int_{S_\eta} U(\mathbf{x}|a^*(\eta))p(\eta|\theta)d\eta$. Note that $p(\eta|\theta)$ is a continuous function and never changes its sign, and $a^*(\eta)$ and $U(\cdot)$ are both continuous functions. Then we can apply the weighted mean value theorem for integrals to say that $\exists\ \widehat{\eta}$ s.t.

$$\int_{S_\eta} U(\mathbf{x}|a^*(\eta))p(\eta|\theta)d\eta = U(\mathbf{x}|a^*(\widehat{\eta}))\int_{S_\eta} p(\eta|\theta)d\eta = U(\mathbf{x}|a^*(\widehat{\eta})) \qquad \text{(A.1)}$$

The solution to the utility maximization problem is $\mathbf{x}^*(m,\mathbf{p},a^*(\widehat{\eta}))$.

[21]The seminal cheap-talk game is by Crawford and Sobel (1982). They consider a sender and a decision-maker who receives the sender's message. See also Lupia and McCubbins (1998) and Grossman and Helpman (1999).

[22]Sobel (1985) shows how informative equilibria may arise from repeated interactions when the information provider is initially not perfectly credible.

For a homogeneous of degree 1 utility function we have $\mathbf{x}^*(m, \mathbf{p}) = m\mathbf{x}^*(\mathbf{p})$ and therefore, $V(m, \mathbf{p}, a^*) = mV(\mathbf{p}, a^*)$. Let us define by $\widetilde{V}(m, \mathbf{p}, a^*)$ the maximum utility attainable when platforms are not observed. Suppose we have a given realization $a^*(\eta^{'})$. The indirect utility function (if a^* is observed) is thus $V(m, \mathbf{p}, a^*(\eta^{'}))$. From the A.1, we can express the solution when a^* is not observed as $\mathbf{x}^*(m, \mathbf{p}, a^*(\eta^{''}))$ for some $\eta^{''} \in S_\eta$. Then the ex post value of information for the realization $\eta^{'}$ is given by:

$$\begin{aligned}
\overline{\Delta}(m|\eta^{'}) &= U(\mathbf{x}^*(m, \mathbf{p}, a_L, a_R)|a^*(\eta^{'})) + Z(a^*(\eta^{'})|m, \theta) \\
&\quad - U(\mathbf{x}^*(m, \mathbf{p}, a^*(\eta^{''}))|a^*(\eta^{'})) - Z(a^*(\eta^{'})|m, \theta) \\
&= m[V(\mathbf{p}, a^*(\eta^{'})|a^*(\eta^{'})) - \widetilde{V}(\mathbf{p}, a^*(\eta^{''})|a^*(\eta^{'}))]
\end{aligned}$$

Note that

$$V(\mathbf{p}, a^*(\eta^{'})|a^*(\eta^{'})) - \widetilde{V}(\mathbf{p}, a^*(\eta^{''})|a^*(\eta^{'})) \geq 0$$

with strict inequality if $\eta^{'} \neq \eta^{''}$ (by the definition of value function), which implies that $\frac{\partial \overline{\Delta}(m)}{\partial m} > 0$. Finally define $\Delta(m|e) = \int \overline{\Delta}(m|\eta)p(\eta|\theta)d\eta$ and

$$\frac{\partial \Delta(m)}{\partial m} = \int \frac{\partial \overline{\Delta}(m|\eta)}{\partial m} p(\eta|\theta)d\eta.$$

The stated proposition follows from the fact that $\frac{\partial \overline{\Delta}(m)}{\partial m} > 0$.■

Proof of Proposition 2

By Assumption 1, we have that

$$\begin{aligned}
V^*(m(1-\pi e), a^*(\eta)) &= [m(1-\pi e)]V^*(\eta) \\
\widetilde{V}(m(1-\pi e), a^*(\eta)) &= [m(1-\pi e)]\widetilde{V}(\eta)
\end{aligned}$$

and we can therefore define the following quantities:

$$\begin{aligned}
V^* &= \int V^*(\eta)p(\eta|\theta)d\eta \\
\widetilde{V} &= \int \widetilde{V}(\eta)p(\eta|\theta)d\eta \\
\Delta^* &= V^* - \widetilde{V}
\end{aligned}$$

The value of information can now be written as $\Delta(m, e) = [m(1-\pi e)]\Delta^*$ and the maximization problem (5) can be re-written as

$$\max_{e\in\mathcal{E}}[m(1-\pi e)]\widetilde{V}+q(e)[m(1-\pi e)]\Delta^{*}-ve.$$

