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Marie-Anne Valfort

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Laboratoire d'Econométrie de l'Ecole Polytechnique
2007

**ETHICAL VOTING IN VARIOUS CONTEXTS OF
DEMOCRACY
A CONTRIBUTION TO THE NEW POLITICAL ECONOMY**

Dissertation

Submitted at Ecole Polytechnique,
to the Department of Economics,
in fulfilment of the requirements for the degree of Doctor in Economics

by

MARIE - ANNE VALFORT

September 26, 2007

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Summary and avenues for future research

This dissertation deals with ethical voting and exists out of three papers:

Paper 1: Politics: a Promised Land for economic models of fairness.

Paper 2: Voting for redistribution under desert-sensitive altruism.

Paper 3: Containing ethnic conflicts through ethical voting? Evidence from Ethiopia.

The summary is organized as follows. Section 1 presents the general motivation underlying my research. Section 2 explicitly turns to the research questions posed in this dissertation and summarizes my preliminary answers. Section 3 explores possible avenues for future research.

1 General motivation

The New Political Economy¹ is based on the postulate of *homo politicus* that Downs (1957) presents as the clone of *homo oeconomicus*, a rational agent motivated by the maximisation of his material self-interest.

Goodin and Roberts (1975) were the first to propose an alternative to the *homo politicus* postulate by introducing the notion of ‘ethical voter’². The ‘ethical voter’ describes a rational agent who is not only motivated by the maximisation of his short term material self-interest but also by the promotion of what he considers as fair for the society as a whole³.

¹According to Drazen (2000), the New Political Economy is defined by its ‘use of the formal and technical tools of modern economic analysis’ to study ‘how politics affect economic outcomes’.

²Downs (1957) himself acknowledges that the self-interest axiom which constitutes the cornerstone of his theory of democracy is debatable: ‘In reality, men are not always selfish, even in politics. They frequently do what appears to be individually irrational because they believe it is socially rational -i.e, it benefits others even though it harms them personally. (...) It is possible for a citizen to receive utility from events that are only remotely connected to his own material income. For example, some citizens would regard their utility incomes as raised if the government increased taxes upon them in order to distribute free food to starving Chinese’.

³Note that the notion of ‘ethical voter’ introduced by Goodin and Roberts (1975) is close to the notion of ‘ethical voter’ recently developed by Feddersen and Sandroni (2006). In their setting, the ‘ethical voter’ is a voter who receives a warm-glow payoff from taking an action he believes to be ethical (see also Feddersen and Sandroni (2007) and Feddersen et al. (2007)).

There have been so far only few attempts to model ‘ethical voting’. Most of them liken ‘ethical voting’ to caring about the well-being of the worst-off when voting (see Snyder and Kramer (1988), Kranich (2001) and Galasso (2003)). Alesina and Angeletos (2005) constitute an exception. Following responsibility-based theories of justice, they assume that individuals share the conviction that one deserves the income on the basis of his skill and effort and that only luck creates unfair differences they are consequently willing to compensate. However, the ‘responsibility cut’ (Dworkin (1981)) used by Alesina and Angeletos (2005) lacks justification, should one consider the theoretical literature on fair redistribution or the empirical literature on individual opinions on distributive justice.

I propose to analyze ‘ethical voting’ in a more comprehensive way. The thread of this work is a ‘fair utility function’. More precisely, I specify in **paper 1** a ‘fair utility function’ to model citizens’ trade-off between their self-interest and some of their major concerns for fairness. **Paper 2** and **paper 3** rely on the ‘fair utility function’ to study voting behavior over the (re)distribution of economic surpluses in different contexts of democracy⁴. In **paper 2**, my coauthor and I compute the politico-economic equilibrium that emerges when citizens are endowed with the ‘fair utility function’. We model the institutional setting of a typical Western democracy where political cleavages are mainly income-based. In **paper 3**, I estimate the ‘fair utility function’. I base my estimation on survey data that I collected in an ethnically polarized democracy where political cleavages are mainly ethnic-based.

2 Research questions... and preliminary answers

I present the research questions motivating each of the papers and I summarize my preliminary answers.

2.1 Paper 1

Paper 1 investigates whether concerns for fairness influence the aggregate outcome in real life interactions so that economic analysis should complete the postulate of *homo economicus* with the postulate of *homo ethicus*.

I conduct a three-step analysis addressing the following research questions:

- *Which are the main concerns for fairness that individuals are able to show?*
- *Do these concerns for fairness influence the aggregate outcome in the economic field?*

⁴Conover (1988) emphasizes: ‘Most political issues involving social groups concern either conflict between groups or the distribution (or redistribution) of goods, privileges or obligations. In such settings, the concept of fairness is quite important’.

- *Do these concerns for fairness influence the aggregate outcome in the political field?*

Based on experimental evidence, I identify three main concerns for fairness likely to influence individual behaviors besides self-interest: utilitarian altruism, ‘Rawlsian’ altruism and desert-sensitivity. Utilitarian altruism consists in maximizing the sum of all utilities. ‘Rawlsian’ altruism consists in maximizing the utility of the worst-off. Desert-sensitivity consists in weighting one’s concerns for fairness towards others, should they be utilitarian altruistic concerns or ‘Rawlsian’ altruistic concerns, depending on these others’ deservingness with respect to their responsibility characteristics.

I find out that concerns for fairness have no impact on market aggregate outcomes, should I focus on markets involving complete contracts or on markets involving incomplete contracts.

I provide evidence that concerns for fairness have a significant impact on political aggregate outcomes. More particularly, concerns for fairness (utilitarian altruism, ‘Rawlsian’ altruism, and desert-sensitivity) seem to express through citizens’ position on a liberalism/conservatism scale which ultimately impacts their voting behavior.

However, evidence also shows that ethnic prejudice, an unambiguously unfair motivation, constitutes a serious challenger to individual concerns for fairness, even in the Western democratic context where political parties are officially divided along income-based, not ethnic-based, lines.

My findings suggest that economic theory in general (and the New Political Economy in particular) should pay more attention to the modelling of ethical voting behaviors to improve its explanatory and predictive power. I propose a provisional ‘fair utility function’ to model citizens’ trade-off between their self-interest and the three various concerns for fairness which are utilitarian altruism, ‘Rawlsian’ altruism and desert-sensitivity.

2.2 Paper 2

In **paper 2**, we first ask the following research question:

- *Which is the politico-economic equilibrium emerging in a society where individuals are endowed with the ‘fair utility function’?*

We study a simple voting model where a unidimensional redistributive parameter is chosen by majority voting in a direct democracy where political cleavages are income-based. We allow for heterogeneities in productivities and preferences for consumption and leisure and incorporate the incentive effects of taxation. We show that in a society where altruistic preferences are desert-sensitive, (i) strictly lower levels of redistribution emerge in political equilibrium compared

to a society where altruistic preferences are not desert-sensitive and (ii) lower or equal levels of redistribution emerge in political equilibrium compared to a society where preferences for redistribution are purely egoistic.

We then investigate the following research question:

- *Can our theoretical result help explain the differences between the American and the European social contract?*

Using data from the International Social Survey Programme (ISSP) 1992 dataset, we provide empirical evidence that: (i) preferences for redistribution are not purely egoistic, (ii) desert-sensitivity induces lower support for redistribution and (iii) differences in desert-sensitivity hold between both continents, inducing lower support for redistribution among Americans compared to Europeans. We see two apparent explanations helping to understand why preferences for redistribution are more desert-sensitive among individuals in the US than among individuals in Europe (see Alesina et al. (2001) and Alesina and Glaeser (2004) for an extensive discussion). First, the myth of the US being the ‘land of opportunity’ greatly entrenched its customs. Meanwhile, European perceptions are influenced by the historical (from medieval times till the nineteenth century) division of society into classes, where birth and nobility were the main determinants of wealth and success. Second, the American belief of undeservingness of the poor may reflect racial prejudice against the black minority. Poor white voters might reduce their support for redistribution when they believe that poor black citizens also benefit from redistribution (see Luttmer (2001) for strong empirical evidence). Roemer et al. (2007) find out that marginal income taxes would have been much higher when racial prejudice would have been absent. They believe that racial prejudice is the major underlying factor explaining why in the US, while the past twenty years were characterized by a sharp rise in inequality, the effective marginal income taxes have fallen.

2.3 Paper 3

Paper 3 is based on the following research question:

- *In an ethnically polarized country, does aversion towards inter-ethnic inequity induce citizens to vote for a party promoting an equitable allocation of national resources among ethnic groups?*⁵
or, in other words,
Could ethical voting help reduce risks of conflict in ethnically polarized countries?

⁵This research question amounts to estimating the ‘fair utility function’. In the Appendix of **paper 3**, I provide theoretical evidence that, under very specific assumptions, ethical voting boils down to ‘Rawlsian’ altruism (or equivalently aversion towards inter-ethnic inequity) in an ethnically polarized democracy.

Relying on data collected among students from Addis Ababa University, my answer is threefold.

First, I show that aversion towards inter-ethnic inequity significantly lowers university students' temptation to vote for their ethnic party. This finding is encouraging. Under my initial assumption that the degree of ethical concerns of university students constitute an upper bound of the degree of ethical concerns of the average citizen, this finding indeed suggests that ethical concerns could also influence his voting behavior. In other words, nationwide civic education programmes could be a promising conflict-reducing strategy in ethnically polarized countries. Finkel (2002, 2003) provides evidence that civic education programs have a significant impact on participants' 'political tolerance', while his concept of 'political tolerance' is close to our notion of 'aversion towards inter-ethnic inequity'.

Second, I find out that, though significant, the relative impact of ethical concerns is very small in comparison to the impact of ethnic group loyalty, an important determinant of ethnic voting. This finding is discouraging since it suggests that the relative impact of ethical concerns will be even lower across a more representative sample of the Ethiopian population. In other words, the 'return' on nationwide civic education programmes in terms of switch from ethnic voting to ethical voting is expected to be low.

Third, I analyse the sociodemographic determinants of university students' aversion towards inter-ethnic inequity and ethnic group loyalty. I provide confirmation that some specific sociodemographic characteristics significantly (i) increase the degree of aversion towards inter-ethnic inequity and (ii) lower ethnic group loyalty. Those characteristics have in common that they reduce the 'psychological' distance between ethnic groups, like living in a cosmopolitan city and having parents belonging to different ethnic groups (see Atchade and Wantchekon (2006) for a first evidence). Besides, I find that ethnic group loyalty is particularly strong among ethnic groups experiencing a severe level of grievance. Finally, evidence shows that aversion towards inter-ethnic inequity depends positively on the income of the household in which the respondent grew up in.

3 Avenues for future research

The 'fair utility function' that I introduce in **paper 1** is provisional and needs further developments to increase both its realism and its tractability. One future development would consist in introducing weights of undeservingness that are not only induced by the observation of others' responsibility characteristics but also by ethnic prejudice. Another extension would consist in calibrating the various parameters entering the 'fair utility function', based on survey information collected in various Western democracies. This would allow to run simulations to compare, following Roemer et al. (2007), what the political equilibrium (if predictable) would have been would the intensity of some parameters be different. This calibration will of course imply to define identification strategies likely

to control for endogeneity, notably between individuals' preferences for redistribution and their symbolic politics. An increasing research has been devoted to isolating the impact of long standing cultural values on various economic and political dimensions (among which preferences for redistribution) which are in turn likely to modify cultural values (see Rice and Feldman (1997), Guiso et al. (2006), Fernandez (2007) and Algan and Cahuc (2007)). No doubt that these papers will constitute important sources of inspiration for my future research endeavors.

The theoretical analysis conducted in **paper 2** can be extended in a number of promising ways (see Section 5 of **paper 2** for a description). As for the empirical analysis, an obvious extension would consist in ensuring that what we interpret as desert-sensitivity is not in fact risk-aversity. In collaboration with Wolfgang Hoehchl (University of Innsbruck), Rupert Sausgruber (University of Innsbruck), and Jean-Robert Tyran (University of Copenhagen), we are currently working on an experimental design that would allow to conclude, while trying to avoid the shortcomings of previous experimental research on this topic (see notably Durante and Putterman (2007), Easerey et al. (2007) and Harmsen (2007)).

Paper 3 highlights that a deeper understanding of the determinants of ethnic group loyalty is needed for the implementation of conflict-reducing and poverty-reducing policies, should one consider ethnically fractionalized or ethnically polarized countries. The last round of Afrobarometer surveys has covered an unprecedented number of 18 sub-Saharan African countries between 2005 and 2006. Moreover, the survey encompasses for the first time a range of questions capturing the three components of ethnic group loyalty that have been identified so far by the literature in political science: ethnic pride, ethnic trust, and ethnic patronage. One future extension of my research would consist in constructing subjective indexes of ethnic group loyalty across Africa and study their determinants. For a comprehensive analysis, explanatory variables should not be limited to the standard measures of economic, political, social or institutional performance of a country during its recent past (see Fearon and Laitin (2003) for a 'standard' specification). They should also include historical variables from both the colonization time and the pre-colonization time. As an illustration, Blanton et al. (2001) emphasize that former British colonies are more prone to organized ethnic conflict than former French colonies because the British colonial style did less to corrode the traditional mobilizing structures that facilitate ethnic collective action. We also expect that the pre-colonial degree of centralisation that was computed by Murdock (1967) for a large variety of African ethnic groups exerts a significant influence on today's ethnic group loyalty.

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Politics: a Promised Land for economic models of fairness*

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Abstract

Experimental evidence suggests that concerns for fairness are important determinants of individual behaviors. Yet, it is not clear what the implications for economic theory are. More specifically, do concerns for fairness influence the aggregate outcome in real life interactions so that economic analysis should complete the postulate of *homo economicus* with the postulate of *homo ethicus*? To tackle this issue, we first identify some of the major concerns for fairness that individuals are able to show. We then focus on the impact of such concerns for fairness on the aggregate outcome in the economic field and in the political field respectively. We find out that citizens' aggregate voting behavior is the most likely to be impacted by concerns for fairness. We propose a provisional attempt for the modelling of ethical voting behaviors.

Key words: fairness, economic modelling, voting behaviour

JEL code: D01, D63, D64, N01.

1 Motivation

Economic theory is based on the central postulate of *homo oeconomicus*¹ that James Coleman (1986) describes as a 'rational man attempting to pursue his selfish interests'. However, everyone has at least once in his life experienced a tension between selfish concerns and non selfish concerns, among which moral

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¹According to Persky (1995), the explicit concept of *homo oeconomicus* goes back to Ingram (1888 [1967]) who introduced the notion of 'economic men'.

concerns often prevail. In the *Theory of Moral Sentiments* (1759 [1976]), Adam Smith views individual decision making as a struggle between ‘passions’ and an ‘impartial spectator’. The ‘impartial spectator’, whom Grampp (1948) describes as a ‘moral hector’, helps individuals depart from their passions and pursue justice-oriented objectives instead (see Ashraf et al. (2005) for an analysis).

Since the eighties, experimental economists have gathered overwhelming evidence of seemingly justice-oriented behaviors through the study of bargaining games and interactions in groups, should it be in a controlled laboratory setting (see Camerer (2003) or Fehr and Schmidt (2003, 2006) for an overview) or in the field (see Harrison and List (2004) and Carpenter et al. (2005a) for a survey). More precisely, experimental research teases out individual behaviors that are consistent with the pursuit of distributive justice to the extent that they seem motivated by the willingness to divide justly a given amount of resources among a given set of individuals, even within one-shot interactions. However, experimental research remains poorly equipped for investigating whether these seemingly justice-oriented behaviors truly derive from just motivations or not. It actually seems hopeless to work out the influence, behind actions contributing to a just distributive outcome, of justice-oriented motivations and of self-interested motivations² respectively. For that reason, we characterize henceforth as ‘fair’, rather than ‘just’, what could have derived from a just motivational procedure inasmuch as its consequence favors the emergence of a just distributive outcome. In other words, we use ‘fairness’ as a synonymous for ‘justice’ in a consequentialist perspective.

Although concerns for fairness seem to exert a strong influence on individual actions, it is not clear what the implications for economic theory are. More specifically, do concerns for fairness influence the aggregate outcome in real life interactions so that economic analysis should complete the postulate of *homo economicus* with the postulate of *homo ethicus* to improve its explanatory and predictive power? To tackle this issue, we first identify some of the major concerns for fairness that individuals are able to show. We then concentrate on the impact of such concerns for fairness on the aggregate outcome in the economic field and in the political field respectively. We find out that citizens’ aggregate voting behavior is the most likely to be impacted by concerns for fairness.

We organize the paper as follows. In section 2, we identify some of the major concerns for fairness that individuals are able to show. In section 3, we investigate whether these concerns for fairness influence the aggregate outcome in the economic field. In section 4, we concentrate on the political field. Section 5 summarizes our major conclusions and highlights avenues for future research.

²Self-interested motivations in this context typically consist in the expectation of ‘warm-glow’ benefits (see Andreoni (1989, 1990)), should such ‘warm-glow’ benefits be ‘self-induced’ (feelings of gratification that one experiences from contributing to a just distributive outcome) or ‘others-induced’ (feelings of gratification that one experiences from being regarded as a champion of distributive justice).

2 Individuals' concerns for fairness

To identify some of the major concerns for fairness likely to influence individuals' behaviors, we rely on experimental evidence in a laboratory setting. This option allows to concentrate on one-shot games (or on their final round when they are repeated), and therefore increases the chance that fair behaviors are not merely driven by individuals' expectation of future positive reciprocations by their counterparts³ (see Trivers' 'reciprocal altruism' (1971) or Axelrod's 'tit-for-tat' strategies (1984)⁴). Experiments conducted in a laboratory setting therefore seem to be an appropriate way of teasing out individuals' concerns for fairness. Yet, as discussed by Levitt and List (2007), experimental evidence in a laboratory suffers from serious shortcomings: laboratory settings have a fairness-inducing effect. As a consequence, we rely on such experimental evidence only to identify the various concerns for fairness that individuals are able to show. When discussing in section 3 and in section 4 the possibility for such concerns to influence the aggregate outcome in the economic field and in the political field respectively, we systematically back evidence of concerns for fairness drawn from laboratory experiments by evidence drawn from naturally-occurring field experiments or real life.

The various concerns for fairness that have been revealed by experiments conducted in a laboratory setting mirror the three philosophical approaches to distributive justice reviewed by Fleurbaey (2007a). These three approaches derive from the welfaristic, the Rawlsian and the responsibility-based theories of distributive justice. More specifically, we call 'utilitarian altruism' the behavioral expression of the welfaristic approach to distributive justice. We call 'Rawlsian' altruism the behavioral expression of the Rawlsian approach to distributive justice. We call 'responsibility-sensitivity' (following Schokkaert and Devooght (2003)) and 'desert-sensitivity' the behavioral expressions of the responsibility-based theories of justice.

In the following, we provide evidence of these various concerns for fairness in a laboratory setting. We concentrate on experiments where individuals have a clear material interest at stake to ensure that they experience a tension between self-interest and concerns for fairness when making their allocation choice. We also restrict our analysis to situations where subjects do not have to choose between predetermined lotteries (i.e: allocation rules) to minimize the possibility that the types of concerns for fairness expressed by individuals be a creation of

³Many moralists have presented the expectation of future reciprocations as an important motivation behind individuals' 'fair' behaviors. See for instance La Rochefoucault (1665 [1999]): 'La pitié est (...) une habile prévoyance des malheurs où nous pouvons tomber; nous donnons du secours aux autres pour les engager à nous en donner en de semblables occasions; et ces services que nous leur rendons sont à proprement parler des biens que nous nous faisons à nous-mêmes par avance'.

⁴Note that focussing on experimental evidence does not completely annihilate the influence of reciprocal altruism. Repeated interactions being the rule in real life, it is not excluded that individuals reproduce strategies relevant in this repeated framework, even during one-shot interactions conducted in a laboratory setting.

the experimental setting itself. We conclude the section by introducing what we refer to as a ‘fair utility function’ enabling to summarize individuals’ trade-off between their self-interest and their various concerns for fairness.

2.1 Utilitarian altruism

The welfaristic approach to distributive justice requires to focus on individuals’ subjective utility (should the notion of ‘utility’ refer to happiness or to preference satisfaction) when deciding the way of dividing fairly a given amount of resources among them. The welfaristic approach to distributive justice is linked to utilitarianism. Utilitarianism is usually associated with the works of Jeremy Bentham (1748-1832) (see for instance Bentham (1789)), and was later on developed by British philosophers and economists, in particular by Mill (1861). The moral principle in support of utilitarianism is what Mill calls the ‘greatest happiness principle’: ‘actions are right in proportion as they tend to promote happiness’. The ‘greatest happiness principle’ invites to describe as ‘fair’ an action which yields the greatest possible total happiness. We henceforth call ‘utilitarian altruism’ the behavior consisting in maximizing the sum of all utilities.

Engelmann and Strobel (2004) provide evidence of utilitarian altruism when subjects do not have any material interest at stake. Charness and Grosskopf (2001), Charness and Rabin (2002), Kritikos and Bolle (2004), and Bolton and Ockenfels (2006) tease out utilitarian altruism when subjects have a material interest at stake but have to choose between predetermined lotteries. What about experiments where individuals have a material interest at stake but are not constrained in their allocation choice?

Andreoni and Miller (2002) conduct variations of the standard dictator game⁵ among 176 undergraduate students. Their dictator games differ according to the size of the budget to be divided by the dictator, and according to the price of giving money to the counterpart. In other words, if we denote m the budget, π_s the amount allocated by the dictator to himself, π_o the amount allocated by the dictator to his counterpart, and p the price of giving, then the ‘budget constraint’ of the dictator is given by $\pi_s + p\pi_o = m$ (note that the situation where $p = 1$ corresponds to the standard dictator game). Andreoni and Miller analyse whether the utility function $U(\pi_s, \pi_o)$ maximized by the dictator under his ‘budget constraint’ is motivated by self-interest ($U(\pi_s, \pi_o) = \pi_s$), by maximin concerns ($U(\pi_s, \pi_o) = \min\{\pi_s, \pi_o\}$), or by utilitarian altruism ($U(\pi_s, \pi_o) = \pi_s + \pi_o$). They find out that 22.4% of the dictators are motivated by utilitarian altruism to the extent that they allocate more (less) to their counterpart as soon as the price of giving p is lower (greater) than 1. Moreover, they emphasize that, whatever the type of concerns for fairness shown by the

⁵The dictator game was introduced by Kahneman et al. (1986a). It is a two-person game in which player 1, called the ‘dictator’, has to decide what share $s \in [0, 1]$ of an amount of money normalized to 1 he gives to player 2. For a given share s , the monetary payoff of player 1 and of player 2 is given by $x_1 = 1 - s$ and $x_2 = s$ respectively.

individual, the share s of the budget he allocates to the recipient increases when the cost for the total surplus captured by p decreases. As an illustration, for an initial endowment equal to 40 units, the average share transferred by the dictator to his counterpart amounts to $s = 8.5\%$ when $p = 4$, $s = 20\%$ when $p = 3$, $s = 32\%$ when $p = 0.33$ and $s = 37\%$ when $p = 0.25$.

Johansson et al. (2007) conduct an experiment where 42 undergraduate students are requested to choose the amount of a finite natural resource they want to transfer to a group of anonymous counterparts. More specifically, the experimental design is such that any use of the natural resource decreases the total surplus, but also increases the payoff of the counterparts. The increase in the counterparts' payoff is in turn likely to impact the material payoff of the allocator since he receives a bonus (either 'low' in treatment 1 or 'high' in treatment 2) in case a majority among the counterparts decide so. In other words, it is in the allocator's self-interest to deplete the amount of natural resources. However, experimental results show that 69% of the subjects refuse to exhaust natural resources, with no significant difference between the 'low bonus' treatment and the 'high bonus' treatment.

Finally, reviewing the results of twelve repeated public good games⁶ conducted among undergraduate students, Fehr and Schmidt (1999) show that from 11% (see Ockenfels and Weimann (1996)) to 46% (see Andreoni (1988)) of the players contribute to the public good during the final period of the game while free riding would be in their self-interest. These results may illustrate utilitarian altruism, although contributing to the public good is consistent with both utilitarian altruism (maximizing the total surplus) and maximin concerns (maximizing the payoff of the individual who contributes(ed) the highest amount(s) to the public good). Yet, the fact that contributions help maximize the total surplus constitutes an important characteristic of public good games of which subjects are clearly aware. It is therefore likely that utilitarian altruism rather than maximin concerns motivates subjects in this setting.

Note that the ability to show utilitarian altruism is not a characteristic of undergraduate students only. Gurven (2004a and 2004b) finds out that the average contribution to the public good game among the Tsimane (a horticultural and foraging population in Amazonian Bolivia) is similar to the average contribution to the public good game among the traditional urban westernized undergraduate students.

The next two concerns for fairness revealed by experiments in a laboratory setting constitute behavioral expressions of non welfaristic approaches to distribu-

⁶A public good game consists in n players ($n \geq 2$) who are endowed with an amount denoted y at the beginning of the game. They decide simultaneously their contribution levels $g_i \in [0, y]$ ($i \in \{1, \dots, n\}$) to the public good. The monetary payoff of player i is given by $x_i(g_1, \dots, g_n) = y - g_i + a \sum_{j=1}^n g_j$ where a ($1/n < a < 1$) denotes the marginal return to the public good $G = \sum_{j=1}^n g_j$. Since $a < 1$, a marginal investment into G engenders a monetary loss of $(1 - a)$, although the aggregate monetary payoff is maximized if each player contributes his whole endowment ($g_i = y$) since $a > 1/n$.

tive justice. As recalled by Fleurbaey (2007b), non welfaristic approaches to distributive justice consist in taking objective dimensions into account, rather than subjective utility. In the case of a Rawlsian approach to distributive justice, objective dimensions consist in primary goods. In the case of responsibility-based approaches to distributive justice, objective dimensions consist in the combined effects of compensation and responsibility characteristics on individuals' outcome.

2.2 'Rawlsian' altruism

In *A Theory of Justice* (1971), Rawls develops what he refers to as 'principles of justice' that emerge from an artificial device he calls the 'original position'. The original position describes a situation where everyone decides principles of justice from behind a veil of ignorance ensuring equality among individuals in the sense that there are no disparities in bargaining power between them since 'no one knows his place in society, his class position or social status'. Rawls claims that two principles would be adopted in the original position, among which the 'difference principle'. The difference principle requires that inequalities in the distribution of the so-called 'primary goods' (liberty and opportunity, income and wealth, and the bases of self-respect) are justified only to the extent that they improve the share of primary goods received by the least advantaged individuals compared to the share they would have received should the distribution of primary goods be more equal. Rawlsian theory clearly focusses on the distribution of initial conditions, and not on their outcome in terms of utility. Yet, Rawls' ideas have been reinterpreted by economists into utility terms over the years (see Lindbeck et al. (1999) for an illustration). We henceforth call 'Rawlsian altruism' the behavior consisting in maximizing the utility of the worst off.

Engelmann and Strobel (2004) provide evidence of 'Rawlsian' altruism in a laboratory setting where individuals do not have material interest at stake. Charness and Rabin (2002) and Bolton and Ockenfels (2006) show that 'Rawlsian' altruism plays an important role in individuals' behaviors when they have a material interest at stake but are constrained in their allocation choice.

Behaviors observed during dictator games constitute good illustrations of Rawlsian altruism when subjects have a material interest at stake and are not constrained in their allocation choice. The *homo oeconomicus* postulate predicts that the dictator should not give anything of his initial endowment to his counterpart. Yet, Forsythe et al. (1994) show that 80% of the subjects choose to give a strictly positive share of their initial endowment, with 20% choosing to divide this endowment equally. Andreoni and Miller (1996) confirm this result, providing evidence that 60% of the subjects choose to give a strictly positive share of their initial endowment, with 40% choosing an equal split. Reviewing eleven dictator games, Camerer (2003) shows that the mean offer ranges from 10% to 52%.

Carpenter et al. (2005a) provide evidence that the ability to show ‘Rawlsian’ altruism is not a characteristic of undergraduate students only. They compare results obtained from two anonymous dictator games with an initial stake of \$100 conducted in Kansas City. One involves workers in a publishing warehouse and the other involves college students. Authors find out that the average offer of the dictator is significantly higher among workers than among students.

Note that there is no cost of giving in the experiments reviewed so far, which means that the total surplus does not decrease when redistribution occurs. In this setting, ‘Rawlsian’ altruism is not distinguishable from egalitarianism that requires a complete equalization of resources among individuals even if this violates the Rawlsian ‘difference principle’. In other words, what we interpret as ‘Rawlsian’ altruistic behaviors could merely be inequality-averse behaviors. We attempt to close this matter, at least provisionally, in the summarizing part of this section.

2.3 From responsibility-sensitivity to desert-sensitivity

As recalled by Fleurbaey (2007a), responsibility-based theories of justice start with Rawls who leaves individuals responsible for the use of the primary goods that have been allotted to them in compliance to the difference principle. But the true departure of responsibility-based theories of justice from the long lasting welfaristic tradition is due to Dworkin (1981). Dworkin highlights the necessity to draw a responsibility cut enabling to make a fundamental distinction between factors for which individuals should or should not be held responsible for. Exactly the idea of incorporating notions of responsibility into the design of redistributive mechanisms constitutes the foundation of responsibility-based theories of justice.

More specifically, responsibility-based theories of justice are characterized by two requirements (Fleurbaey (1995) and Bossert and Fleurbaey (1996)). First, the *principle of compensation* (Fleurbaey (1995)) states that two individuals who are identical in all characteristics for which they are held responsible, and hence only differ with respect to characteristics for which they must be compensated, should obtain an equal outcome after redistribution. In other words, when all unequal characteristics are to be compensated, a completely equal distribution of outcome is the goal. Second, the *principle of responsibility* (Barry (1991)) also called the *principle of natural reward* (Fleurbaey (1995)) states that two individuals with identical compensation characteristics who only differ with respect to characteristics for which they are held responsible should not be affected differentially by the redistribution process. In other words, when all unequal characteristics are within the responsibility of individuals, the distribution of outcomes should perfectly mirror this inequality by keeping proportionality between responsibility characteristics and outcomes. The combination of both requirements has been called ‘responsibility-sensitivity’ by Schokkaert and Devooght (2003).

In the following, we first investigate where individuals locate the responsibility cut. We then analyse whether individuals are responsibility-sensitive. We find out that individuals are desert-sensitive rather than responsibility-sensitive.

2.3.1 The responsibility cut

Several questionnaires conducted among various subject pools have tried to single out which characteristics are perceived to lie within the individual's responsibility and which are perceived to lie beyond. These studies show that preferences, tastes, effort or deliberate choice are among the characteristics quasi-unanimously considered as within the individual's responsibility. Conversely, birth (innate abilities, gender, race...etc) and brute luck (family background for instance) are viewed as variables lying beyond individuals' responsibility.

Yaari and Bar-Hillel (1984) were the first to investigate whether individuals' opinion on distributive justice is responsibility-sensitive. They submit 163 college applicants in Israel to an allocation problem. They must decide the way of dividing fairly pineapples and avocados between two imaginary individuals (Jones and Smith) showing different utilities. In the first scenario, differences in utilities consist in that Jones and Smith metabolize the nutritional value of pineapples and avocados differently. In the second scenario, differences in utilities consist in differences in taste. A vast majority of participants (82%) choose the allocation that ensures the equalization of the utilities in the first scenario. These behaviors are clearly consistent with the *compensation* principle under the consensus that metabolic characteristics are genetically determined. Participants' reactions to the second scenario are much more disperse and no single allocation rule garners the support of a significant majority. More particularly, only 28% support the equalizing solution. This low support to the compensation principle suggests that taste is a characteristic considered to lie within individuals' responsibility. Similar findings are provided by Schokkaert and Overlaet (1989), Schokkaert and Devooght (1998) and Faravelli (2007).

Responsibility-sensitivity is not a peculiarity of undergraduate students. Schokkaert and Capeau (1991) compare the answers given by students in the experiment conducted by Shokkaert and Overlaet (1989) with answers given by a representative sample of 810 Flemish workers. They find out that workers are as likely as students to be responsibility-sensitive. Results from a telephone survey conducted by Kahneman et al. (1986b) among randomly selected residents of two Canadian metropolitan areas (Toronto and Vancouver) show that individuals are responsibility-sensitive when asked to judge the fairness of a price or wage. More specifically, a vast majority of respondents consider an upward (downward) shift of price (wage) acceptable if it is underlaid by exogenous shocks that negatively affect the firm's profit. In other words, they agree to compensate the firm for bad luck. Conversely, they strongly oppose this shift when it results from the deliberate decision of the firm to deprive consumers of part of their surplus. Many of the questions asked by Kahneman et al. (1986b) have been replicated among adult populations in Germany and Switzerland (see Frey

and Pommerehne (1993)) and among Los Angeles residents (see Konow (2001) and Konow (2003)). These studies yield similar results.

2.3.2 From responsibility-sensitivity...

Konow (2000) designs a two-stage experiment conducted among 360 undergraduate students. Students are split up into two groups: one group is composed of ‘dictators’ while the other is composed of ‘receivers’. In the first stage of the game, receivers perform a task consisting in folding letters, stuffing them into envelope and placing them through a slot in a sealed box. A given credit of money is allocated to the receiver for each letter he prepares. After the task is completed, each subject is paired with an anonymous counterpart with whom to pool earnings. In the second stage of the experiment, *benevolent* dictators having no stake in the game (they are only paid a fixed fee for the time dedicated to their role as allocator) decide the way of allocating the joint earnings among two task performers.

More precisely, two treatments of the first stage of the game are designed. In the first treatment, each subject is credited with 50 cents per letter prepared while the short span of time during which the task is performed ensures substantial differences in individual task performance. In other words, the differences in the joint earnings of a pair of receivers tend to reveal differences in effort, a characteristic for which individuals usually hold each other responsible. In the second treatment, each subject is endowed with the same number of letters at the beginning of the task. The span of time during which the task is performed is sufficient to enable each receiver to prepare all the letters he is initially endowed with. However, the per-letter credit is randomly fixed across task performers. In other words, the differences in the joint earnings of a pair of receivers do not reveal differences in effort any more, but differences in arbitrarily defined per-letter credits.

Results show that the division of joint earnings decided by the *benevolent* dictator follow the compensation and the responsibility principles. In the second treatment where subjects differ with respect to luck, most of the dictators (87%) follow the compensation principle and therefore choose an equal split of joint earnings. Conversely, in the first treatment where subjects differ with respect to a responsibility characteristic (effort), most of the dictators (79%) follow the responsibility principle by choosing a sharing rule proportional to the number of letters prepared by each individual.

Konow (2000) completes the benevolent dictator game by a standard dictator game where the dictator has a clear interest at stake since he is one of the task performers. The dictator must unilaterally decide during the second phase of the experiment the way of dividing, between his counterpart and himself, the money credited to their joint account during the first phase. The tension between the dictator’s self-interest and the compensation principle is enhanced since the role of dictator is assigned, within each pair of subjects, to the individual having earned the higher amount of money during the first phase. Results show

that, on average, the share of the joint account given by the dictator to his counterpart is significantly lower than what the compensation principle in the ‘luck’ treatment and what the responsibility principle in the ‘effort’ treatment would have required. The mean allocation in the ‘luck’ treatment is equal to 0.408 (which is lower than 0.5). In the ‘effort’ treatment, the mean allocation is equal to 0.356 (which is lower than 0.484 which is the mean share deriving from the enforcement of the responsibility principle). These results clearly betray the tension between self-interest and responsibility-sensitivity resulting from the fact that the dictator is not benevolent any more (he has a material interest at stake). Yet, Konow (2000) reports that 45% of standard dictators fully abide by the compensation and the responsibility principle in the ‘luck’ and in the ‘effort’ treatment respectively, by allocating to their counterpart exactly the amount that the enforcement of each of these principles requires.

2.3.3 ...to desert-sensitivity

It is noticeable that the difference between the responsibility-sensitive share and the share of the joint earnings actually given by the dictator to his counterpart is greater in the ‘effort’ treatment of Konow’s experiment (2000) than in the ‘luck’ treatment. Similar findings are provided by Fong (2007). She analyses donors’ behavior in a charity game where beneficiaries are real life welfare recipients. She finds out that donors who yet claim to feel concerned about the well-being of others give significantly less than more self-interested donors as soon as they receive signals that their recipient may be lazy.

These results suggest that, rather than simply complying with responsibility-sensitivity, fairness-concerned individuals tend to punish others in case these others do not appear as deserving with respect to their responsibility characteristics (effort, deliberate choice, ...etc). In other words, following Arneson’s notion of ‘desert-sensitive prioritarianism’ (1999, 2000)⁷, individuals behave as if they were ‘desert-sensitive’ altruists to the extent that their concern for others’ well-being, should it amount to utilitarian altruism or to ‘Rawlsian’ altruism, increases with these others’ level of deservingness with respect to their responsibility characteristics.

Desert-sensitive altruism is likely to emerge during sequential games where the observation of others’ responsibility characteristics during a previous phase of the game allows an individual to assign weights of deservingness on these others’ utilities. However it is not easy to draw definitive conclusions, based on experimental evidence, about the type of benchmark individuals use in order to compute these weights of deservingness.

The observation of the receiver’s behavior during the ultimatum game⁸ offers

⁷According to Fleurbaey (2007a), Arneson’s notion of ‘desert-sensitive prioritarianism’ implies that ‘the priority assigned to an individual decreases with her level of well-being and increases with her deservingness and with her marginal well-being (i.e: rate of transformation of resources into well-being)’.

⁸The difference between the ultimatum game (introduced by Güth et al. (1982)) and the

insights into the nature of the fair benchmark that an individual uses to compute the deservingness of his counterpart(s) when he was not among the active players who signalled their responsibility characteristics during a previous stage of the game. The *homo oeconomicus* postulate predicts that player 2 will accept any $s \in [0, 1]$ in the ultimatum game. Therefore, player 1 should propose s close to 0. A large number of experiments conducted in controlled laboratory settings clearly refute this prediction (see for instance Thaler (1988) or Güth and Tietz (1990)). More specifically, reviewing thirty-one ultimatum games involving undergraduate students, Camerer (2003) shows that the vast majority of modal and median offers lie in the interval $[0.4, 0.5]$, with almost no offer below 0.1 and above 0.5⁹. Moreover, the probability of rejection decreases with s . In other words, the stronger the dictator's departure from the equal split, the higher the receiver's propensity to punish him through the rejection of his offer. It therefore seems that the equal split is considered as a fair benchmark by the receiver in the standard ultimatum game, and that this is well anticipated by the dictator. This evidence suggests that an individual uses an *objectively* defined fair benchmark to compute the deservingness of his counterparts when he was not among the active players during a previous stage of the game. Indeed, the equal split in the ultimatum game where the dictator's endowment is typically exogenous seems to be the only acceptable allocation rule from an *impartial spectator* point of view since it complies with the compensation principle.

Results derived from the two-stage public good game¹⁰ offer insights into the nature of the fair benchmark that an individual uses to compute the deservingness of his counterpart(s) when he was among the active players who signalled their responsibility characteristics during a previous stage of the game. Since punishments are costly in the two-stage public good game, the *homo oeconomicus* postulate predicts that players' dominant strategy in the second stage of the game is to not punish. This means that the second stage should not have any impact on players' strategies that are implemented during the first stage of the game (i.e: each player should keep contributing $g_i = 0$ during this period since $a < 1$). Yet, Fehr and Gächter (2000) show that, while in the one-stage repeated game without punishment most subjects free ride during the final period, roughly 80% of them contribute to the public good game during the final round

dictator game consists in that player 2 can accept or reject s . In case of acceptance, the monetary payoffs are defined as in the dictator game, while both players receive a monetary payoff of 0 in case player 2 rejects the offer of player 1.

⁹Note that these results are not due to subject pool effects. Henrich et al. (2001, 2005) have conducted ultimatum games in 15 different small-scale communities in developing countries. Despite enormous variations across communities, they also find out that modal offers are in the range of 40% to 50%.

¹⁰In the second stage of the public good game, each player i is informed about the contribution vector (g_1, \dots, g_n) and can impose a punishment vector $p_i = (p_{i1}, \dots, p_{in})$, where $p_{ij} \geq 0$ denotes the punishment that player i imposes on player j . The cost of this punishment to player i is given by $c \sum_{j=1}^n p_{ij}$, with $0 < c < 1$. Player i may also be punished by the other players, which induces an income loss to i of $\sum_{j=1}^n p_{ji}$. In the second stage of the Public Good game, the monetary payoff of player i is therefore given by $x_i(g_1, \dots, g_n, p_1, \dots, p_n) = y - g_i + \alpha \sum_{j=1}^n g_j - \sum_{j=1}^n p_{ji} - c \sum_{j=1}^n p_{ij}$.

of the repeated two-stage game because of massive punishment of the defectors by the contributors. Different fair benchmarks may be endorsed by an *impartial spectator*. One of them could consist in contributing one’s whole endowment since this boils down to maximizing the total surplus. Another one could be individuals’ average contribution to the public good. Whatever the objective fair benchmark, everyone who contributes less than this fair benchmark should theoretically be considered as undeserving by his fellow counterparts. However, evidence derived from two-stage public good game shows that individuals punish only those who are less deserving than they are with respect to an objectively defined fair benchmark (i.e: they never punish those who contributed more than they did). This suggests that, in a setting where he was among the active players during a previous stage of the game, each individual has a subjective way of using the objective fair benchmark for computing the deservingness of his counterparts.