The first order condition (FOC) associated with this problem is

$$-\pi m\widetilde{V}+[q_{e}^{'}(e)m(1-\pi e)-q(e)\pi m)]\Delta^{*}-v=0$$

The second order condition is always satisfied:

$$[q_{e}^{''}(e)m(1-\pi e)-2q_{e}^{'}(e)m\pi]\Delta^{*}<0\quad\forall e\in\mathcal{E}$$

We can then apply the implicit function theorem to the FOC to say that

$$\frac{\partial e^{*}(m,v)}{\partial m}=-\frac{-\pi\widetilde{V}+[q_{e}^{'}(e^{*})(1-\pi e^{*})-q(e^{*})\pi)]\Delta^{*}}{[q_{e}^{''}(e^{*})m(1-\pi e^{*})-2q_{e}^{'}(e^{*})m\pi]\Delta^{*}}\tag{A.2}$$

As we have seen, the denominator is always negative, so $\frac{\partial e^{*}(m,v)}{\partial m}>0$ if and only if

$$-\pi\widetilde{V}+[q_{e}^{'}(e^{*})(1-\pi e^{*})-q(e^{*})\pi)]\Delta^{*}>0$$

which implies

$$e^{*}<\frac{q_{e}^{'}(e^{*})\Delta^{*}-\pi\widetilde{V}-q(e^{*})\pi\Delta^{*}}{q_{e}^{'}(e^{*})\Delta^{*}\pi}\tag{A.3}$$

However, to satisfy the FOC it must be that

$$e^{*}=\frac{q_{e}^{'}(e^{*})\Delta^{*}-\pi\widetilde{V}-q(e^{*})\pi\Delta^{*}}{q_{e}^{'}(e^{*})\Delta^{*}\pi}-\frac{v}{\pi\Delta^{*}q_{e}^{'}(e^{*})m}$$

which means that A.3 is always satisfied. Therefore $\frac{\partial e^{*}(m,v)}{\partial m}>0$ and $\frac{\partial Q(m,v)}{\partial m}>0$.

By using the implicit function theorem we also have that

$$\frac{\partial e^{*}(m,v)}{\partial v}=-\frac{-1}{[q_{e}^{''}(e^{*})m(1-\pi e^{*})-2q_{e}^{'}(e^{*})m\pi]\Delta^{*}}<0\ \ \forall e\in\mathcal{E}\tag{A.4}$$

which implies that $\frac{\partial Q(m,v)}{\partial v}<0$.■

Proof of Proposition 3

By assumption 2 we know that for any platform pair (a_i, a_j) there exists one type of agent $\widehat{a}$ who is indifferent between the two and either

$$a_k < \widehat{a} \Rightarrow W(m_k, a_i) > W(m_k, a_j) \forall a_k < \widehat{a}$$

or

$$a_k < \widehat{a} \Rightarrow W(m_k, a_i) < W(m_k, a_j) \forall a_k < \widehat{a}$$

Define $L(a^{'}) = \int_{\underline{a}}^{a^{'}} Q(h^{-1}(a), v) y(a|\eta) da$ and $R(a^{'}) = \int_{a^{'}}^{\overline{a}} Q(h^{-1}(a), v) y(a|\eta) da$. Now consider $a^{'} < a^*$. If party i chooses $a^{'}$ then party j will maximize $P_j^E(.,.)$ by setting $a^{''} = a^{'} + \iota$, for an infinitesimal ι and getting expected votes $R(a^{''})$. But then $a^{'}$ is not a best response to $a^{''}$ since, by continuity of the policy space, there exist $a^{''} + \iota$ that increases $P_i^E(.,.)$. But this is true for any $a^{'} < a^*$. The same argument applies for any $a^{'} > a^*$. Therefore the unique Nash equilibrium is given by (a_i^*, a_j^*) which delivers payoffs $P_j^E(a_i^*, a_j^*) = P_i^E(a_i^*, a_j^*) = 0.$■

Proof of Lemma 2

Parties will make platform announcements contingent on η and from platform convergence on the expected Condorcet winner we have that the equilibrium can be expressed as $a^*(\eta)$. We want to show that $a^*(\eta)$ is also a continuous function. Let us consider the implicit function

$$\zeta(\eta, a^*) = \int_{\underline{a}}^{a^*} Q(h^{-1}(a), v) y(a|\eta) da - \int_{a^*}^{\overline{a}} Q(h^{-1}(a), v) y(a|\eta) da = 0. \quad \text{(A.5)}$$

where a^* indicates the Condorcet winner in the distribution $Q(h^{-1}(a), v) y(a|\eta)$. $\zeta(\eta, a^*)$ is clearly a continuous function (as $Q(m, v)$ and $y(a)$ are continuous), strictly increasing in a^* and

$$\lim_{a^* \to \underline{a}} \zeta(\eta, a^*) < 0$$
$$\lim_{a^* \to \overline{a}} \zeta(\eta, a^*) > 0$$

Thus, applying the implicit function theorem we can say that there exists a unique and continuous function $a^*(\eta)$ defined on S_η, having values in $\mathcal{A}$ and such that $\zeta(\eta, a^*(\eta)) = 0 \; \forall \eta \in S_\eta$.

Proof of Proposition 4

In equilibrium with full information we have

$$\int_{\underline{a}}^{a_M^*} y(a|\eta)da = \int_{a_M^*}^{\overline{a}} y(a|\eta)da = \frac{1}{2}$$

while instead with imperfect information we have

$$\int_{\underline{a}}^{a_M^*} Q(h^{-1}(a), v)y(a|\eta)da \geq \int_{a_M^*}^{\overline{a}} Q(h^{-1}(a), v)y(a|\eta)da$$

since $Q(h^{-1}(.), v)$ is a monotonic decreasing function of a. This implies a_M^* cannot be an equilibrium since $\exists\iota$ s.t. $n_i(a_M^* - \iota, a_M^*) \geq n_i(a_M^*, a_M^*)$. Note that instead $n_i(a_M^* + \iota, a_M^*) \leq n_i(a_M^*, a_M^*)$, and therefore, by single crossing in policy preferences, deviations above a_M^* are never profitable. By the same property, any subset of N will have a Condorcet winner represented by the policy a^* preferred by the median voter in the considered subset. This is true independently of the realization of η.■

Proof of Proposition 6

From the Proof of Proposition 2 we know that (equation A.4):

$$\frac{\partial e^*(m,v)}{\partial v} = -\frac{-1}{[q_e''(e^*)m(1-\pi e^*) - 2q_e'(e^*)m\pi]\Delta^*}$$

from which we can derive that

$$\frac{\partial^2 e^*(m,v)}{\partial v \partial m} = \frac{-1}{[q_e''(e^*)(1-\pi e^*) - 2q_e'(e^*)\pi]\Delta^* m^2} > 0$$

(the same expression could be derived from the A.2 given that $[q_e'(1-\pi e) - q(e)\pi]\Delta = (v + \pi m\widetilde{V})/m.$).

Clearly

$$\frac{\partial^2 e^*(m,v)}{\partial v \partial m} > 0 \Rightarrow \frac{\partial^2 Q(h^{-1}(a), v)}{\partial v \partial a} < 0$$

Now consider the equilibrium condition

$$\int_{\underline{a}}^{a^*} Q(h^{-1}(a), v)y(a|\eta)da = \int_{a^*}^{\overline{a}} Q(h^{-1}(a), v)y(a|\eta)da$$

An increase in v will decrease both sides but from $\frac{\partial^2 Q(h^{-1}(a),v)}{\partial v \partial a} < 0$ we know that the change will be larger in the left hand side and therefore a^* has to decrease to restore the equilibrium condition.■

References

[1] Alesina, A. and Rodrick, D. (1994). Redistributive Politics and Economic Growth, *Quarterly Journal of Economics*, **109,** 465-490.

[2] Arrow, K.J. (1986). The Demand for Information and the Distribution of Income, *Institute for Mathematical Studies in the Social Sciences, Stanford University, Technical Report n. 494.*

[3] Benabou, R. (2000). Unequal Societies: Income Distribution and the Social Contract, *American Economic Review,* **90**, 96-129.

[4] Besley, T. and Burgess, R. (2002). The Political Economy of Government Responsiveness: Theory and Evidence from India, *Quarterly Journal of Economics*, **117**, 1415-1452.

[5] Besley, T. and Case,A. (2003). Political Institutions and Policy Choices: Evidence from the United States, *Journal of Economic Literature*, XLI, 7-73.

[6] Crawford, V.P. and Sobel, J. (1982). Strategic Information Transmission, *Econometrica*, **50**, 1431-1451.

[7] Delli Carpini, M.X. and Keeter, S. (1996). *What Americans Know about Politics and Why It Matters,* Yale University Press.

[8] Downs, A. (1957). *An Economic Theory of democracy.* New York, Harper & Row.

[9] Feddersen, T.J. and Pesendorfer, W. (1996). The Swing's Voter's Curse, *American Economic Review,* **86**, 408-424.