2.4 A summarizing ‘fair utility function’

We propose a ‘fair utility function’ that could summarize the tension between self-interest and the various concerns for fairness that individuals are able to show. From the preceding, individuals’ three major concerns for fairness seem to be utilitarian altruism, ‘Rawlsian’ altruism, and desert-sensitivity.

We have already highlighted the difficulty to discriminate between ‘Rawlsian’ altruistic concerns and egalitarian concerns. So far, we know two experiments that could help us close the matter, at least provisionally, since they involve a redistribution process that generates efficiency losses (see Michelbach et al. (2003)¹¹ and Faravelli (2007)). Both converge to the same conclusion according to which ‘Rawlsian’ altruism rather than pure egalitarianism translates individuals’ concerns for the well-being of the worst off. Faravelli (2007) notably asks 464 undergraduate students having no material interest at stake to choose between three different lotteries. These lotteries determine how to allocate inputs between two imaginary individuals having different production technologies. The three lotteries comply with an utilitarian allocation rule, an egalitarian allocation rule, and a Rawlsian allocation rule respectively. In case the differences in production technologies are related to luck, students show a clear support to the compensation principle¹². Over the 464 students who answered the question, 390 (84%) choose the Rawlsian or the egalitarian rule. More strikingly, students massively (65%) choose the Rawlsian allocation rule rather than the egalitarian one. This suggests that individuals are reluctant to fully equalize individuals’

¹¹In a redistribution experiment where subjects have no material interest at stake, Michelbach et al. (2003) show that, among female subjects (N=397) and male subjects (N=270), 19% and 40% follow utilitarian altruism, 18% and 18% follow ‘Rawlsian’ altruism, 26% and 17% follow a mix between ‘Rawlsian’ altruism and utilitarian altruism, and 37% and 25% follow inequality aversion. In other words, 63% and 75% of women and men respectively are influenced by a combination between ‘Rawlsian’ altruism and utilitarian altruism.

¹²Conversely, in the scenario where the differences in production technologies are related to responsibility characteristics, a majority of students seem to enforce the responsibility principle by supporting the utilitarian allocation rule.

utilities as soon as the equalization process generates efficiency losses. Although further evidence would be needed to close the matter, we provisionally conclude by assuming that individuals' concerns for the well-being of the worst-off are better summarized through 'Rawlsian' altruism than through inequality aversion. In the following, we therefore depart from Fehr and Schmidt's model of inequality aversion (1999)¹³.

Inspiring from economic models of fairness developed by Rabin (1993) and Char-ness and Rabin (2002), we propose the following summarizing 'fair utility function':

$$U_i(u_1, \dots, u_n; \delta_{i,1}, \dots, \delta_{i,n}) = \gamma_i u_i + (1 - \gamma_i) [\alpha_i \min_{\delta_{i,i'} \neq 0} (\delta_{i,1} u_1, \dots, \delta_{i,n} u_n) + (1 - \alpha_i) \sum_{i' \in [1, \dots, n]} \pi_{i,i'} u_{i'} - p_i \sum_{i' \in [1, \dots, n]} (1 - \delta_{i,i'}) u_{i'}].$$

We denote u_i the private utility function of individual i ($i \in [1, n]$). Let $\gamma_i \in [0, 1]$ be a parameter that reflects the relative weight that individual i assigns to his self-interest compared to his concerns for fairness. Let $\alpha_i \in [0, 1]$ be a parameter that reflects the relative weight that individual i assigns to his desert-sensitive 'Rawlsian' altruistic concerns compared to his desert-sensitive utilitarian altruistic concerns. We denote $\pi_{i,i'}$ the weight of deservingness that an individual i assigns in the fair component of his 'fair utility function' to the private utility of individual i' (i and i' are two possibly identical individuals). We assume that $\pi_{i,i'} \equiv \frac{\delta_{i,i'}}{\sum_{i' \in [1, \dots, n]} \delta_{i,i'}}$, where $\delta_{i,i'} \in \{0, 1\}$ is a dummy variable that represents how much individual i considers that individual i' deserves. We call $p_i \geq 0$ the punishment parameter of individual i which means the intensity of the nonmonetary payoff he draws from hurting i' when he considers that i' is not deserving (i.e: when $\delta_{i,i'} = 0 \Rightarrow \pi_{i,i'} = 0$).

Based on evidence from the ultimatum game and from the two stage public good game, we make the following assumptions on how the subjective weight of deservingness $\delta_{i,i'}$ that individual i assigns to individuals i' is computed. We denote $d_{-1}^{i'} \in \{0, 1\}$ the dummy variable which represents how much individual i' objectively deserves given the responsibility characteristics that he has shown in a previous stage of the game. More specifically, $d_{-1}^{i'}$ reflects a comparison between the level¹⁴ of responsibility characteristics of individual i' and an ob-

¹³Fehr and Schmidt (1999) assume that individuals suffer disutility as the distribution of payoffs moves away from the egalitarian distribution, but that they may care differently about this deviation, depending on whether they are ahead or behind. More specifically, they assume that individuals suffer more from inequality that is to their material disadvantage than from inequality that is to their material advantage, which they justify by referring to research papers in psychology (see Loewenstein et al. (1989)) and to the hypothesis of loss aversion validated by Kahneman and Tversky (1991).

¹⁴For instance, the share of his endowment that he gives to the receiver in case he is the dictator in the dictator/ultimatum game, or his contribution level in case he takes part in a one stage/two stage public good game.

jective fair benchmark¹⁵. In case the level of responsibility characteristics of individual i' is greater or equal than this objective fair benchmark, we assume that $d_{-1}^{i'} = 1$ (i.e: individual i' is objectively fully deserving). In case the level of responsibility characteristics of individual i' is strictly lower than this objective fair benchmark, we assume that $d_{-1}^{i'} = 0$ (i.e: individual i' is objectively fully undeserving). Henceforth, we assume that the following relationships exist between $d_{-1}^{i'}$ and $\delta_{i,i'}$:

$$\delta_{i,i'} = \begin{cases} d_{-1}^{i'} & \text{if } d_{-1}^i \text{ is not defined} \\ 0 & \text{if } d_{-1}^{i'} < d_{-1}^i \\ 1 & \text{if } d_{-1}^{i'} \geq d_{-1}^i. \end{cases}$$

The first relationship between $d_{-1}^{i'}$ and $\delta_{i,i'}$ describes what happens when individual i was not among the active players during a previous stage of the game and therefore was not able to signal the level of his responsibility characteristics (i.e: d_{-1}^i is not defined). In this setting, in conformity with experimental evidence provided by the ultimatum game, we assume that the weight of undeservingness assigned by individual i to the utility function of individual i' is equal to the objective undeservingness of individual i' (i.e: $\delta_{i,i'} = d_{-1}^{i'}$). The next two relationships between $d_{-1}^{i'}$ and $\delta_{i,i'}$ describe what happens when individual i was among the active players during a previous stage of the game and therefore was able to signal the level of his responsibility characteristics (i.e: d_{-1}^i is defined). In this setting, we assume that individual i considers all those who are less (more) objectively deserving than he is as fully undeserving (deserving). Note that the assignment by individual i of a weight of full undeservingness to individual i' ($\delta_{i,i'} = 0$) boils down for individual i to punish individual i' . In case $p_i = 0$, the punishment is ‘mild’ to the extent that individual i merely excludes individual i' from his altruistic preferences, should they be utilitarian or ‘Rawlsian’. In case $p_i > 0$, the punishment becomes ‘harsh’ to the extent that individual i derives an additional non pecuniary payoff (that increases with p_i) from further hurting individual i' .

To conclude, note that some experiments provide insights into the value of α_i (i.e: the relative weight of desert-sensitive ‘Rawlsian’ altruistic concerns compared to desert-sensitive utilitarian altruistic concerns) when $\gamma_i = 0$ and when $\delta_{i,i'} = 1 \forall i \in [1, n]$ and $\forall i' \in [1, n]$ ¹⁶. Konow (2001) submit 122 respondents to a scenario involving the allocation of a grant of \$100 million between two different projects conducted in an underdeveloped country called ‘Parador’. Project X aims at preventing the starvation of 500,000 persons stricken by a drought in eastern ‘Parador’. The disbursement of \$100 per person would ensure their

¹⁵For instance, the equal split in the dictator/ultimatum game, or the donation of one’s whole endowment or of the average contribution in the one stage/two stage public good game.

¹⁶Indeed, in these experiments, those who define the fair allocation rule endorse the role of the *impartial spectator*. Moreover, they receive no negative information about how much potential recipients are deserving. This suggests that they behave as if all potential recipients were deserving.

return to subsistence level. Project Y aims at implementing an agricultural development program in western ‘Parador’ which would permanently raise its members from subsistence level to a moderate standard of living. Here again, the per-person expenditures amount to \$100. 89% of respondents choose to allocate \$50 million to project X and the remaining to project Y. This result suggests that individuals defuse the tension between Rawlsian altruism and utilitarian altruism in a lexicographic manner to the extent that they follow ‘Rawlsian’ altruism until basic needs are satisfied and then concentrate on utilitarian altruism. Konow’s findings (2001) echo the results obtained by Frohlich et al. (1987). They show that under conditions approximating Rawls’ original position, individuals do not support ‘Rawlsian’ altruism strictly speaking. They overwhelmingly prefer a distribution principle which mixes utilitarian altruism and Rawlsian altruism in a way that allows to maximize the average income under a floor constraint.

The next two sections investigate whether utilitarian altruism, ‘Rawlsian’ altruism, and desert-sensitivity influence individuals’ real life behavior, should one consider the economic or the political field. Experiments conducted in a controlled laboratory setting are an undisputable useful device for clearly identifying the various concerns for fairness that individuals are able to show. However, there exists at least three reasons why such experiments may have a fairness-inducing effect and therefore why one should be cautious when extending conclusions about the intensity of concerns for fairness obtained in a controlled laboratory setting to real life environments.

First, experiments conducted in a controlled laboratory setting typically involve distributive issues which induce individuals to comply with norms of justice to a greater extent than they would have done in a real life environment. Bardsley (2005) compares the dictators’ behavior in a ‘giving’ dictator game and in a ‘taking’ dictator game. In case giving in the ‘giving’ dictator game is generated by a genuine ‘Rawlsian’ altruism and not by the contextual ‘giving’ norm, the proportion of subjects transferring a strictly positive amount to their counterpart in the ‘giving’ dictator game should be equal to the proportion of subjects refusing to take away part of their counterpart’s endowment in the ‘taking’ dictator game. Bardsley (2005) shows that the proportion of ‘givers’ in the ‘giving’ dictator game is significantly larger than the proportion of ‘non takers’ in the ‘taking’ dictator game. This evidence suggests that part of the ‘giving’ behaviors in the ‘giving’ dictator game are induced by the contextual ‘giving’ norm.

Second, monetary stakes involved in a laboratory setting are usually much lower than monetary stakes in real life. This suggests that it is less costly to abide by one’s concerns for fairness in a controlled laboratory setting than in real life interactions, and therefore that the impact of concerns for fairness on individuals’ behaviors should be greater in a laboratory setting. Slonim and Roth (1998) analyse two sequences of ten ultimatum games. The stakes in each sequence vary by a factor of 25. When focussing on behaviors during the first round of

each sequence, Slonim and Roth (1998) find no significant difference between low and high stakes proposals on the part of the dictators, which is in line with other experimental results (see Cameron (1996), Hoffmann et al. (1996), Carpenter et al. (2005b) and List and Cherry (2007)). However, considering all ten ultimatum games, they show that receivers in ultimatum games involving higher stakes reject proportionally equivalent offers less often, therefore yielding to lower offer on the part of the dictators. In other words, the insignificant impact of increases in stakes on the dictators' offer during the first period seems to be only due to the fact that, in absence of relevant information about the receivers' rejection threshold, loss-averse dictators become more sensitive to the risk of being rejected when the stakes are high and therefore proposing relatively high offers. However, the more dictators gain information about the receivers' rejection threshold, the lower their offer in the high stakes ultimatum game. This finding confirms that the higher the material sacrifice, the lower the receivers' rejection thresholds (i.e: the lower their readiness to behave like desert-sensitive altruistic persons).

Third, individuals are usually perfectly informed on others' actions and pay-offs in a laboratory setting which facilitates the expression of either utilitarian altruism, 'Rawlsian' altruism, or desert-sensitivity. However, incomplete information, not complete information, is the rule in naturally-occurring settings. This suggests that the impact of concerns for fairness on individuals' behaviors should be lower in real life than in a controlled laboratory setting. Rapoport and Sundali (1996) analyze a version of the ultimatum game where the pie is drawn randomly from a commonly known distribution. The dictator knows the exact size of the pie, while the receiver only knows his share of the pie and not the residual share accruing to the dictator. This suggests that the receiver lacks information to compute precisely the objective fair benchmark (i.e: the dictator's offer resulting from an equal split of the pie) and therefore the degree of deservingness of the dictator. In other words, the higher the uncertainty about the size of the pie, the more difficult for the receiver to behave like a desert-sensitive altruistic person. Rapoport and Sundali confirm this intuition. They find out that, as soon as the support of the pie distribution increases, the dictator makes lower offers that the receiver is less likely to reject (see also Mitzkewitz and Nagel (1993) for similar findings).

In the following, we test whether the impact of concerns for fairness on individuals' behavior persists in the economic field (section 3) and in the political field (section 4). Due to the fairness-inducing effect of experiments conducted in a controlled laboratory setting, we systematically back evidence of concerns for fairness drawn from laboratory experiments by evidence drawn from naturally-occurring field experiments or real life.

3 Fairness in the economic field

Markets show the characteristics that are the least favorable to the emergence of fair behaviors. First, norms associated to markets are traditionally those of profit making therefore inducing individuals to focus on their material self-interest. The experiment conducted by Hoffman et al. (1994) is very illustrative of this point. They show that adding a market frame in a ultimatum game so that participants are called buyers and sellers significantly reduces offers. Moreover, markets typically involve large stakes. Finally, individuals contracting on a market are rarely informed about the valuations of buyers and about the costs or reservation prices of sellers. In other words, computing the impact of their actions on others' surplus seems out of individuals' reach.

Yet, there exist configurations of market transactions which could offer some room for individuals to express their concerns for fairness. More specifically, market transactions can be split up into two groups: transactions that involve complete contracts¹⁷ and transactions that involve incomplete contracts¹⁸. In the following, we investigate whether concerns for fairness could modify the outcome on markets involving complete and incomplete contracts respectively.

3.1 Selling and buying under complete contracts

Transactions that involve complete contracts are those whose characteristics are observable by both contracting parties. We consider two types of markets involving complete contracts. The first type encompasses competitive markets where the lack of information on others' surplus is likely to be an insurmountable obstacle to the emergence of concerns for fairness. The second type includes monopolistic markets where even a vague information on the monopoly's undeservingness is likely to induce desert-sensitive altruistic behaviors on the part of individuals belonging to the dominated side of the market.

3.1.1 Competitive markets

Smith (1965) was the first to compare the competitive final price of a double-auction¹⁹ repeated market game with the competitive price predicted by the *homo oeconomicus* postulate. Smith (1965) finds out an amazing convergence of the experimental exchange price to the competitive price. Many subsequent market game experiments confirmed this finding. In other words, certainly due to individuals' lack of information on others' surplus, concerns for fairness do not affect the outcome on markets involving complete contracts in a laboratory

¹⁷Fehr and Fischbacher (2002) also refer to these transactions as transactions with 'exogenous contract enforcement'.

¹⁸Fehr and Fischbacher (2002) also refer to these transactions as transactions with 'endogenous contract enforcement'.

¹⁹In a double auction experiment, both buyers and sellers are free to initiate bids to buy and offers to sell for one commodity unit. Any buyer (seller) is free to accept a seller's (buyer's) price. A binding contract is formed if the recipient of the bid or of the offer accepts it within a short span of time.

setting²⁰. Given that the outcome of market games is not impacted by concerns for fairness while we have shown that experiments conducted in a laboratory setting have generally a fairness inducing effect, we feel confident in concluding that, *a fortiori*, concerns for fairness should not influence the outcome on real life competitive markets.

3.1.2 Monopolistic markets

We rely on evidence provided by market games conducted in a laboratory setting where the bargaining power is concentrated on one side of the market. We derive the relevant implications of such evidence for real life monopolistic markets.

Market power concentrated on the selling side Roth et al. (1991) implement a competitive ultimatum game where all the nine dictators simultaneously propose an amount s_i of an initial endowment normalized to 1 to a receiver that either accepts or rejects the highest offer $\bar{s} = \max s_i$. In case several dictators propose \bar{s} , one of them is randomly selected with equal probability.

This experimental setting can be interpreted as a market game with buyers' competition where the seller enjoys a monopolistic power. More precisely, the nine dictators could stand for nine buyers willing to buy one unit of commodity that each values at a price of 1, while the responder could be viewed as a seller whose reservation price is equal to 0. \bar{s} stands for the highest bid to buy proposed by the buyers to the seller. In case the seller accepts \bar{s} , the buyer's surplus is equal to $1 - \bar{s}$, while the seller's surplus is equal to \bar{s} . In case the seller rejects this bid to buy, both the seller and the buyer obtain a surplus equal to 0.

The computation of the unique subgame perfect equilibrium in case of purely self-interested buyers is straightforward. The competition among dictators induces each of them to increase his bid to buy s_i up to 1. In other words, one side of the market (the seller) reaps all the buyers' surplus. This prediction is confirmed by Roth et al. (1991) who show that, in each of the countries where the experiment was conducted (Israel, Japan, Slovenia and United States), the market game converges to the competitive price equilibrium predicted by the *homo oeconomicus* postulate.

Market power concentrated on the buying side In the reverse ultimatum game where there is competition among the receivers and were the proposer enjoys a monopolistic power, Güth et al. (1997) also show that the experimental equilibrium price converges to the competitive equilibrium price of 0 predicted by the postulate of *homo oeconomicus*. More precisely, in the final round of their repeated market game (encompassing five rounds overall), 71% and 9% of the receivers have an acceptance threshold of 0 and 0.02 respectively.

²⁰Note that we restrict our analysis to the presentation of simple intuitions. The continuous double auction has such complicated strategy spaces that no complete game theoretic analysis is yet available.

A summarizing experiment Cason and Williams (1990) analyse the results of market games in which the competitive equilibrium model predicts that all exchanges profits (surpluses) are received by one side of the market only. More precisely, they assume that the reservation price P_S is the same for all suppliers and that all buyers share the same valuation P_D . In a first treatment, the quantities demanded \bar{D} are lower than the quantities supplied \bar{S} which should lead, under the *homo oeconomicus* postulate, to a price equilibrium equal to P_S . In a second treatment, the quantities demanded \bar{D} are greater than the quantities supplied \bar{S} which should lead to a price equilibrium equal to P_D .

The market game is organized according to a ‘posted-offer’ procedure. In contrast to the double auction procedure, the posted-offer procedure does not allow exchange of both bids to buy and offers to sell. It is particularly characteristic of retail markets where sellers post a price that the buyers may accept or not on a simple ‘take-it-or-leave-it’ basis. In the experimental design, each period begins with all sellers making their offers to the market (each seller is shown the offer prices entered by other sellers). The computer then chooses randomly the order that buyers enter the marketplace.

Cason and Williams (1990) show that in either treatment, the price converges to the competitive price, even though the convergence is slower in the first treatment than in the second one which is easily understandable. In the second treatment, sellers quickly learn that their objective is to avoid being the low-priced seller. The upward price trend triggered off by this learning effect is not easily hampered by desert-sensitive altruistic buyers who know that the undeserving offer will certainly be accepted by another purely self-interested buyer if they refuse it. Conversely, in the first treatment, sellers quickly learn that their objective is to avoid being the high-priced seller. This learning effect induces a downward price trend that some desert-sensitive altruistic sellers try to moderate through costly signaling consisting in offering purposely high prices that do not meet any demand. However, due to the presence of purely self-interested sellers, this attempt to make the price diverge from the competitive equilibrium is not sustainable and the price ultimately converges to P_S . Conducting the same experiment, but in a double auction framework, Smith and Williams (1990) also find a convergence of the exchange price to the competitive price which is symmetric between both treatments due to the double auction procedure.

Implications for real-life monopolistic markets Experimental results obtained in a laboratory setting therefore suggest that desert-sensitive altruistic behaviors on monopolistic markets with complete contracts are enforceable only under the unrealistic assumption that a sufficiently large number of individuals agree to bear the costs of punishment. Anticipating that punishment won’t be successful, fairness-concerned agents themselves tend to renounce of showing desert-sensitivity.

These conclusions can be extended to real-life monopolistic markets. On these markets, price increases by a monopolistic firm which are motivated only by

the willingness to deprive consumers from their surplus are clearly identified as undeserving by consumers. Kahneman et al. (1986b) show that 82% of interviewees (N=107) consider as unfair the fact that a hardware store, that usually sells snow shovels for \$15, raises the price to \$20 the morning after a large snowstorm. The monopoly's undeservingness induces desert-sensitive altruistic behaviors among consumers. 68% of individuals interviewed by Kahneman et al. (1986b) contend that they would switch their patronage to a drugstore five minutes further away if the one closer to them raised its prices in case a competitor had to close temporarily.

Yet, the enforcement of the punishment is problematic. As recalled by Segal and Sobel (2004), as long as consumers are price takers, none of their voluntary reduction in consumption will influence the commodity's exchange price and therefore the firm's surplus (see Roberts and Postlewaite (1976) for a formal demonstration). Only if a sufficiently large number of desert-sensitive altruistic consumers coordinate can the punishment be enforced. Besides, even assuming that this former condition is met, Kahneman et al. (1986b) acknowledge that boycotting reactions are generally transitory: 'terms of exchange that are initially seen as unfair may in time acquire the status of a reference transaction'. In other words, even when effective, consumers' decision of boycott have little effect on prices unless they are sustained during a sufficiently long span of time (the rather insignificant effect of short-run shifts in demand on prices has been well documented since Cagan (1979)).

As a conclusion, should one consider competitive or monopolistic markets involving complete contracts, evidence shows that concerns for fairness do not have any impact on the market aggregate outcome. This conclusion coincides with previous ones. Levine (1998) highlights: 'in a market game where the theory of selfish players does quite well, the theory of altruism makes exactly the same predictions as the theory of selfish players'. Fehr and Schmidt (1999) emphasize: 'competition renders fairness considerations irrelevant if and only if none of the competing players can punish the monopolist by destroying some of the surplus and enforcing a more equitable outcome'. Segal and Sobel (2004) even dedicate a whole paper to the fact that 'markets make people look selfish'. Is this conclusion extendable to markets involving incomplete contracts?

3.2 Selling and buying under incomplete contracts

Transactions that involve incomplete contracts are those whose some characteristics are not observable by all contracting parties, like the employer-employee relationship where the effort of the employee is not fully observable by the employer. Within incomplete contracts, individuals having a discretionary power on one of the contract characteristics can fully express desert-sensitive altruism. Concerns for fairness are therefore likely to impact the aggregate outcome on markets involving incomplete contracts. We start reviewing experimental evidence in a laboratory setting and then extend our analysis to naturally occurring field experiments.

3.2.1 Experiments in a laboratory setting

Fehr et al. (1993) were the first to propose an experimental test of the ‘fair’ wage-effort hypothesis developed by Akerlof (1982) and by Akerlof and Yellen (1990). The ‘fair’ wage-effort hypothesis goes a step further compared to the ‘efficiency’ wage hypothesis theorized by Shapiro and Stiglitz (1984). While the latter stipulates that high wage levels reduce workers’ temptation to shirk by raising the cost of being fired, the former assumes that wage increases do not only induce workers to better comply with the effort standard imposed by the firm, but possibly to increase their effort level above this standard. Akerlof (1982) bases the ‘fair’ wage-effort hypothesis on the classic anthropological literature on the gift and notably on the essay of Marcel Mauss (1954) who emphasizes the obligatory nature of reciprocity in archaic societies as soon as one receives a gift from someone else²¹.

Description of the experimental setting The experimental gift exchange game initiated by Fehr et al. (1993) consists in two stages. The first stage is a one-sided oral auction where employers make wage proposals. As soon as one worker accepts the bid, a binding contract is concluded between the employer and the worker. At the second stage, workers choose their effort level (which is revealed only to the employer with whom they trade).

More precisely, the usual design consists for the worker in choosing effort e from the interval $[\underline{e}, \bar{e}]$, $0 < \underline{e} < \bar{e}$. With possibly some variants from an experimental setting to the other, the firm’s payoff is summarized by $x_F = ve - w$ where v denotes the marginal product of effort. The worker’s payoff is given by $x_W = w - c(e)$ where $c(e)$ denotes the effort cost ($c(\underline{e}) = c'(\underline{e}) = 0$ and $c' > 0$, $c'' > 0$ for $e > \underline{e}$). Moreover, it is generally assumed that $v > c'(e)$ so that $e = \bar{e}$ is the effort level consistent with utilitarian altruism since it maximizes the total surplus. An excess supply of workers is deliberately created by experimenters to ensure that workers are willing to accept virtually any offer greater or equal to the market-clearing one.

Equilibria predicted by the *homo oeconomicus* and by the *homo ethicus* postulates In case players only care about their self-interest, it is clear that each worker will choose $e = \underline{e}$ during the second stage of the game since effort is costly. Anticipating that workers will provide the minimum effort level, employers propose a wage equal to the workers’ reservation price (i.e: the market-clearing wage) viz $w = c(\underline{e}) = 0$. The worker’s payoff is therefore given by $x_W = 0$ while the employer’s payoff is given by $x_F = v\underline{e}$.

Will this equilibrium persist in case workers show concerns for fairness? Let’s call w^* the fair benchmark below which the worker wants to punish the employer for his undeservingness. More specifically, following the summarizing ‘fair utility function’ that we introduced above, the worker’s punishment will consist in

²¹Interestingly enough, Mauss (1954) points out that, in the two major branches of Western European languages, the root for *poison* is the same as the root for *gift*.

excluding the employer from his ‘Rawlsian’ altruism and from his utilitarian altruism in case $w < w^*$ and $p_i = 0$. According to this assumption, the punishment simply boils down for the worker to behave selfishly, and therefore to choose the minimal effort level. Conversely, in case $w \geq w^*$ the fairness component of the worker’s ‘fair utility function’ will induce him to maximize the total surplus $ve - c(e)$ (utilitarian altruism) and/or the surplus of the worst-off (‘Rawlsian’ altruism) who will be the employer as soon as the wage is sufficiently high (i.e: $w \geq \hat{w}$ with $\hat{w} = (ve + c(e))/2$). In other words, for sufficiently high wages, the pursuit of utilitarian altruism and/or Rawlsian altruism induces the worker to raise his effort level. Note that the optimal effort level of fairness-concerned workers will be increasing with the wage level offered by the employer as soon as the worker’s fair utility function is concave. As a conclusion, the equilibrium wage level induced by the presence of fairness-concerned workers should be higher than the market clearing level predicted by the *homo oeconomicus* postulate.

Experimental results Experimental results obtained from 276 binding contracts by Fehr et al. (1993) clearly support the ‘fair’ wage-effort hypothesis. The average wage level is 2.4 times higher than the market-clearing level, while 84% of the binding contracts are characterized by effort level strictly greater than \underline{e} . To better account for the relationship between effort and wage, Fehr et al. (1993) regress the effort level on the wage level by also controlling for individual dummies. The coefficient of the wage variable is positive and significant at the 1% level. However, the hypothesis that the coefficients of the individual dummies are equal is rejected. This betrays an important heterogeneity across individuals in their way of defining the fair benchmark wage level w^* . In a questionnaire submitted to the subjects at the end of the experiment to understand the motives behind wage offers and effort level, most employers answered that they tried to get a high effort from their worker by offering a relatively high price. Similarly, 29 over 35 workers answered that their effort decision was dependent on the wage they received.

Subsequent experimental games confirmed these results (see Fehr and Falk (2007) for an extensive discussion). For instance, Fehr et al. (1998a) transpose the one sided auction context from a labour market to a commodity market where sellers have the opportunity to choose the quality levels which are above the levels enforceable by the buyers. Here again, results show that many sellers behave like desert-sensitive altruists. The ‘fair’ wage-effort hypothesis also holds on labour markets organized according to a bilateral bargaining²² procedure (see Fehr et al. (1998b) and according to the double auction procedure (see Fehr and Falk (1999)). This latter result is a strong one since it appears that while workers’ underbidding is very frequent, employers refuse to accept workers’ low wage offers in markets with incomplete labor contracts (they do accept in markets with complete labor contracts) for fear of too low effort levels.

²²In this setting, there is no competition among workers or firms. Instead, firms and workers are exogenously matched.

3.2.2 Naturally occurring field experiments

Are these results extendable to behaviors in the field?

Impact of norms and stakes The two first obstacles to an extension of conclusions derived from laboratory behaviors to real-life behaviors are the kind of norms (those of profit-making) that prevail on real-life markets as well as the value of the monetary stakes they involve.

List (2006) compares results obtained from gift exchange games conducted in a laboratory setting and from gift exchange games conducted in a naturally occurring context. He concentrates on sport card markets which organise the trading of cards depicting sport players and events both from the current season and from past seasons. The value of a particular card depends on its scarcity, the player depicted, and the physical conditions of the card. The physical conditions of the cards are difficult to assess for untrained consumers, meaning that contracts on the sport card market are truly incomplete ones. However, there exists an industry offering grading services. Consumers can rely on it once they have bought their cards to have them graded.

In the laboratory setting, real consumers are placed in the role of buyers and real dealers are placed in the role of sellers. In the naturally occurring setting, fake consumers approach dealers who are unaware that they are taking part to an experiment. In the naturally occurring setting, fake consumers offer the dealer either \$20 or \$65 for a sport card of a given scarcity and depicting a given player. If the physical conditions of the card delivered by the buyers do not vary with the consumer's offer, this would mean that the dealer is self-interested and that he does not care about his reputation. If the physical conditions of the card delivered by the buyers increase with the consumer's offer, this would mean that the dealer is either fairness-concerned or self-interested and careful about his reputation.

In the gift-exchange game conducted in the laboratory setting, List (2006) finds results that are consistent with those of previous gift exchange games conducted among students. They highlight a positive relationship between the value of the consumer's offer and the quality of the physical characteristics of the card delivered by the dealer. In the naturally-occurring experiment however, List emphasizes a positive correlation between the price offered by the consumer and the physical quality of the card, but only among dealers who are local dealers (consequently likely to have future interaction with the buying agent). Among non local dealers, no such relationship emerges. List implements experimental refinements which clearly establish that this result does not derive from selection effects according to which local dealers would be fairness-concerned while non local dealers would be self-interested. He concludes that reputation effects, not concerns for fairness, impact the outcome on real life markets involving incomplete contracts. This finding suggests that the profit making norm on real life markets, but also the stakes involved, annihilate the possibility for

concerns for fairness to impact market aggregate outcome even when contracts are incomplete.

Impact of information A further obstacle to the extension of results obtained during gift-exchange games in a laboratory setting to real life environments consists in the poor information that individuals have on others' surplus in real life environments. In a laboratory setting, Charness et al. (2004) and Irlenbusch and Sliwka (2005) already show that laboratory gift exchange is considerably influenced by whether or not a comprehensive payoff table is made available to subjects. As soon as this information is lacking, workers are unable to identify the fair benchmark wage level and therefore to show desert-sensitive altruism.

Hennig-Schmidt et al. (2005) confirm this intuition in a naturally occurring field experiment. Their experiment is conducted among 103 students of the University of Bonn who must perform a real work task (typing the abstracts of research papers that were not yet available electronically into an internet database). None of the students is informed that he is actually participating in an experiment. Each subject has to work during two hours on two separate occasions of one hour each. Typists are promised a flat fee of DM 10 (roughly 5 euros) for showing up plus an hourly wage of DM 20 for each hour of typing. For the first hour of work, the wage received by students is actually equal to DM 20. Before the second hour, typists in some groups are informed about an unexpected pay raise. More specifically, typists receive no pay raise in a first treatment. In a second treatment, typists receive a 10% pay raise.

Hennig-Schmidt et al. (2005) find no significant difference in the second treatment between the average output quantity (the number of correctly typed words) and the average output quality (the ratio of correctly typed words over total production) observed during the second hour and the average output quantity and quality observed during the first hour. They relate this finding to the fact that students are not given information about the relevant model parameters, and notably about the determinants of the employer's surplus to derive the fair benchmark wage level. To confirm this conjecture, they replicate the field experiment in a laboratory setting where they cross the previous two treatments with two new ones. In the first new treatment, the worker is given some information about the determinants of the employer's surplus, while he is not in the second new treatment. More specifically, students are informed about the opportunity cost of the employer (i.e: the cost he would endure in case of outsourcing the task), knowing that wage increases during the experiment yield to higher wage levels than this opportunity cost. Hennig-Schmidt et al. (2005) find out that wage increases between the two working periods in absence of information on the employer's surplus do not yield to a significant increase in output quantity and quality. Wage increases induce a significantly higher output quantity and quality only when subjects are informed about the employer's opportunity cost. These results support the idea that wage increases can be profitable as predicted by the 'fair' wage-effort hypothesis only in case workers are sufficiently

informed, a condition that is rarely met on real-life markets.

Impact of time Finally, even when concerns for fairness influence the outcome on naturally occurring markets with incomplete contracts, their influence is rapidly decreasing over time. Gneezy and List (2006) analyze the impact of suddenly rising the hourly wage of workers (unaware of participating to an experiment) they hired for a one time real job lasting six hours. They find out that participants in the treatment where the sudden wage rise occurs provide significantly higher effort in the first 90 minutes. However, effort levels become indistinguishable across this treatment and the baseline treatment (without wage rise) after 90 minutes. They even show that the gift treatment yield inferior aggregate outcomes so that, for the same budget constraint, more work output could have resulted with market clearing wages rather than with above market clearing wages. This suggests that wage policies that were considered as deserving with respect to a preexisting fair benchmark soon become a fair benchmark themselves. In other words, only punctual positive or negative shifts in a firm's human resources management seem likely to trigger off desert-sensitive altruistic answers on the part of employees. For instance, Krueger and Mas (2004) show that the contentious strike and the hiring of replacement workers at the Bridgestone/Firestone company branch in Illinois in the mid-1990s induced a significantly lower quality output on the part of workers. The monthly data used show that defects were particularly high when large numbers of replacement workers (whose presence was considered as unfair) and returning strikers worked side by side.

From what has been written, it seems that the existence of wages on real life labor markets which do not clear the market and generate involuntary unemployment are less accountable by the 'fair' wage-effort theory than by the efficiency wage theory.

As a conclusion, evidence from laboratory setting experiments and from naturally-occurring field experiments suggest that individuals' concerns for fairness have no impact on the aggregate outcome in real life markets. Would politics be a more promising field for application of economic models of fairness?

4 Fairness in the political field

We investigate whether concerns for fairness are likely to influence one of the central actions studied by the New Political Economy in a democratic political field: voting over the (re)distribution of economic surpluses. So far, the New Political Economy has been based on Downs' postulate of *homo politicus* (1957 [1985]) who is the clone of *homo oeconomicus* in the political field (i.e: a rational agent motivated by the maximisation of his short term material self-interest). Goodin and Roberts (1975) were the first to propose an alternative to the *homo politicus* by introducing the notion of 'ethical voter'. The 'ethical voter' describes a rational agent who is not only motivated by the maximisation of his

short term material self-interest but also by the promotion of what he considers as fair for the society as a whole.

We analyze in the following whether voters can be described as the union between Downs' *homo politicus* and Goodin and Roberts' *homo ethicus*. We start investigating this issue by presenting some preliminary insights.

4.1 Preliminary insights

Politics present characteristics that are far more favorable to the emergence of concerns for fairness than characteristics prevailing on the economic field.

4.1.1 Norms

Wilson and Banfield (1971) emphasize that, in countries showing a long democratic tradition (typically Western democracies), children are socialized to a civic norm that encourages to vote in a way consistent with the community's general interest rather than with their own self-interest.

The strong impact of the civic norm on individuals' decision to go to the poll is already clearly established. More precisely, the rational model of voters' turnout developed by Downs (1957) states that a voter goes to the poll if the expected benefits of voting exceed costs. In other words, an individual goes to the poll if $V = PB - C > 0$ where V denotes the net expected utility of voting, B stands for the benefit of voting for a specific candidate, P depicts the probability of being pivotal, and C refers to the cost of voting. It is well-known however that the probability of being pivotal is lower than the chance of being killed on the way to the polls as soon as the turnout is large (see Owen and Grofman (1984), Gelman et al. (1998) or Mulligan and Hunter (2003)). Under this setting, any strictly positive cost C makes voting an unprofitable action. Yet, many individuals decide to go to the poll. This inconsistency between theory and real world turnout rates is known as the 'paradox of voting' (see Geys (2006) for a survey of the various attempts to solve the riddle). Riker and Ordeshook (1968) therefore reformulate the original Downs' equation into $V = PB - C + D > 0$ where D , called the 'sense of duty', stands for the warm-glow benefit that one derives when doing one's civic duty by going to the poll (see Margolis (1984) for a discussion).

Blais (2000) proposes the first econometric attempt to identify this equation based on questionnaires submitted to various samples of Canadian citizens²³. The dependent variable captures either whether the respondent intends to go to the poll or whether he did go to the poll. The crucial dependent variables are the respondent's assessment of the value of the B , the P , the C and the

²³The first questionnaire was conducted among 989 students from the University of Montreal and the University of Western Ontario during the 1993 federal elections. The second questionnaire was conducted over the general population during 1995 Quebec referendum campaign on sovereignty (N=1004). The third questionnaire was conducted over the general population during the 1996 British Columbia provincial elections (N=804).

D parameters. More particularly, the respondent's sense of duty derives from three questions: whether the respondent thinks it is the duty of every citizen to vote, whether it is essential to vote to preserve democracy, and whether the respondent would feel guilty if he had not voted. Descriptive statistics show that an overwhelming majority of respondents consider voting as a duty (84%, 99% and 92% in the first, second and third questionnaire respectively). Besides, regression results show that the impact of the sense of duty on citizens' decision to vote is the strongest of all dependent variables. Based on these results, Blais conduct simulations to predict the election turnout in case people wouldn't consider that it is a duty to vote. He computes that the turnout would have been depressed by 46 points during the 1993 federal elections (actual turnout of 69.6%), by 47 points (actual turnout of 93.5%) during the Quebec referendum, and by 30 points during the British Columbia elections (actual turnout of 58.8%). In other words, about one elector out of two or three voted because of sense of duty during these elections.

Based on the empirical evidence that civic duty plays a strong role in individuals' decision to go to the poll, it is tempting to claim that there is no reason why citizens shouldn't go on giving in to their concerns for fairness once they are in the booth.

4.1.2 Stakes

Goodin and Roberts (1975) stress that, since the probability of being pivotal is close to zero, voters may be indifferent between abiding by their self-interest and abiding by their concerns for fairness. In both cases, their expected benefit converges to zero. Under such circumstances, following Hume (1739), voters should be able to follow the requirements of Smith's *impartial spectator* (1790) and show benevolence towards their fellow citizens precisely because their own interests are not directly at stake. More precisely, as pivot probabilities decrease, the temptation for individuals to express their concerns for fairness may become stronger than the temptation to vote egoistically as soon as they draw a 'warm-glow' payoff from complying with their concerns for fairness.

Eichenberger and Oberholzer-Gee (1998) provide experimental evidence that dictators in a dictator game are significantly more generous when their offer is enforced in case it is pivotal in a majority voting procedure than when their offer is enforced with certainty. Feddersen et al. (2007) further confirm these results at both a theoretical and experimental level. They highlight that, when the probability of being pivotal is close to 0, only individuals who receive a warm-glow payoff from taking an action they believe to be ethical actually go to the poll and vote ethically once in the booth. In other words, large elections are likely to show what Feddersen et al. (2007) call a 'moral bias' to the extent that citizens who actually go to the poll are the fairness-concerned ones.

Blais (2000) provides empirical support to this last assertion. His econometric results point out that Downs' rational model of voters' turnout has a strong explanatory power only among individuals who have a weak sense of duty. Among

those who feel a strong moral obligation to vote, the coefficients of the B , P , and C variables are almost never significant across the various respondents' samples.

4.1.3 Information

Although they are not all identifiable by citizens, the most salient redistributive effects of political platforms defended by party candidates are usually clarified during election campaigns. Most citizens should therefore be sufficiently informed to be able to follow their concerns for fairness rather than their self-interest if they want to.