[10] Gans, J.S. and Smart, M. (1996). Majority Voting with Single-Crossing Preferences, *Journal of Public Economics*, **59**, 219-237.

[11] Grossman, G. M. and Helpman, E. (1999). Competing for Endorsements, *American Economic Review*, **89**, 501-24.

[12] Harrington, J.E. (1993). Economic Policy, Economic Performance, and Elections, *American economic review*, **83**, 27-42.

[13] Hicks, A.M. and Swank, D.H. (1992). Politics, Institutions, and Welfare Spending in Industrialized Democracies, 1960-1982, *American Political Science Review*, **86**, 658-674.

[14] Hill, K.Q. and Leighley, J.E. (1992). The Policy Consequences of Class Bias in State Electorates, *American Journal of Political Science*, **36**, 351-365.

[15] Hill, K.Q., Leighley, J.E. and Hinton-Andersson, A. (1995). Lower Class Mobilization and Policy Linkage in the US States, *American Journal of Political Science*, **39**, 75-86.

[16] Husted, T.A. and Kenny, L.W. (1997). The Effect of the Expansion of the Voting Franchise on the Size of Government, *Journal of Political Economy*, **105**, 54-82.

[17] Larcinese, V. (2005). Does Political Knowledge Increase Turnout? Evidence from the 1997 British General Election, *STICERD Discussion Paper in Political Economy and Public Policy*, **1**.

[18] Ledyard, J.O. (1984). The Pure Theory of Large Two-Candidates Elections, *Public Choice*, **44**, 7-41.

[19] Lindert, P. (1996). What Limits Social Spending?, *Explorations in Economic History*, **33**, 1-34.

[20] Lupia, A. and McCubbins, M.D. (1998). *The Democratic Dilemma: Can Citizens Learn What They Need to Know?* New York: Cambridge University Press.

[21] Martinelli, C. (2004). Would Rational Voters Acquire Costly Information?, *mimeo*, ITAM.

[22] Matsusaka, J.G. (1995). Explaining Voter Turnout Patterns: an Information Theory, *Public Choice,* **84,** 91-117.

[23] McKelvey, R.D. and Ordeshook, P.C. (1984). Rational Expectations in Elections: Some Experimental Results Based on a Multidimensional Model, *Public Choice*, **44**, 61-102.

[24] Meltzer, A. and Richards, S. (1981). A Rational Theory of the Size of Government, *Journal of Political Economy*, **89**, 914-927.

[25] Palfrey, T.R., Rosenthal, H. (1985). Voter Participation and Strategic Uncertainty, *American Political Science Review*, **79**, 62-78.

[26] Perotti, R. (1994). Income Distribution and Investment, *European Economic Review*, **38**, 827-835.

[27] Perotti, R. (1996). Growth, Income Distribution and Democracy: What the Data Say, *Journal of Economic Growth*, **1**, 149-187.

[28] Persson, T. and Tabellini, G. (1994). Is Inequality Harmful for Growth?, *American Economic Review*, **84,** 600-621.

[29] Peterson, P.E. and Rom, M. (1989). American Federalism, Welfare Policies, and Residential Choices, *American Political Science Review,* **83,** 711-28.

[30] Razin, R. (2003). Signaling and Election Motivations in a Voting Model with Common Values and Responsive Candidates, *Econometrica*, **71**, 1083-1119.

[31] Riker, W.H. and Ordeshook, P.C. (1968). A Theory of the Calculus of Voting, *American Political Science Review,* **62,** 25-42.

[32] Roberts, K. (1977). Voting over Income Tax Schedules, *Journal of Public Economics*, 8, 329-340.

[33] Sen, A. (1981). *Poverty and Famines*, Oxford, Oxford University Press.

[34] Sen, A., (1984). Food Battles: Conflicts in the Access to Food, *Food and Nutrition*, **10** (1), 81-89.

[35] Sobel J. (1985). A Theory of Credibility, *Review of Economic Studies*, **52**, 557-573.

[36] Strömberg, D. (2004a). Mass Media Competition, Political Competition and Public Policy, *Review of Economic Studies,* **71***,* 265-284.

[37] Strömberg, D. (2004b). Radio Impact on Public Spending, *Quarterly Journal of Economics,* **119***,* 189-221*.*

[38] Verrecchia, R.E. (1980). Information Acquisition in a Noisy Rational Expectations Economy, *Econometrica,* **50**, 1415-1430.

[39] Wolfinger, R.E. and Rosenstone, S.J. (1980). *Who Votes?,* New Haven: Yale University Press.