Note that fair voting behavior could merely derive from citizens' expectation of future positive reciprocations by their fellow citizens since voting is a repeated game. As emphasized by Lewis (1992), rich people may well act according to 'Rawlsian' altruism so as to appease groups who might otherwise mobilize to pursue even greater redistribution schemes. Yet, two main arguments have emerged to counter this interpretation. First, as emphasized by Buchanan and Congleton (1998), the frequency of polls is relatively low which is favorable to myopic voting behaviors. Second, the threat of future retaliation on the part of potentially discriminated groups of interest lacks credibility due to the difficulty for efficient collective action to emerge (see Olson (1971) for a detailed analysis). As an illustration, Elster (1990) writes: 'Some forms of income redistribution are perhaps in the interest of the rich. If they don't give to the poor, the poor might kill them. But nobody was ever killed by a quadriplegic'.

Following Downs (1957), the New Political Economy considers voting behavior as the result of a rational calculus. In other words, voters choose the political platform that offers them the highest expected utility. Downs distinguishes between two types of rational voting: 'retrospective voting' and 'spatial voting'. For both types, we analyse whether concerns for fairness have a significant impact on citizens' behaviors.

4.2 Retrospective voting

Downs describes retrospective voting as a non sophisticated cognitive way for voters to behave as rational voters. More specifically, retrospective voting consists in making a choice between the incumbent party and its challenger by evaluating retrospectively the incumbents' performance. In case this evaluation is positive, the rational voter will be tempted to reward the incumbent by voting for him. Otherwise, he will be tempted to punish him by abstaining, voting blank, or voting for the challenger. Given that voters have generally much more information on the incumbent than on the challenger, retrospective voting is seen as an informational shortcut. In the following, we analyze whether concerns for fairness play a role in the retrospective evaluation of the incumbent by the voter.

4.2.1 Studies based on aggregate data

Kramer (1971) was the first to test whether election outcomes are responsive to objective changes occurring under the incumbent party. He analyses the impact of variations in specific economic indicators on the aggregate congressional vote. Kramer's dependent variable is the Republican share of the congressional vote between 1896 and 1964. Independent variables include employment, per capita real income, per capita monetary income and the consumer price index. Kramer finds out that retrospective voting is at stake. More precisely, he shows that variations in per capita income has a significant impact on the aggregate vote, but employment and inflation appear to have little or no influence. Kramer interprets this finding as supportive of the fact that individuals' retrospective voting is self-interested.

Kramer's research has triggered off a lot of studies which were all based on aggregate analysis. Many of them dispute the fact that retrospective voting is self-interested. For instance, Stigler (1973) shows that Kramer's results are sensitive to minor changes such as the time period covered (1902-1970 vs. 1896-1964). In the new regressions that he derives, he finds out that unemployment and/or real price level have a significant impact on the congressional vote. Arcelus and Meltzer (1975) emphasize that inflation has a significant influence on congressional vote between 1896 and 1970. Lepper (1974) provides evidence that both unemployment and inflation impact significantly congressional vote.

These new findings induced researchers in political science to depart from the 'pocketbook voting' assumption and support the 'sociotropic voting' assumption instead. The term 'sociotropic' was introduced by Meehl (1977). His definition of 'sociotropic voting' is close to Goodin and Roberts' 'ethical voting' (1975). It consists in 'taking some account of other persons' interests or of collective interest'. In this setting, the fact that voters make their vote depend non only on the changes in their personal income but also on the evolution of economic plagues which affect collective interest (unemployment and/or inflation) may betray some concerns for fairness. However, aggregate studies do not allow to derive definitive conclusions about whether retrospective voting is self-interested or sociotropic. Starting from Fiorina (1978), studies on retrospective voting therefore concentrated on individual survey data.

4.2.2 Studies based on individual data

Using election survey data covering the period 1956-1974, Fiorina (1978) analyzes the impact of a perceived change in individuals' personal economic situation on their probability to vote for the incumbent rather than for the opposition party, by controlling for other economic variables like the perceived inflation and the assessment of whether government economic policy was fair and whether it was good. Focussing on these latter variables enables to determine how national changes in economic situation influence individuals' vote, besides changes in personal economic situation. Fiorina finds out that the probability of voting for the incumbent during 1972 presidential elections depends significantly

on the individual personal income, but also on the perceived inflation and on the individual's assessment of the government economic policy. Fiorina therefore provides evidence that pocketbook voting and apparently sociotropic voting coexist.

Further studies confirmed these findings. For instance, Kinder and Kiewiet (1979 and 1981) find out that voting in US congressional elections from 1956 to 1976 was hardly influenced by personal economic grievances, such as negative financial circumstances or recent experiences of unemployment. On the contrary, congressional voting significantly derives from judgements of a collective kind, such as assessment of general business conditions and of the competence of the two major parties to manage national economic problems. Note that Kinder and Kiewiet find no influence of personal economic grievances on partisan identification. In other words, pocketbook interests do not impinge indirectly on individuals' vote through their partisan identification. Besides, they find no evidence that ratings of government performance and evaluations of party competence depend on partisan loyalty. Sociotropic motivations therefore constitute an important independent determinant of individuals' vote. Extending the analysis to four Western European countries (Britain, France, Germany and Italy), Lewis-Beck (1986) confirm the statistically significant strong effect of sociotropic evaluations and the nonexistent to weak effect of pocketbook evaluations. The assumption that citizens vote more according to the country's pocketbook than according to their own pocketbook therefore seems well established.

However, it is debatable to make sociotropic retrospective voting equivalent to ethical voting. Sociotropic retrospective voting may well proceed out of altruistic concern for the well-being of the community as a whole. But it may also be purely self-interested. Indeed, sociotropic voters may use information about the national economic condition as a superior indicator of the incumbent's ability to potentially promote their own economic welfare.

4.2.3 Evidence of 'truly' fair sociotropic voting

The research conducted by Mutz and Mondak (1997) constitutes a fruitful attempt to conclude whether concerns for fairness actually motivate individuals' retrospective voting. They investigate whether voters are substantially more likely to vote for the incumbent if they feel that class groups have enjoyed similar rather than dissimilar changes in economic performance. In other words, they want to know whether individuals are 'fair sociotropic' or ethical retrospective voters, where they define sociotropic fairness as 'people's concern with whether economic gains and losses have been distributed equitably among the nation's many groups'. Mutz and Mondak (1997) use data drawn from the 1984 South Bend Study (SBS). This survey includes items measuring a great diversity of economic perceptions. Respondents are asked the familiar question concerning retrospective perceptions about the family's financial situation ('In general, would you say that you and your family are better off, worse off, or about the same financially compared with a year ago?'), and the correspond-

ing sociotropic item concerning national-level economic perceptions ('Now let's talk about the country as a whole. Would you say that most families in the country are better off, worse off, or about the same financially compared with a year ago?'). Whereas most surveys ask only these questions, the SBS includes several additional items of the same format focussing on various intermediary groups (questions about perceptions of economic change among women, blacks, Hispanics, poor people, working men and women, the middle class, and the well-to-do).

When running the traditional logit analysis with the independent variables (perception of the family and nation well-being) once controlling for the individuals' ideology (liberal/conservative) and partisanship (democrat/republican), Mutz and Mondak (1997) get the usual result according to which perceptions of the nation well-being exert a more significant influence on the probability of re-electing the incumbent than the perceptions of the family well-being do. When adding the seven group-based perceptions, they find out that the family and the nation coefficients do not drop off substantially in size. This suggests that most of the content conveyed by group-level perceptions is unique to them and not redundant with national or family-based judgments. More precisely, they find that perceptions regarding three groups (the blacks, the poor, and the well-to-do) appear to affect the presidential elections. The Black and poor coefficients are positive and significant. The coefficient of the well-to-do variable is however negative.

Mutz and Mondak then test a variety of hypothesis that could explain the impact of group-based economic evaluations on individuals' probability to vote for the incumbent, among which the 'fair sociotropic voting' hypothesis. They find empirical support to this hypothesis only. More specifically, they construe a 'perceived inequality' variable. This variable stands for the standard deviation in the perception of the respondent about the evolution in well-being of the four class groups (poor people, working men and women, the middle class, and the well-to-do). When the authors include the 'perceived inequality' variable in the previous logit regression, they observe that its negative coefficient is strongly significant and has a large size, while the coefficients of family, nation and blacks stay significant. The existence of an ethical retrospective voting therefore seems established.

4.3 Spatial voting

Downs' spatial theory of voting states that citizens vote for the party or candidate who is the closest to them on issues important in the campaign.

Political scientists refer to the various motivations that, besides self-interest, can influence citizens' feelings of issue proximity as 'symbolic politics' (see Sears and Funk (1990) for a survey). Symbolic politics describe a set of values that people acquire in early life. Sears et al. (1980) invite to capture symbolic politics through two main dimensions. The first dimension is the individual's

political ideology that indicates his position on a liberalism/conservatism scale. The second one is the individual's degree of ethnic/racial prejudice towards individuals from other ethnic/racial groups.

Two intuitions that will be further developed can already be sketched. First, among symbolic politics, political ideology is expected to play the major role alongside self-interest in individuals' voting behavior in Western democracies. Western political parties are indeed officially divided along income-based lines which translate through the liberalism/conservatism opposition. Yet, conflicts of interest opposing different ethnic groups turn out to have an impact on the political equilibrium in Western democracies, by notably influencing citizen's position on the liberalism/conservatism scale itself. Second, the individual's position on the liberalism/conservatism scale, when free of any ethnic prejudice, may not only reflect his self-interest but also his various concerns for fairness ('Rawlsian' altruism, utilitarian altruism, and desert-sensitivity).

To determine whether ethical spatial voting exists, we first analyse whether the impact of political ideology on individuals' political behaviors is significant even when controlling for self-interest. We then complete this analysis by investigating how ethnic prejudice in Western democracies modify individuals' concerns for fairness (through political ideology) and their subsequent voting behavior.

4.3.1 The impact of political ideology...

We first investigate how citizens' position on the liberalism/conservatism scale could be interpreted as an illustration of their various concerns for fairness. We then review whether political ideology has a significant influence alongside self-interest on citizens' self-reported political preferences. We finally test whether this influence does persist when one concentrates on individuals' actual voting behavior.

The liberalism/conservatism scale: an illustration of individuals' concerns for fairness? Both liberalism and conservatism seem to focus on the 'optimal' way of (re)distributing economic surpluses. This 'optimal' redistribution process could be described as the one that would allow the highest possible global economic surpluses together with the highest possible income for the worst-off in the long-run.

A first difference between liberal ideology and conservative ideology would consist in the priority they give to each of these objectives in the short-run. In this setting, one could argue that liberalism rather concentrates in the short-run on the increase of the well-being of the worst off. Conversely, conservatism rather concentrates in the short-run on the increase of global economic surpluses through the economic empowering of the highly productive individuals. A second difference between liberal ideology and conservative ideology would consist in where these ideologies locate the responsibility cut. Conservatism usually holds people responsible for a larger set of factors than liberalism. In

other words, conservative individuals are more tempted to consider poor people responsible for their low income than liberal individuals are.

The position of individuals on the liberalism/conservatism scale may therefore help summarize their various concerns for fairness. More specifically, moving from liberalism to conservatism would mean, first, that the weight given to utilitarian altruism rather than to ‘Rawlsian’ altruism is increasing, and, second, that an increasing number of individual characteristics fall within the set of responsibility characteristics (i.e: the fair benchmark that is used for the computation of individuals’ deservingness becomes more restrictive).

The influence of concerns for fairness on self-reported political preferences In a market economy where personal income tends to be correlated with personal productivity, liberalism (resp. conservatism) looks consistent with the short-term material interest of the poor (resp. rich). Yet, a poor (resp. rich) may promote liberal (resp. conservative) politics not because they maximize his short-term material interest, but because he believes that liberalism (resp. conservatism) is the way for the society to reach the fairest outcome in the long run. Do the various concerns for fairness reviewed so far and possibly captured by the liberalism/conservatism actually have a significant influence on individuals’ political preferences?

Fong (2001) shows, using data from the 1998 Gallup Poll Social Audit Survey, that those among the rich people²⁴ (N=332) who believe that ‘US is a society of have-nots’ are significantly more likely (at a 1% level) to support redistribution than those who do not share this belief. This result may illustrate ‘Rawlsian’ altruism. Similarly, Alesina and La Ferrara (2005) show, using data from the General Social Survey over the 1978-1991 period, that believing that ‘helping others is the most important value to be taught to children’ significantly increases (at a 5% level) the support of respondents (N=6,217) to redistribution.

As far as we know, no research has yet investigated whether utilitarian altruism exerts a significant influence on citizens’ self-reported political preferences.

As for desert-sensitivity, Fong (2001) shows that believing that effort (luck) is the main driver of individuals’ income significantly decreases (increases) at a 1% level citizens’ support (N=2,738) to redistribution programs. Using data from the 1992 ISSP (International Social Survey Programme) survey, Corneo and Grüner (2002) find that the belief that ‘hard work is key’ significantly decreases (at a 1% level) individuals’ willingness to support redistribution (N=7,272). Alesina and La Ferrara (2005) find out exactly similar results from the US General Social Survey. In other words, as soon as one believes that poor people are not completely deserving, he tends to exclude them from his altruistic concerns and therefore to oppose redistribution. Does the significant impact of these various concerns for fairness persist when one concentrates on citizens’ actual voting behavior?

²⁴They earn an annual income of more than \$75,000 and have prospects of upward mobility.

The influence of concerns for fairness on actual voting behaviors In an experimental setting where individuals have a clear interest at stake, Tyran and Sausgruber (2006) provide evidence of individuals' voting behavior when there exists a tension between self-interest and 'Rawlsian' altruism. They find out that a strong majority (67.5%) of the 80 subjects show 'Rawlsian' altruism, against only 25% who strictly follow their self-interest (the behavior of the remaining 7.5% of subjects is consistent with none of these categories). Durante and Putterman (2007) emphasize individuals' utilitarian altruism in a redistribution experiment where subjects vote over a redistribution parameter (a basic income-flat tax schedule). They show that the higher the cost of redistributing in terms of global surplus, the lower individuals' demand for redistribution, should they be net beneficiaries of or net contributors to the redistribution process. Finally, results from experimental voting over a redistribution parameter conducted by Durante and Putterman (2007), Easerey et al. (2007), and Harmsen (2007) suggest that individuals are desert-sensitive altruistic voters. They oppose (support) redistribution when incomes mainly derive from responsibility characteristics (luck).

Does political ideology that possibly summarizes the various concerns for fairness reviewed so far play a significant role in real life voting behaviors? Sears et al. (1980) use the 1976 Current Population Survey that was conducted among 2,403 respondents before and after the 1976 American presidential elections. They evaluate the relative impact of short-term self-interest and long-standing symbolic attitudes on individuals' support towards employment (i.e: whether they consider that the federal government should guarantee everyone a job and a good standard of living). Citizens' short-term material interest is captured by information covering notably whether they were unemployed or hurt by recession at the time when the survey was conducted. Symbolic politics are captured through the respondent's political ideology (his position on a liberalism/conservatism scale) and party identification (his position on a democrat/republican scale). Sociodemographics encompass gender, age, education, income and race. Note that at least two of these sociodemographic variables (income and education) can be used as proxies for the respondent's self-interest. Regarding income for instance, richer (resp. poorer) individuals are likely to be net contributors (resp. beneficiaries) to (resp. of) government's employment policies.

Regression results show that variables capturing individuals' short-term material self-interest have almost no significant impact on individuals' support to government's employment policies. On the other hand, most of sociodemographic variables (among which income and education) are strongly significant determinants of this support. The most striking result consists in that, even when controlling for these various proxies for self-interest, symbolic politics (and notably political ideology) remain strongly significant predictors of individuals' attitudes towards employment policies. Controlling for all the previous variables, Sears et al. (1980) then provide evidence that individuals' attitudes towards employment policies were an important determinant of their actual

voting behavior during the 1976 presidential elections. This result suggests that concerns for fairness (captured through political ideology) do have a significant impact on individuals' vote alongside self-interest.

Western democracies are characterized by a long history of economic development and modernization which favored the supremacy of cleavages based on income classes over ethnic cleavages should they be racial, religious, linguistic...etc. However, this does not mean that ethnic cleavages do not influence the political equilibrium in Western democracies.

A first evidence that ethnic prejudice actually exerts a strong influence is provided by Lijphart (1979). He concentrates on three Western countries where political parties are not only divided along income classes, but also along religious, and linguistic dimensions: Belgium, Canada, Switzerland. More specifically, political parties in these countries are categorized into left-wing parties and right-wing parties regarding the income cleavages, into protestant and catholic parties and into secular and religious parties regarding the religious cleavages, and into parties standing for the linguistic minority and parties standing for the linguistic majority regarding the linguistic cleavages. Lijphart (1979) finds out that religious and linguistic cleavages have a much stronger impact on individuals' vote than income cleavages, therefore supporting the intuition of Sartori (1969) who writes: 'class is the major determinant of voting behaviors only if no other cleavage happens to be present'²⁵.

It therefore seems important to consider how ethnic prejudice influences individuals' concerns for fairness (captured through their position on a liberalism/conservatism scale) in Western countries where political parties are essentially divided along income-based lines.

4.3.2 ... and of ethnic prejudice

In the following, we particularly concentrate on the impact of racial cleavages (whites vs. blacks) on American politics. We first present what lies behind the notion of 'ethnic prejudice'. We then investigate how ethnic prejudice influences citizens' attitudes and vote towards redistributive issues should they be strongly racially-connoted or weakly racially-connoted.

What lies behind ethnic prejudice In the early 80s, literature in political science has shown that old-fashioned racism standing for the belief in the innate inferiority of black people has declined to the benefit of 'modern' or 'symbolic' racism (see McConahay et al. (1981) for a discussion). The term 'symbolic' is used to emphasize that racial prejudice is rooted in 'abstract ideological symbols' conveying the feeling that 'blacks are violating cherished values and making illegitimate demands for changes in the racial *statu quo*' (see McCohanay and Hough (1976)). In other words, symbolic racists consider that racism is a

²⁵Lancaster and Lewis-Beck (1989) and Gidengil et al. (1999) provide further evidence of the strong influence of regional loyalty on voting behavior in Spain and in Canada respectively.

thing of the past and that blacks do not consequently *deserve* affirmative action policies.

This definition suggests that ethnic prejudice would modify the fair component of the ‘fair utility function’ of white voters by introducing prejudiced weights of undeservingness assigned to the utility functions of black citizens. This interpretation is backed by research in social psychology. Social psychologists have indeed documented perception biases in which poor outcomes of ‘in-group’ members (whites in our setting) tend to be attributed to bad luck but poor outcomes of ‘out-group’ members (blacks in our setting) tend to be attributed to responsibility characteristics of those out-group members. This would explain why one considers people from one’s group (resp. other groups) as more deserving (resp. undeserving); see Brown (1986) and Brewer and Miller (1996) for a discussion.

In the following, we investigate whether this assumption is actually supported by empirical evidence on individuals’ political attitudes and vote. More precisely, given that there are more poor among blacks than among whites, we analyse whether racial prejudice in United States make white people more conservative and therefore less supportive to redistribution policies from rich people to poor.

The impact of ethnic prejudice on strongly racially-connoted redistributive issues Sears et al. (1980) analyse the opinion of American white citizens on school busing (see also Sears et al. (1979) and Kinder and Sears (1981)). School busing, along with affirmative action programs was the natural legatee of the civil rights struggles of the 1950s and 1960s. It consisted for school boards in taking children out of their closest neighborhood schools and sending them by bus to other schools farther away. More than creating socially mixed schools, the prior intent of school busing was to create racially mixed schools. During the 1970s, the mass white public has been strongly opposed to busing. National surveys done during that time have typically found only about 15% of the white public supporting busing as a solution to the problem of desegregating schools. Sears et al. (1980) investigate whether this anti-busing feeling is mainly driven by self-interest or by symbolic politics. One might expect a strong self-interest effect in anti-busing sentiment since it may be perceived as a direct threat to whites’ private lives: lower school quality, the inconvenience of having one’s children not attend neighborhood schools, physical dangers and disruptions in schools, loss of freedom (hence ‘forced busing’), disrupted social relationships among children...etc.

Sears et al. (1980) capture the short-term material self-interest of respondents through four items: 1. having a child in public school; 2. not having child who already rides a bus to school; 3. living in area with busing happening or rumored; 4. living in an all-white neighborhood. Variables standing for symbolic politics consist in the position of the respondent on a liberalism/conservatism scale and in his racial prejudice²⁶. Sociodemographic variables include the respondent’s

²⁶Racial prejudice is notably captured through ‘whether or not civil rights people are pushing

gender, age, education, income, and region (South vs other regions). Here again, income can be used as an additional proxy for the respondent's self-interest since the added expense of busing engenders higher taxes for rich people.

Sears et al. (1980) first show that none of the variables capturing individuals' short-term material self-interest has a significant impact on their attitude towards busing. Among the sociodemographic variables, the income variable has a strongly significant coefficient confirming that rich people are more averse to busing than poor people. Regarding symbolic politics, both the individuals' position on a liberalism/conservatism scale and his racial prejudice have a strongly significant coefficient. Controlling for all these variables, Sears et al. (1980) then show that individuals' opinion towards busing significantly influenced their actual vote during the 1976 presidential elections. This finding comes as a confirmation of evidence provided by Sears et al. (1979) who show that busing issue was one of the main determinants of citizens' vote during the 1972 Nixon/McGovern presidential elections²⁷. These findings suggest that poor white people who would potentially gain from busing oppose busing because they do not want 'undeserving' fellow black poor individuals to gain from this policy.

Similar findings have been provided by Tedin (1994) and Button (1993) regarding individuals' political attitudes and votes towards the financial equalization of public schools. In the 1980s, this issue intended to address the fact that districts with low property values were often taxing at high rates, but still generated so few dollars that per pupil expenditures ranked near the bottom statewide. Financial equalization therefore recommends that dollars flow from the wealthier school districts to the poorer ones. Although this transfer is mainly from rich to poor people, it has first and foremost be perceived by white voters as a transfer from white to black people (the wealthiest (resp. poorest) school districts indeed tend to be predominately white (resp. minority)).

Tedin (1994) analyzes the support of 1032 individuals to financial equalization, among which 484 live in a district that will be a net contributor if financial equalization is implemented, and among which 548 live in a district that will be a net beneficiary. He shows that traditional measures of symbolic politics, among which racial prejudice, play a significant role alongside direct self-interest²⁸. Here again, this result suggests that individuals who yet belong to the district who will gain reduce their support to financial equalization because of racial prejudice.

Button (1993) provides evidence that attitudes towards financial equalization translates through individuals' actual voting. Based on aggregate voting data during various referenda on the funding of public schools in Florida, he provides

too fast'.

²⁷These elections were won in a landslide by Nixon who, by far, was the more anti-busing candidate.

²⁸Direct self-interest is captured through two variables: 1. whether the respondent belongs to the district which will loose or win; 2. whether the respondent has children in the public schools.

further evidence that racial cleavages rather than income-based cleavages are the main determinants in explaining how individuals vote towards this racially-connoted redistributive issue. Are such findings extendable to voting behaviors towards less racially-connoted redistributive issues?

The impact of ethnic prejudice on weakly racially-connoted redistributive issues Using self-reported attitudes from the General Social Survey over the 1973-1994 period, Luttmer (2001) highlights the importance of race, besides variables capturing individuals' self-interest (mainly captured through 'income') in explaining individuals' support to general redistributive policies from rich to poor. More specifically, he shows that 'racial group loyalty' significantly induces nonblack respondents to reduce their support for welfare when an additional black welfare recipient emerges in his tract, while this additional black welfare recipient has little effect on the support for welfare of black respondents (and conversely). This finding echoes other works (see for instance Bobo and Kluegel (1993), Welch and Foster (1994), Gilens (1996), Weakliem (1997), and Lopez and Pantoja (2004) for empirical evidence; see also Klor and Shayo (2007) for a striking experimental evidence).

Luttmer (2001) emphasizes that the impact of 'racial group loyalty' translates through individuals' actual vote. He shows that over 30% of the variation in levels of welfare benefits across American states can be explained by applying his estimates of interpersonal preferences to the differences in the demographic composition of states. In other words, racial cleavages have a clear impact on the size of general (apparently weakly racially connoted) redistributive policies.

This finding has been confirmed and extended by Roemer et al. (2007). They assess the impact of the decrease in size of the public sector in United States that occurs because many voters believe that the poor ethnic minority is undeserving (they call this effect the 'Anti-Solidarity Effect' (ASE)).

They find out that the marginal income tax rate would have been above 40% should racial prejudice have been absent from individuals' vote. Racial prejudice could therefore help explain why, while the past twenty-five years were characterized by a sharply rising inequality in United States, the effective marginal tax rate has fallen.

Note that in more ethnically homogenous Western democracies, racial prejudice also influences the size of the welfare state through ethnic prejudice towards poor migrants. In that case, the ASE is accompanied by a 'Policy Bundle Effect' (PBE). Indeed, contrary to the United States where the Republican party does not officially defend policies against ethnic minority, right wing parties have a clear anti-immigration policy in Western democracies. In this setting, citizens vote over a two-dimensional policy space where the first issue is the redistributive parameter (tax rate), and the second issue is the immigration policy. The PBE captures the fact that a poor racist voter who would benefit from a larger public sector but who abhors the position of the left-wing party on the immigration issue may vote for the right wing party because of its position on the immigration

issue. In other words, besides the ASE, support to welfare spending in Western democracies can be further decreased due to the switch of a sufficiently large number of poor anti-immigration voters from left-wing party affiliation to right-wing party affiliation.

5 Concluding remarks

Starting from the observation that concerns for fairness are important determinants of individual behaviors, we wonder whether economic theory should complete the postulate of *homo oeconomicus* with the postulate of *homo ethicus*. To tackle this issue, we first identify some of the major concerns for fairness that individuals are able to show in a controlled laboratory setting. We find out that three main concerns for fairness are likely to influence individual behaviors besides self-interest: utilitarian altruism, ‘Rawlsian’ altruism and desert-sensitivity. Utilitarian altruism consists in maximizing the sum of all utilities. ‘Rawlsian’ altruism consists in maximizing the utility of the worst-off. Desert-sensitivity consists in weighting one’s concerns for fairness towards others, should they be utilitarian altruistic concerns or ‘Rawlsian’ altruistic concerns, depending on these others’ deservingness with respect to their responsibility characteristics.

We then investigate whether these concerns for fairness are likely to influence the aggregate outcome in the economic field. Due to the fairness inducing effect of experiments conducted in a controlled laboratory setting, we systematically back evidence of concerns for fairness drawn from laboratory market games by evidence drawn from naturally-occurring markets games. We concentrate on both markets involving complete contracts and incomplete contracts. For both types of markets, we find out that individuals’ concerns for fairness have no impact on their aggregate outcome.

We finally investigate whether these concerns for fairness are likely to influence the aggregate outcome in the political field. We focus on both Downs’ retrospective and spatial voting in Western democracies. We find out that concerns for fairness do have a significant impact on both types of vote besides self-interest. As for retrospective voting, concerns for fairness express through citizens’ concerns with whether economic gains and losses have been distributed equitably among the nation’s groups of interest. As for spatial voting, concerns for fairness (utilitarian altruism, ‘Rawlsian’ altruism, and desert-sensitivity) express through citizens’ position on a liberalism/conservatism scale. However, evidence shows that ethnic prejudice, an unambiguously unfair motivation, constitutes a serious challenger to individuals’ concerns for fairness, even in the Western democratic context where political parties are officially divided along income-based, not ethnic-based, lines.

Our findings therefore suggest that economic theory should pay more attention to the modelling of ethical voting behaviors to improve its explanatory and predictive power (see Snyder and Kramer (1988), Kranich (2001), Galasso (2003)

and Alesina and Angeletos (2005) for first attempts). We propose a provisional ‘fair utility function’ to model citizens’ trade-off between their self-interest and the three various concerns for fairness reviewed so far. Interestingly enough, the fair component of our ‘fair utility function’ capturing individuals’ various concerns for fairness can be seen as an illustration of their ideological position on a liberalism/conservatism scale. In other words, the ‘fair utility function’, by capturing the impact, besides self-interest, of individuals’ concerns for fairness also captures the impact of their political ideology. The ‘fair utility function’ could therefore help ‘enrich’ traditional probabilistic models of voting (see for instance Lindbeck and Weibull (1987)). These models essentially concentrate on political partisanship, not political ideology. In this setting, the utility function of a citizen is composed of a self-interested component and of an individual-specific parameter capturing his partisan bias towards a specific candidate, whatever the policy implemented by this candidate. In our framework, what matters is not whether the candidate is charismatic, but whether he will propose policies complying with citizens’ political ideology. A promising avenue for future research would consist in introducing, besides self-interest, both political ideology and political partisanship in voters’ utility function (see Dixit and Londregan (1998) for a first attempt).

It is obvious that our modelling of ethical voting behaviors is very preliminary and needs further developments to increase both its realism and its tractability. One future development would consist in introducing weights of undeservingness that are not only induced by the observation of others’ responsibility characteristics but also by ethnic prejudice. Another extension would consist in calibrating the various parameters entering the ‘fair utility function’, based on survey information collected in various Western democracies. This would allow to run simulations to compare, following Roemer et al. (2007), what the political equilibrium (if predictable) would have been would the intensity of some parameters be different. This calibration will of course imply to define identification strategies likely to control for endogeneity, notably between individuals’ preferences for redistribution and their symbolic politics. An increasing research has been devoted to isolating the impact of long standing cultural values on various economic and political dimensions (among which preferences for redistribution) which are in turn likely to modify cultural values (see Rice and Feldman (1997), Guiso et al. (2006), Fernandez (2007) and Algan and Cahuc (2007)). No doubt that these papers will constitute important sources of inspiration for our future research endeavors.

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Voting for redistribution under desert-sensitive altruism*

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Abstract

We endow individuals that differ in skill levels and tastes for working with altruistic preferences for redistribution in a voting model where a unidimensional redistributive parameter is chosen by majority voting in a direct democracy. When altruistic preferences are desert-sensitive, i.e. when there is a reluctance to redistribute from the hard-working to the lazy, we show that lower levels of redistribution emerge in political equilibrium. We provide empirical evidence, based on the ISSP 1992 dataset, that preferences for redistribution are not purely selfish and that desert-sensitive motivations play a significant role. We estimate that preferences for redistribution are significantly more desert-sensitive in the US than in Europe. We believe that differences in desert-sensitive preferences for redistribution help explain the different social contracts that prevail in both continents.

JEL Classification: D31, D63, D64, D72.

Keywords: altruism, voting, redistribution, desert, responsibility, compensation.

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1 Motivation

The United States and continental Western Europe ('Europe' henceforth) show considerable differences in their social contracts despite similar economic and political fundamentals. Government expenditures on subsidies and transfers as a percentage of GDP have been consistently lower in the US between 1970 and 1998 and the discrepancy between both continents has ever been increasing. At the same time, the US has a significantly higher pre-tax income inequality; see Alesina et al. (2001) for an extensive discussion.

The coexistence of high (resp. low) pre-tax income inequality and low (resp. high) levels of redistribution constitutes an interesting puzzle for economists. It seems to invalidate the theoretical predictions of Meltzer and Richard's seminal paper (1981) according to which —under realistic assumptions about the distribution of pre-tax income— higher income inequality makes the median voter benefit more from redistribution, leading to higher levels of redistribution in political equilibrium. Ever since, an increasing research has been devoted to identifying under which conditions politico-economic equilibria emerge where a low level of redistribution is chosen by rational agents in economies showing a high level of pre-tax income inequality.

Two groups of papers have triggered off particular attention among scholars. The first group focuses on the impact of upward income mobility. Benabou and Ok (2001) demonstrate how the 'Prospect of Upward Mobility' (the so called POUM effect) induces people with a low income to oppose redistribution, because they believe that they or their offspring will make it up the income ladder. Hence, low levels of redistribution are consistent with high pre-tax income inequalities as soon as the POUM effect is important. However, the upward income mobility argument to explain differences in social contracts between Europe and United States lacks empirical justification. Empirical conclusions of whether or not upward income mobility is higher in the United States than in Europe over the last 30 years have been very contradictory; we refer to Fields and Ok (1999) for an overview. The second group of papers focuses on the impact of individuals' beliefs on the relative importance of effort and luck in generating income inequalities, a research track initiated by Piketty (1995). This approach receives empirical support in turn. Alesina et al. (2001) demonstrate that beliefs on the determinants of pre-tax income inequalities are strongly correlated with levels of redistribution. They recall that, according to the World Value Survey, 71% of Americans vs. 40% of Europeans agree with the opinion that 'poor people could become rich if they just tried hard enough' and hence believe that effort is the main determinant of pre-tax income.

But through which channels are beliefs on the determinants of pre-tax income inequalities and redistribution levels mutually reinforcing? Benabou and Tirole (2006) start from an evidence widely acknowledged by psychologists that people need to believe in a just world —where hard work pays back and everyone receives their just desert in the long run— so as to motivate themselves and their children towards exerting effort. Two politico-economic equilibria emerge.

A high prevalence of just-world beliefs is consistent with low redistribution which increases the cost of low effort and therefore reinforces the need for just-world beliefs (this stands for the American equilibrium). Conversely, a low prevalence of just-world beliefs is consistent with high redistribution levels that reduce the cost of low effort and therefore makes the need for just beliefs less essential (this stands for the European equilibrium). Alesina and Angeletos (2005) concentrate on ethical motivations where voters' preferences are driven both by self-interest and a concern for fairness. They define this concern for fairness as 'a social preference for reducing the degree of inequality induced by luck and unworthy activities, while rewarding individual talent and effort'. Again, two politico-economic equilibria emerge. In a first (resp. second) equilibrium, redistribution is high (resp. low), which leads to a low (resp. high) labor supply. This in turn induces that a large component of income is due to luck (resp. effort), which ultimately makes high (resp. low) redistribution desirable for people concerned by fairness motivations.

The inclusion of fairness concerns in voters' preferences of Alesina and Angeletos (2005) is a promising track for future research that is backed by strong theoretical and empirical arguments. The concept of 'ethical voting' dates back to the seminal work of Goodin and Roberts (1975) who describe the 'ethical voter' as a rational agent who, contrary to Downs' *homo politicus* (1957), is not only motivated by self-interest but also by ethical concerns (what he considers as fair for the society as a whole) in his political choice.

On the theoretical side, three main arguments can be distinguished. The standard argument states that, if civic duty plays the major role in citizens' decision to go to the poll —see Blais (2000) for strong empirical evidence— then why should people not vote in an ethical way once in the booth. Second, Goodin and Roberts (1975) stress that, since the probability of being pivotal is close to zero, voters may be indifferent between giving in to their self-interest or abiding by their ethical concerns. In both cases, their expected benefit converges to zero. Under such circumstances, following Hume (1739), voters should be able to follow the requirements of Smith's *impartial spectator* (1790) and show benevolence towards his fellow citizens precisely because his own interests are not directly at stake. More precisely, as pivot probabilities decrease, the temptation to vote ethically may become stronger than the temptation to vote egoistically because voting ethically gives individuals an additional 'warm glow' payoff; we refer to Andreoni (2006) and Feddersen et al. (2007) for theoretical and experimental support. A third argument, proposed by Edlin et al. (2006), demonstrates that ethical voting enables to rationally explain why people massively go to the poll (without relying on the standard civic duty argument) since the expected benefit of voting may no longer converge to zero anymore when citizens do not only care about their own benefit but also about the sum of the benefits of all their fellow citizens.

On the empirical side, much evidence of ethical concerns has been given, irrespective of whether one considers Downs' retrospective or spatial theory of

voting (1957). Concerning retrospective voting, Fiorina (1978) points out that citizens' decision to vote for the incumbent depends less on the evolution of their personal economic situation during the incumbent's political mandate than on the economic evolution of the country as a whole. Kinder and Kiewiet (1981) and Lewis-Beck (1986) show that this assertion holds even when the country's economic evolution and the individual's economic evolution are not correlated, which betrays that ethical concerns are not a way to rationalize self-interest in an ethical manner. We refer to Lewin (1991) for a survey on ethical retrospective voting. Concerning spatial voting, Sears et al. (1980) show that the influence of ideology on citizens' votes is stronger than the impact of their short-term material self-interest. Here again, Hudson and Jones (1994, 2002) confirm that this assertion holds even when 'what is best for the society as a whole' (which drives ideology) and 'what is best for me' (which drives selfishness) are very different.

However, Alesina and Angeletos (2005) specifically model individuals' ethical preferences for redistribution as the difference between private utility and a common disutility generated by unfair social outcomes. Under the assumption that utility is quasi-linear in consumption, this common disutility is equal to the cross-population variance of the difference between actual consumption and fair consumption. Actual consumption is determined by the individual's skill, effort and luck and by the flat income tax of the government. Fair consumption equals the consumption level that would prevail in the absence of luck, *ceteris paribus*.

In this paper, we deviate from Alesina and Angeletos (2005) in two important ways.

First, Alesina and Angeletos (2005) assume that individuals share the conviction that one deserves the income on the basis of his skill and effort and that only luck creates unfair differences. We abstract from luck and assume that, more fundamentally, individuals believe that differences in skills are linked to a genetic endowment and hence create unfair differences in incomes beyond the control of the individual. In other words, we draw a different 'responsibility cut' (Dworkin, 1981), one that is more common in the theoretical literature on fair redistribution and the empirical literature on individual opinions on distributive justice; we refer to Fleurbaey and Maniquet (2006) and the references cited therein.

Second, and more importantly, we model altruistic preferences for redistribution more in line with results that explain ethical behavior in experimental allocation problems. Charness and Rabin (2002) provide strong experimental justification of 'social welfare' models —where people like to increase the social surplus (which we denote in this paper as a 'utilitarian motive'), caring especially about individuals with low payoffs (which we denote a 'Rawlsian motive')— over 'difference aversion' models (Fehr and Schmidt, 1999), where individuals are motivated to reduce differences between theirs and others' payoffs. Konow (2000) provides evidence that individuals do not only use utility

information in the evaluation of different social states but also care about the underlying sources that cause utility differences. Individuals tend to make a clear distinction between utility differences that are due to differences in characteristics within the responsibility of the individual (e.g. effort, preferences, tastes) and utility differences that are due to differences in characteristics beyond the responsibility of the individual (e.g. innate skills, talents, parental background). Individuals dislike these latter differences in general, whereas they are neutral towards the former differences. Konow performs several variations of the dictator game where the dictator decides about the division of joint earnings between an anonymous counterpart and himself. In the treatment where the joint earnings are exogenously given, the sharing rule chosen by dictators endorses the equal split of joint earnings. On the contrary, in the treatment where the joint earnings are proportional to the effort exerted by both individuals during a previous real task phase, dictators refuse to compensate their counterparts for their poor performance. Recently, Fong (2007) analyses donors' behavior in a charity game where beneficiaries are real life welfare recipients. She finds out that donors who yet claim to feel concerned about the well-being of others give significantly less than donors showing a lower degree of altruism as soon as they receive signals that their recipient may be lazy. In this paper, we assume that ethical preferences for redistribution are such that individuals no longer simply include all individuals (utilitarian motive) or the worst-off individual only (Rawlsian motive) in their altruistic concerns. We allow individuals to exclude others from their altruistic concerns when they feel that these others have performed poorly compared to themselves in terms of responsibility characteristics. We denote such altruistic preferences 'desert-sensitive' altruistic preferences, because this way of modelling ethical preferences for redistribution resembles with Arneson's (1999, 2000) normative 'desert-sensitive' prioritarian theory of distributive justice, which is based on the idea that individuals should obtain the level of well-being that they deserve in view of their responsibility characteristics. Broadly speaking, under desert-sensitive preferences for redistribution, hard-working individuals oppose redistribution from the hard-working to the lazy.

We argue that preferences for redistribution are more desert-sensitive among individuals in the US than among individuals in Europe. We see two apparent explanations (see Alesina et al. (2001) and Alesina and Glaeser (2004) for an extensive discussion). First, the myth of the US being the 'land of opportunity' greatly entrenched its customs. Meanwhile, European perceptions are influenced by the historical (from medieval times till the nineteenth century) division of society into classes, where birth and nobility were the main determinants of wealth and success. Second, the American belief of undeservingness of the poor may reflect racial prejudice against the black minority. Poor white voters might reduce their support for redistribution when they believe that poor black citizens also benefit from redistribution (see Luttmer (2001) for strong empirical evidence). Roemer et al. (2007) find out that marginal income taxes would have been much higher when racial prejudice would have been absent. They believe

that racial prejudice is the major underlying factor explaining why in the US, while the past twenty years were characterized by a sharp rise in inequality, the effective marginal income taxes have fallen.

The main contribution of this paper is twofold.

On a theoretical level, we study a simple voting model where a unidimensional redistributive parameter is chosen by majority voting in a direct democracy. We allow for heterogeneities in productivities and preferences for consumption and leisure and incorporate the incentive effects of taxation. We model individuals' altruistic preferences for redistribution as described by social welfare models; for an alternative approach, we refer to Tyran and Sausgruber (2006) who study voting for redistribution in a model where altruistic preferences are based on difference aversion models. We study four different scenarios of altruistic preferences for redistribution: we endow individuals with altruistic preferences that are either driven by a utilitarian motivation or by a Rawlsian motivation and altruistic preferences can be either desert-sensitive or not. We compare the different equilibrium levels of redistribution that emerge when individuals are endowed with these different altruistic preferences for redistribution. We show that in a society where altruistic preferences are desert-sensitive, (i) strictly lower levels of redistribution emerge in political equilibrium compared to a society where altruistic preferences are not desert-sensitive and (ii) lower or equal levels of redistribution emerge in political equilibrium compared to a society where preferences for redistribution are purely egoistic.

On an empirical level, using the ISSP 1992 dataset, we first provide evidence that preferences for redistribution are not purely egoistic. Second, we find that desert-sensitive motivations play a significant role in individuals' preferences for redistribution. Third, we estimate that preferences for redistribution are significantly more desert-sensitive among individuals in the US than among individuals in Europe. We therefore believe that differences in desert-sensitivity help explain the different social contracts that prevail between both continents.

The paper is organized as follows. Section 2 presents the model and introduces the different scenarios of altruistic preferences for redistribution. Section 3 compares the different equilibrium levels of redistribution that emerge under these different scenarios. Section 4 deals with desert-sensitivity in practice and justifies desert-sensitive altruistic preferences for redistribution empirically. Section 5 summarizes our major conclusions and highlights different avenues for future research. In Appendix A, we return to the theoretical analysis of Section 3 and study the impact of incomplete information on the equilibrium levels of redistribution when altruistic preferences for redistribution are utilitarian and desert-sensitive. Appendix B provides a detailed descriptive summary of the data used in Section 4.

2 The model

2.1 Individual characteristics

To keep our analysis simple, all individuals can only differ in two dimensions. The first dimension is their productive skill level w : individuals are either ‘*low-skilled*’ or ‘*high-skilled*’, i.e. $w \in W = \{\underline{w}, \bar{w}\}$, with $0 < \underline{w} < \bar{w} \leq 1$. The second dimension is their taste for working e : individuals are either ‘*lazy*’ or ‘*hard-working*’, i.e. $e \in E = \{\underline{e}, \bar{e}\}$, with $0 < \underline{e} < \bar{e} \leq 1$. Hence, every individual belongs to one of four types $(w, e) \in W \times E$. We assume throughout the paper that W and E are fixed and given. Crucial for the analysis is our assumption that the view of society is such that people believe that differences in w are linked to a genetic endowment and hence fall beyond the responsibility of the individual. On the other hand, people (may) hold individuals responsible for differences in the preference parameter e (cfr. infra). For the sake of simplicity, we assume that w and e are independently distributed. Denote p_{we} the proportion of individuals of type (w, e) ; $\sum_{(w,e) \in W \times E} p_{we} = 1$. Table 1 summarizes:

p_{we}	\underline{e}	\bar{e}	
\underline{w}	$\alpha\beta$	$(1 - \alpha)\beta$	β
\bar{w}	$(1 - \beta)\alpha$	$(1 - \alpha)(1 - \beta)$	$1 - \beta$
	α	$1 - \alpha$	1

Table 1: proportions of types.

where α and β belong to the open interval between 0 and 1 and denote the proportion of lazy individuals and the proportion of low-skilled individuals respectively. A generic economy is described by $\varepsilon = (\alpha, \beta)$.

2.2 Private preferences for consumption and leisure

The productive skill level defines gross income in the usual multiplicative way: for any type (w, e) , given an amount of labor $\ell_{we} \in [0, 1]$, gross income y_{we} equals $w\ell_{we}$.

The government redistributes income through a basic income - flat tax schedule. Denote the constant marginal tax rate $\tau \in [0, 1]$ and the corresponding basic income $B(\tau) = \tau y_a$, where $y_a = \sum_{(w,e) \in W \times E} p_{we} y_{we}$ denotes average gross income. Denote median income by y_{med} . Consumption c_{we} equals $B(\tau) + (1 - \tau)w\ell_{we}$.

Taking the redistributive policy of the government (i.e. τ and $B(\tau)$) as given, labor supply is determined on the basis of private preferences. For concreteness, for any type (w, e) , we assume quasi-linear preferences between c_{we} and ℓ_{we} to take the form:

$$u_e = c_{we} - \frac{1}{2} \frac{1}{e} \ell_{we}^2. \quad (1)$$

Hence, taste for working defines the marginal rate of substitution between consumption and supplied labor.¹

Maximization of (1) with respect to ℓ yields for an individual of type (w, e) :

$$\ell_{we} = (1 - \tau) we.$$

and thus the following gross income:

$$y_{we} = (1 - \tau) w^2 e$$

and net income (=consumption):

$$c_{we} = B(\tau) + (1 - \tau)^2 w^2 e.$$

Private preference satisfaction is measured by the indirect utility function:

$$v_{we} = B(\tau) + \frac{1}{2} (1 - \tau)^2 w^2 e.$$

Similar to Boadway et al. (2002), we assume that the individuals (and the government) only observe three different income classes —the poor (with $y_{\underline{w}\underline{e}}$), the middle-class (with $y_{\underline{w}\bar{e}} = y_{\bar{w}\underline{e}}$) and the rich (with $y_{\bar{w}\bar{e}}$)— together with their respective proportions $p_{\underline{w}\underline{e}}, p_{\underline{w}\bar{e}} + p_{\bar{w}\underline{e}}$ and $p_{\bar{w}\bar{e}}$. The supports of w and e are known but w, e and ℓ_{we} cannot be observed on an individual basis. As a result, types $(\underline{w}, \underline{e})$ and (\bar{w}, \bar{e}) can be inferred from observing $y_{\underline{w}\underline{e}}$ and $y_{\bar{w}\bar{e}}$ respectively, but types (\bar{w}, \underline{e}) and (\underline{w}, \bar{e}) cannot be distinguished, since $y_{\underline{w}\bar{e}}$ equals $y_{\bar{w}\underline{e}}$.² For the moment, we leave the question open whether individuals know that w and e are independently distributed or not. We show in Appendix A that knowing whether w and e are independently distributed or not plays a crucial role in forming beliefs about the separate proportions $p_{\bar{w}\underline{e}}$ and $p_{\underline{w}\bar{e}}$ of the indistinguishable middle types (\bar{w}, \underline{e}) and (\underline{w}, \bar{e}) .

2.3 Altruistic preferences for redistribution

We consider a direct democracy in which the redistributive parameter τ is chosen by simple majority voting. Individuals fully anticipate the disincentive effects of income taxation on labor supply. Individuals' evaluations of alternative redistributive policies are based on additive extended indirect utility functions.

¹The marginal rates of substitution for two types of individuals with different tastes for working are always a constant multiple of each other. Therefore, their indifference curves satisfy the (Spence-Mirrlees) single crossing property.

²That types (\bar{w}, \underline{e}) and (\underline{w}, \bar{e}) are indistinguishable exemplifies the real life problem for any policy maker that incomes do not reveal personal characteristics.

We present throughout the paper different specifications of altruism, but the generic form follows the social welfare model of Charness and Rabin (2002).

Denote the vector $\mathbf{v} \equiv (v_{\underline{w}\underline{e}}, v_{\underline{w}\bar{e}}, v_{\bar{w}\underline{e}}, v_{\bar{w}\bar{e}})$ the type-profile of indirect utilities. Let \mathbf{v}^T be the transpose of \mathbf{v} . Let $\gamma \in [0, 1]$ be a parameter (the same for all individuals) that reflects the weight put on the private indirect utility in the social indirect utility function. Consider two (possibly identical) types (w, e) and (w', e') . Denote $\pi_{we, w'e'}$ the weight that an individual of type (w, e) assigns in her social indirect utility function to the private indirect utility of an individual of type (w', e') . For any type (w, e) , $\sum_{(w', e') \in W \times E} \pi_{we, w'e'} = 1$. The vector $\pi_{we} \equiv (\pi_{we, \underline{w}\underline{e}}, \pi_{we, \underline{w}\bar{e}}, \pi_{we, \bar{w}\underline{e}}, \pi_{we, \bar{w}\bar{e}})$ collects type (w, e) 's weights. Then, for any type (w, e) , preference satisfaction for redistribution is given by:

$$V_{we} = \gamma v_{we} + (1 - \gamma) \pi_{we} \mathbf{v}^T. \quad (2)$$

We denote preferences for redistribution *altruistic* whenever $\gamma \neq 1$.

2.4 Different scenarios of altruism

We discuss different altruistic preferences for redistribution. We assume that we can write $\pi_{we, w'e'}$ as

$$\pi_{we, w'e'} \equiv \frac{\delta_{we, w'e'} P_{w'e'}}{\sum_{(w', e') \in W \times E} \delta_{we, w'e'} P_{w'e'}}$$

where $\delta_{we, w'e'} \in \{0, 1\}$ is a dummy variable that represents the type-specific *concern* that individuals of type (w, e) have for individuals of type (w', e') .

Whether the concern of one individual for another individual takes the value of 0 or 1—or, in other words, whether another individual's private indirect utility enters one individual's social indirect utility or not—depends on two factors: 1) whether individuals are *utilitarian altruist* or *Rawlsian altruist* and 2) whether individuals are *desert-sensitive* or not. We clarify both notions. We qualify individuals' altruistic preferences for redistribution *utilitarian altruist* in case individuals do not discriminate on the basis of private indirect utilities and hence *all* other individuals' private indirect utilities are taken up in their own social indirect utility function. We qualify individuals' altruistic preferences for redistribution *Rawlsian altruist* in case individuals do discriminate on the basis of private indirect utilities and *only* individuals with the lowest private indirect utilities are taken up in their own social indirect utility function.³ In addition, we qualify individuals' altruistic preferences for redistribution *desert-sensitive* when individuals do discriminate on the basis of taste for working and *only* private indirect utilities of individuals with *at least the same* taste for working

³Over the years, Rawls' ideas have been reinterpreted by economists into utility terms (as we do here), although Rawls himself clearly never advocated this. He proposed to measure individual well-being in terms of primary goods rather than in terms of preference satisfaction.

are taken up in their own social indirect utility function. We qualify individuals' altruistic preferences for redistribution *desert-insensitive* when individuals do not discriminate on the basis of taste for working when taking up other private indirect utilities in their own social indirect utility function (in other words, taste for working is treated, as productive skill, without discrimination).

Putting both notions together, we consider throughout the paper four different altruistic scenarios: desert-insensitive utilitarian altruism (in short: utilitarian altruism (U)), desert-insensitive Rawlsian altruism (in short: Rawlsian altruism (R)), desert-sensitive utilitarian altruism (dsU) and desert-sensitive Rawlsian altruism (dsR). We denote, in addition, the scenario where all preferences for redistribution are egoistic (γ equals 1 for all individuals) by *Ego*. Hence, the set of all different scenarios considered in this paper is $\Xi = \{Ego, U, R, dsU, dsR\}$.

Generically, let $\delta_{we}^i \equiv (\delta_{we, \underline{w}\underline{e}}, \delta_{we, \overline{w}\underline{e}}, \delta_{we, \underline{w}\overline{e}}, \delta_{we, \overline{w}\overline{e}})$ be the vector of concern-parameters of an individual of type (w, e) for a scenario $i \in \Xi \setminus \{Ego\}$.

Our four altruistic scenarios read as follows:

- Utilitarian altruism

Under *utilitarian altruism*, every individual's social indirect utility is a convex combination of her own private indirect utility and the average of the private indirect utilities of all other individuals. Hence, all concern-parameters take the value of 1, or $\delta_{we}^U = (1, 1, 1, 1)$ for all $(w, e) \in W \times E$.

- Rawlsian altruism

Under *Rawlsian altruism*, every individual's social indirect utility is a convex combination of her own private indirect utility and the lowest private indirect utility in society. It is easy to check that individuals of type $(\underline{w}, \underline{e})$ have the lowest private indirect utility (cfr. Section 2.2). Hence, $\delta_{we}^R = (1, 0, 0, 0)$ for all $(w, e) \in W \times E$.

- Desert-sensitive utilitarian altruism

Under *desert-sensitive utilitarian altruism*, every individual's social indirect utility is a convex combination of her own private indirect utility and the average of the private indirect utilities of all individuals that have at least the same taste for working. Hence, the vector of concern-parameters of lazy individuals does not change compared to the utilitarian altruism scenario. On the other hand, the vector of concern-parameters of hard-working individuals changes since these individuals exclude under this scenario lazy individuals from their social indirect utility function. Hence, we get $\delta_{\underline{w}\underline{e}}^{dsU} = \delta_{\overline{w}\underline{e}}^{dsU} = (1, 1, 1, 1)$ and $\delta_{\underline{w}\overline{e}}^{dsU} = \delta_{\overline{w}\overline{e}}^{dsU} = (0, 0, 1, 1)$.

- Desert-sensitive Rawlsian altruism

Under *desert-sensitive Rawlsian altruism*, every individual's social indirect utility is a convex combination of her own private indirect utility and the lowest private indirect utility of individuals that have at least the same taste for working. Hence, the vector of concern-parameters of lazy individuals does not change compared to the Rawlsian altruism scenario. On the other hand, the vector of concern-parameters of hard-working individuals changes since these individuals under this scenario (i) exclude lazy low-skilled individuals from their social indirect utility function and (ii) take up hard-working low-skilled individuals instead. Hence, we get $\delta_{\underline{w}\underline{e}}^{dsR} = \delta_{\underline{w}\underline{e}}^{dsR} = (1, 0, 0, 0)$ and $\delta_{\underline{w}\bar{e}}^{dsR} = \delta_{\underline{w}\bar{e}}^{dsR} = (0, 0, 1, 0)$.

3 Political equilibrium

Under simplifying assumptions, we show in this section that the amount of redistribution in political equilibrium is (i) higher under the Rawlsian altruism scenario than under the egoistic scenario and (ii) higher under the egoistic scenario than under the utilitarian altruism scenario (proposition 1). The main result of this section is that the introduction of desert-sensitivity in (utilitarian or Rawlsian) altruistic preferences for redistribution decreases the amount of redistribution in the political equilibrium when the median voter is of the hard-working low-skilled type (proposition 2).

We only focus the analysis on economies where (i) neither the poor, nor the rich comprise more than one half of the total population (i.e. $p_{\underline{w}\underline{e}} < 1/2$ and $p_{\bar{w}\bar{e}} < 1/2$) and (ii) median income is strictly lower than average income. The first assumption ensures that median voter power goes to the middle-class, while the second assumption rules out corner solutions in the calculations of the preferred tax rates of the middle-class.⁴ Denote \mathcal{E} the set of all economies that satisfy both assumptions.

Denote $\tau_{\underline{w}\underline{e}}^{i,\varepsilon}$ the preferred tax rate of an individual of type (w, e) under scenario $i \in \Xi$ in economy $\varepsilon \in \mathcal{E}$. The preferred tax rates follow from maximization of (2) with respect to τ , using the appropriate vector of concern parameters for each type (w, e) in each scenario. It is easy to check that (i) for all types, for each scenario and for all economies in \mathcal{E} preferences for redistribution are single peaked over the τ -dimension, (ii) for each scenario the preferred tax rates of individuals of type $(\underline{w}, \underline{e})$ are strictly larger than the preferred tax rates of individuals of type (\bar{w}, \underline{e}) , i.e. $\tau_{\underline{w}\underline{e}}^{i,\varepsilon} > \tau_{\bar{w}\underline{e}}^{i,\varepsilon}$ for all $i \in \Xi$ and all $\varepsilon \in \mathcal{E}$ and (iii) for each scenario the preferred tax rates of individuals of type (\bar{w}, \bar{e}) are strictly lower than the preferred tax rates of individuals of type (\underline{w}, \bar{e}) , i.e. $\tau_{\underline{w}\bar{e}}^{i,\varepsilon} > \tau_{\bar{w}\bar{e}}^{i,\varepsilon}$ for all $i \in \Xi$ and for all $\varepsilon \in \mathcal{E}$. Table 2 presents for each scenario and for all economies in \mathcal{E} the preferred tax rates of the middle types (\bar{w}, \underline{e}) and (\underline{w}, \bar{e}) :

⁴Besides, we recall that it is a stylized fact of real-life income distributions that $y_{med} < y_a$.

$\tau_{w\bar{e}}^{i,\varepsilon}$	$\bar{w}\underline{e}$	$\underline{w}\bar{e}$
<i>Ego</i>	$\frac{y_a - y_{med}}{2y_a - y_{med}}$	$\frac{y_a - y_{med}}{2y_a - y_{med}}$
<i>U</i>	$\frac{y_a - \gamma y_{med} - (1-\gamma)y_a}{2y_a - \gamma y_{med} - (1-\gamma)y_a}$	$\frac{y_a - \gamma y_{med} - (1-\gamma)y_a}{2y_a - \gamma y_{med} - (1-\gamma)y_a}$
<i>R</i>	$\frac{y_a - \gamma y_{med} - (1-\gamma)y_{w\bar{e}}}{2y_a - \gamma y_{med} - (1-\gamma)y_{w\bar{e}}}$	$\frac{y_a - \gamma y_{med} - (1-\gamma)y_{w\bar{e}}}{2y_a - \gamma y_{med} - (1-\gamma)y_{w\bar{e}}}$
<i>dsU</i>	$\frac{y_a - \gamma y_{med} - (1-\gamma)y_a}{2y_a - \gamma y_{med} - (1-\gamma)y_a}$	$\max \left[0, \frac{y_a - \gamma y_{med} - \frac{(1-\gamma)}{p_{w\bar{e}}^b + (1-\alpha)(1-\beta)} (p_{w\bar{e}}^b y_{med} + (1-\alpha)(1-\beta)y_{w\bar{e}})}{2y_a - \gamma y_{med} - \frac{(1-\gamma)}{p_{w\bar{e}}^b + (1-\alpha)(1-\beta)} (p_{w\bar{e}}^b y_{med} + (1-\alpha)(1-\beta)y_{w\bar{e}})} \right]$
<i>dsR</i>	$\frac{y_a - \gamma y_{med} - (1-\gamma)y_{w\bar{e}}}{2y_a - \gamma y_{med} - (1-\gamma)y_{w\bar{e}}}$	$\frac{y_a - y_{med}}{2y_a - y_{med}}$

Table 2: Preferred tax rates of middle types (\bar{w}, \underline{e}) and (\underline{w}, \bar{e}) .

where $p_{w\bar{e}}^b$ denotes the beliefs of individuals of type (\underline{w}, \bar{e}) about the proportion of individuals of type (\underline{w}, \bar{e}) in the population. Indeed, in the desert-sensitive utilitarian scenario, individuals of type (\underline{w}, \bar{e}) take up in their social utility function both individuals of their own type (\underline{w}, \bar{e}) and individuals of type (\bar{w}, \bar{e}) . While they observe the latter's proportion $p_{w\bar{e}}$, they only observe $p_{w\bar{e}} + p_{\bar{w}\bar{e}}$ and hence have to make an 'estimate' of the former's proper proportion $p_{w\bar{e}}$. We return to the exact formation of $p_{w\bar{e}}^b$ in Appendix A, where we study the impact of incomplete information about the separate proportions $p_{w\bar{e}}$ and $p_{\bar{w}\bar{e}}$ on the preferred tax rate of individuals of type (\underline{w}, \bar{e}) in the desert-sensitive utilitarian scenario. Notice that, except for $\tau_{w\bar{e}}^{dsU,\varepsilon}$, all tax rates presented in Table 2 are strictly larger than zero for every $\gamma \in [0, 1]$, since we assumed that $y_{w\bar{e}} = y_{w\bar{e}} = y_{med} < y_a$ for all $\varepsilon \in \mathcal{E}$. From the way we defined in section 2.4 the concern parameters of the different types in the different scenarios, it is a matter of course that (i) the preferred tax rates of the middle types (\bar{w}, \underline{e}) and (\underline{w}, \bar{e}) coincide in the egoistic scenario, the utilitarian altruism scenario and the Rawlsian altruism scenario, (ii) the preferred tax rates of individuals of type (\bar{w}, \underline{e}) do not change between desert-sensitive and non desert-sensitive scenarios, i.e. $\tau_{w\bar{e}}^{U,\varepsilon} = \tau_{w\bar{e}}^{dsU,\varepsilon}$ and $\tau_{w\bar{e}}^{R,\varepsilon} = \tau_{w\bar{e}}^{dsR,\varepsilon}$ and (iii) the preferred tax rates of individuals of type (\underline{w}, \bar{e}) are the same in the egoistic scenario and the desert-sensitive Rawlsian altruism scenario, i.e. $\tau_{w\bar{e}}^{Ego,\varepsilon} = \tau_{w\bar{e}}^{dsR,\varepsilon}$.⁵

Denote $\tilde{\tau}^{i,\varepsilon}$ the Condorcet winner tax rate under scenario $i \in \Xi$ in economy $\varepsilon \in \mathcal{E}$. Remember that we assumed that $p_{w\bar{e}} < 1/2$ and $p_{\bar{w}\bar{e}} < 1/2$ for all economies in \mathcal{E} . Let $\mathcal{E}' = \{\varepsilon \in \mathcal{E} : p_{w\bar{e}} + p_{\bar{w}\bar{e}} \leq 1/2\}$ be the proper subset of \mathcal{E} that comprises all economies where the proportion of lazy individuals does not exceed 1/2. Let $\mathcal{E}'' = \{\varepsilon \in \mathcal{E} : p_{w\bar{e}} + p_{\bar{w}\bar{e}} > 1/2\}$ be the proper subset of \mathcal{E}

⁵Note that the preferred tax rate of the middle types in the egoistic scenario coincides with the preferred tax rate of the middle types in a scenario where the middle types take up each other's private utilities into their social utility function, i.e. $\delta_{w\bar{e}} = \delta_{\bar{w}\bar{e}} = (0, 1, 1, 0)$.

that comprises all economies where the proportion of lazy individuals exceeds 1/2. Remark that \mathcal{E}' and \mathcal{E}'' partition \mathcal{E} . The following lemma states that, for all scenarios considered, the preferred tax rates of types (\underline{w}, \bar{e}) and (\bar{w}, \underline{e}) of table 2 are also the Condorcet winner tax rates for all economies in \mathcal{E}' and \mathcal{E}'' respectively.

Lemma (identification Condorcet winner tax rate): $\forall i \in \Xi :$

$$\begin{aligned} \forall \varepsilon \in \mathcal{E}', \tilde{\tau}^{i,\varepsilon} &= \tau_{\underline{w}\bar{e}}^{i,\varepsilon} \\ \forall \varepsilon \in \mathcal{E}'', \tilde{\tau}^{i,\varepsilon} &= \tau_{\bar{w}\underline{e}}^{i,\varepsilon}. \end{aligned}$$

Proof: To ensure that the median voter has type (\underline{w}, \bar{e}) for all $\varepsilon \in \mathcal{E}'$ and that the median voter has type (\bar{w}, \underline{e}) for all $\varepsilon \in \mathcal{E}''$, we need to show that $\tau_{\bar{w}\underline{e}}^{i,\varepsilon} \geq \tau_{\underline{w}\bar{e}}^{i,\varepsilon}$ for all $i \in \Xi$ and for all $\varepsilon \in \mathcal{E}$. We already mentioned that $\tau_{\bar{w}\underline{e}}^{i,\varepsilon} = \tau_{\underline{w}\bar{e}}^{i,\varepsilon}$ for all $i \in \{Ego, U, R\}$ and for all $\varepsilon \in \mathcal{E}$. When noting that $y_{med} > y_{\underline{w}\bar{e}}$, it is easily seen that $\tau_{\bar{w}\underline{e}}^{dsR,\varepsilon} > \tau_{\underline{w}\bar{e}}^{dsR,\varepsilon}$ for all $\varepsilon \in \mathcal{E}$. It remains to show that $\tau_{\bar{w}\underline{e}}^{dsU,\varepsilon} \geq \tau_{\underline{w}\bar{e}}^{dsU,\varepsilon}$ for all $\varepsilon \in \mathcal{E}$ when $\tau_{\underline{w}\bar{e}}^{dsU,\varepsilon} > 0$. This boils down to showing that $y_a \leq \frac{p_{\underline{w}\bar{e}}^b y_{med} + (1-\alpha)(1-\beta)y_{\bar{w}\underline{e}}}{p_{\underline{w}\bar{e}}^b + (1-\alpha)(1-\beta)} = RHS$. Since $p_{\underline{w}\bar{e}}^b$ cannot lie outside the interval $[0, 1 - p_{\underline{w}\bar{e}} - p_{\bar{w}\underline{e}}]$ (see also Appendix A), $p_{\underline{w}\bar{e}}^b + (1-\alpha)(1-\beta) < 1$. Hence, it can easily be seen that $y_a < RHS$ when noting that the weight given to $y_{\bar{w}\underline{e}}$ in RHS is greater than the weight $(1-\alpha)(1-\beta)$ given to $y_{\bar{w}\underline{e}}$ in y_a and when noting that $y_{\underline{w}\bar{e}}$ receives no weight in RHS , whereas $y_{\underline{w}\bar{e}}$ receives weight $\alpha\beta$ in y_a . \square

We now compare the Condorcet winner tax rates over the different scenarios. We start by comparing the Condorcet winner tax rates in the egoistic scenario, the utilitarian altruism scenario and the Rawlsian altruism scenario. Remember that for these scenarios, the Condorcet winner tax rates coincide for all economies in \mathcal{E} . Proposition 1 states that the Condorcet winner tax rate is the highest under the Rawlsian altruism scenario and the lowest under the utilitarian altruism scenario for all economies in \mathcal{E} . The intuition behind proposition 1 is that under the Rawlsian altruism scenario, the median voter middle type individuals (only) take up the private indirect utilities of type $(\underline{w}, \underline{e})$ individuals in their social indirect utility function. These type $(\underline{w}, \underline{e})$ individuals egoistically prefer a higher tax rate than the tax rate egoistically preferred by the middle type individuals. As a result, the Condorcet winner tax rate under the Rawlsian altruism scenario is also higher. Given our quasi-linear preferences defined in (1), the disincentive effect of taxation is minimized—and therefore the total sum of utilities maximized—under a tax rate equal to zero. As a result, the Condorcet winner tax rate under the utilitarian altruism scenario is lower than the tax rate egoistically preferred by the middle type individuals.

Proposition 1 (ranking Condorcet winner tax rates under *Ego, U* and *R*):

$$\forall \varepsilon \in \mathcal{E}, \tilde{\tau}^{U,\varepsilon} < \tilde{\tau}^{Ego,\varepsilon} < \tilde{\tau}^{R,\varepsilon}.$$

Proof: Straightforward, since $y_{\underline{w}\bar{e}} < y_{\bar{w}\underline{e}} = y_{\underline{w}\bar{e}} = y_{med} < y_a$ for all $\varepsilon \in \mathcal{E}$.

The main result of this section is proposition 2 which states that the introduction of desert-sensitivity in altruistic preferences for redistribution decreases the amount of redistribution in the political equilibrium when the median voter is a hard-working low-skilled individual. The intuition behind proposition 2 is that hard-working low-skilled individuals essentially drop the private indirect utilities of type $(\underline{w}, \underline{e})$ individuals, who have the highest egoistically preferred tax rate, from their social indirect utility function under desert-sensitive scenarios.⁶ This results in lower Condorcet winner tax rates compared to non desert-sensitive scenarios.

Proposition 2 (ranking Condorcet winner tax rates under dsU and U and under dsR and R):

$$\forall \varepsilon \in \mathcal{E}', \tilde{\tau}^{dsU, \varepsilon} < \tilde{\tau}^{U, \varepsilon} \text{ and } \tilde{\tau}^{dsR, \varepsilon} < \tilde{\tau}^{R, \varepsilon}.$$

Proof: The proof that $\tilde{\tau}^{dsU, \varepsilon} < \tilde{\tau}^{U, \varepsilon}$ follows from (i) noting that $\tau_{\underline{w}\underline{e}}^{U, \varepsilon} = \tau_{\underline{w}\underline{e}}^{dsU, \varepsilon}$ for all $\varepsilon \in \mathcal{E}$, (ii) the proof of the lemma where we show that $\tau_{\underline{w}\underline{e}}^{dsU, \varepsilon} < \tau_{\underline{w}\underline{e}}^{U, \varepsilon}$ for all $\varepsilon \in \mathcal{E}$ and (iii) the lemma itself. The proof that $\tilde{\tau}^{dsR, \varepsilon} < \tilde{\tau}^{R, \varepsilon}$ follows from proposition 1 when noting that $\tilde{\tau}^{dsR, \varepsilon} = \tilde{\tau}^{Ego, \varepsilon}$ for all $\varepsilon \in \mathcal{E}'$. \square

4 Desert-sensitive altruism in practice

Can our theoretical results help explain the differences between the American and the European social contract? Can the coexistence of the fact that 71% of Americans vs. 40% of Europeans consider that ‘poor people could become rich if they just tried hard enough’ with desert-sensitive preferences for redistribution provide an insight? Is it really the case that Americans are significantly more desert-sensitive than Europeans?

In this section, we use data from the International Social Survey Programme (ISSP) 1992 dataset to back three assertions: (i) preferences for redistribution are not purely egoistic, (ii) desert-sensitivity induces lower support for redistribution and (iii) differences in desert-sensitivity hold between both continents, inducing lower support for redistribution among Americans compared to Europeans.

We present estimates for an encompassing model of individual attitudes toward political redistribution. The ISSP 1992 dataset contains responses that reveal opinions on social inequality. This source provides representative samples of the following countries: Austria, (West-)Germany, Italy, Norway, Sweden and the US (#obs=2959). Here, we describe the variables shortly and refer to Appendix B for a more detailed descriptive summary of our data. Our dependent variable ‘redistribution’ ranges from 1 to 4—which induces us to estimate an ordered logit model—and indicates the support given by individuals to political redistribution. It measures how strongly individuals feel that the government

⁶Obviously, proposition 2 holds for the whole domain of economies \mathcal{E} in the scenario where the lazy high-skilled individuals mimic the concern-parameters of the hard-working low-skilled individuals in the desert-sensitive scenarios.

should reduce income inequality. We categorize our explanatory variables in four groups. First, the variable ‘self-interest’ captures the self-interest incentive of individuals to support redistribution. It measures subjectively how much individuals themselves gain from redistribution. Second, the variable ‘poum’ tries to capture the ‘prospect of upward mobility’. Expectations about future mobility are instrumented by looking at the individual’s history of mobility, based on the difference between the respondent’s current income and standard of living and those of her father. Third, the variables ‘responsibility’ and ‘compensation’ are derived from individuals’ opinions on how strongly characteristics within individuals’ responsibility and characteristics beyond individuals’ responsibility influence the income generating process respectively. We consider these variables as key in identifying whether individuals are egoistic or altruistic and desert-sensitive or not. Fourth, the socio-demographic variables ‘income’, ‘unemployed’, ‘others not in labour force’, ‘education’, ‘age’, ‘male’ and ‘married’ report individuals’ income, employment status, level of education, age, sex and whether they are married or not. In order to test for differences between both continents, all these explanatory variables are interacted with a dummy (‘dum’) that takes the value of 1 when individuals live in the US.

Table 3 presents our ordered logit estimates. Regression 1 concentrates on the influence of ‘self-interest’, ‘poum’ and sociodemographic variables on the respondent’s support for redistribution. This regression is intended to represent the most common explanations of individuals’ support for redistribution presented in the literature. Regression 2 analyses the impact of adding the ‘responsibility’ and the ‘compensation’ variables and represents our contribution of viewing individuals as being (desert-sensitive) altruists rather than egoists.

Three important conclusions can be drawn from Table 3.

First, although the self-interest variable has strongly significant explanatory power in both regressions, it is not the only driving force behind individuals’ support for redistribution. The strongly significant positive coefficient of the compensation variable in regression 2 betrays that, besides the self-interest motive, a strong belief in the importance of non-responsibility characteristics raises the demand for redistribution. Remark that this belief does not statistically differ between Europe and the US, since the coefficient of the interaction variable $\text{compensation} \cdot \text{dum}$ is not statistically significant. We would like to mention that this belief is equally shared by both individuals who gain or lose from redistribution as the overall correlation between the self-interest variable and the compensation variable is close to zero (-0.001). This result suggests to depart from modelling individuals’ preferences for redistribution as solely egoistic as it indicates that altruistic concerns do exist.

Second, there is clear indication of desert-sensitivity in individuals’ attitudes towards redistribution. The strongly significant negative coefficient of the responsibility variable indicates that, besides the self-interest motive, there is a reluctance for redistribution from the hard-working to the lazy. This supports the idea that individuals exclude the lazy from their altruistic concerns. Note that this finding is in line with previous empirical research on the determinants of

individuals' preferences for redistribution; besides Alesina and Angeletos (2005), see Fong (2001), Corneo and Grüner (2002), and Alesina and La Ferrara (2005) for more details.

SUPPORT FOR REDISTRIBUTION		
SELF-INTEREST	0.399*** (0.047)	0.386*** (0.048)
SELF-INTEREST*DUM	0.114 (0.102)	0.163 (0.104)
POUM	-0.027 (0.048)	-0.009 (0.042)
POUM*DUM	-0.085 (0.085)	-0.106 (0.087)
RESPONSIBILITY		-0.185*** (0.056)
RESPONSIBILITY*DUM		-0.476*** (0.160)
COMPENSATION		0.194*** (0.054)
COMPENSATION*DUM		0.099 (0.126)
INCOME	-0.140*** (0.038)	-0.127*** (0.039)
INCOME*DUM	-0.007 (0.078)	0.016 (0.079)
UNEMPLOYED	0.412* (0.237)	0.612** (0.251)
UNEMPLOYED*DUM	-0.289 (0.484)	-0.442 (0.495)
OTHERS NOT IN LABOUR FORCE	-0.180 (0.353)	-0.162 (0.121)
OTHERS NOT IN LABOUR FORCE*DUM	0.353 (0.303)	0.416 (0.308)
EDUCATION	-0.749*** (0.255)	-0.746*** (0.264)
EDUCATION*DUM	0.260 (0.493)	0.387 (0.506)
EDUCATION ²	0.066 (-0.048)	0.067 (0.049)
EDUCATION ² *DUM	-0.049 (0.093)	-0.059 (0.095)
AGE	-0.072 (0.141)	-0.153 (0.145)
AGE*DUM	0.349 (0.325)	0.353 (0.332)
AGE ²	0.010 (0.020)	0.018 (0.020)
AGE ² *DUM	-0.068 (0.047)	-0.066 (0.048)
MALE	-0.140 (0.086)	-0.182** (0.089)
MALE*DUM	0.006 (0.188)	0.012 (0.191)
MARRIED	0.061 (0.087)	0.102 (0.089)
MARRIED*DUM	-0.226 (0.189)	-0.236 (0.193)
DUM	-1.972** (0.961)	-0.624 (1.186)
Number of observations	3062	2959
Prob>chi2	0.000	0.000
Pseudo R ²	7.75%	8.37%

Standard errors between parentheses

*** significant at 1% level; ** significant at 5% level; * significant at 10% level

Table 3: Ordered logit estimates

Third, preferences for redistribution are significantly more desert-sensitive among

individuals in the US than among individuals in Europe. This is indicated by the significantly negative coefficient of the interaction variable $\text{responsibility} \cdot \text{dum}$. In other words, our regression results suggest that, even in the hypothetical case of equal beliefs on the importance of ‘responsibility’ characteristics on individual outcomes in both continents, the demand for redistribution would be significantly lower among Americans than among Europeans. We believe that this original finding, which supplements the conclusions of Alesina and Angeletos (2005) among others, can help explain the two different politico-economic equilibria of both continents. Note that we do not find any significant statistical effect of the ‘poum’ variable in both regressions. Note also that, while the coefficient of the ‘dum’ variable is negative and statistically significant in regression 1, it is no longer significant in regression 2. This suggests that the difference between desert-sensitivity across both continents is a crucial one. This claim is further supported by the fact that no other interaction variable shows a significant coefficient.

Concerning the socio-demographic variables, the strongly significant negative sign of the coefficient of the ‘income’ variable confirms the impact of self-interest, as objectively measured, on individuals’ support for redistribution. Unemployed individuals appear significantly more supportive to redistribution than employed individuals which illustrates the insider-outsider cleavage highlighted by the welfare-state literature. As stressed by Linos and West (2003), literature in sociology hardly concludes about the influence of education on attitudes towards redistribution. On the one hand, higher education induces higher status and greater economic security, therefore decreasing support for redistribution. On the other hand, higher education is also supposed to increase socialization in democratic values, therefore enhancing support to a more egalitarian distribution of income. Our results show that education has a significant negative effect on the demand for redistribution. The positive sign of the coefficient of the squared ‘education’ variable suggests that this negative effect becomes weaker after a certain education level, although this coefficient is not significant. Gender also matters with men being significantly less supportive towards redistribution than women. This is a common empirical finding that is related to various theories (see Waerness (1987) for a survey). Some highlight that women are socialized in a way that make them more concerned about others’ well-being. Others emphasize that women are more likely to be in precarious positions in the labour market, therefore inducing a stronger demand for state benefits. We do not find any statistical significant effect of the ‘age’ and of the ‘married’ variables.

5 Concluding remarks

Following Alesina and Angeletos (2005), we endow individuals that differ in skill levels and tastes for working with preferences for redistribution that are not purely egoistic. In our model, individuals care about others, but possibly only as long as these others have at least the same entitlement to income gen-

erated by factors that lie within their personal responsibility. We denote such a selective concern desert-sensitive altruism. In a voting model where a unidimensional redistributive parameter is chosen by majority voting in a direct democracy, we demonstrate how desert-sensitive preferences for redistribution can induce lower levels of redistribution in the political equilibrium. We justify desert-sensitive preferences empirically. Using a representative sample that contains respondents of both the US and Europe, we provide evidence that preferences for redistribution are not purely egoistic. We find that desert-sensitive motivations play a significant role in individuals' preferences for redistribution. We estimate that preferences for redistribution are significantly more desert-sensitive among individuals in the US than among individuals in Europe. We think that differences in desert-sensitivity help explain the different social contracts that prevail between both continents.

We believe that our analysis can be extended in a number of promising ways. We highlight five possible avenues for future research. First, while recently an increasing number of theoretical papers depart from modelling individuals' preferences for redistribution as purely egoistic, an extensive empirical validation for altruistic preferences for redistribution in general and for desert-sensitive altruistic preferences for redistribution in particular needs to be developed. Such an analysis should not only be limited to the study of participants behavior in an experimental setting, nor be solely based on the use of questionnaire data, but focus more directly on actual voting behavior in real world elections, if possible. Second, where we endowed all individuals with the same altruistic concern in our analysis, a straightforward extension would be to study the equilibrium outcomes resulting from the prevalence of different altruistic concerns among the population; we refer to Galasso (2003) for a first characterization of politico-economic equilibria when purely selfish voters coexist with Rawlsian altruistic voters and to Cappelen et al. (2005) for an experimental study of pluralism in fairness ideals. Third, another possible extension of our model would be to introduce dynamics, study the endogenous formation of (desert-sensitive) altruistic preferences and analyze the (different) steady-state(s) resulting from this process; see Cervellati et al. (2006) for a first attempt. Fourth, we believe that by endowing individuals with altruistic preferences for redistribution, the qualitative results of positive voting models come closer to the recommendations of the normative optimal fair income tax literature; we refer to Schokkaert et al. (2004) for the derivation of optimal linear tax rates under a desert-sensitive social planner. In fact, the (hypothetical) benevolent social planner of normative analysis is being replaced by ethically inspired median voters in our analysis. Finally (and well aware of the technical difficulties it imposes), the development of models in which individuals with (desert-sensitive) altruistic preferences vote over non-linear income tax schedules would obviously be an improvement; see Kranich (2001) for an analysis with altruistic preferences over quadratic income tax schedules. It would for example enable to study whether (desert-sensitive) altruistic individuals are in favor of welfare programmes that subsidize the poor.

Appendix A: impact of incomplete information

We focus on the desert-sensitive utilitarian scenario for all economies in \mathcal{E}' , as only here (possibly wrong) beliefs about the proportion of hard-working low-skilled individuals influence the amount of redistribution in the political equilibrium. We take the Condorcet winner tax rate $\tilde{\tau}^{dsU,\varepsilon}$ under the (correct) belief that $p_{\underline{w}\bar{e}}^b = (1 - \alpha)\beta$ as a benchmark. Denote this tax rate $\tilde{\tau}_{benchmark}^{dsU,\varepsilon}$. We assume that, for all individuals, γ is such that $\tilde{\tau}_{benchmark}^{dsU,\varepsilon} > 0$. From propositions 1 and 2 in Section 3, we know that for all economies in \mathcal{E}' , $\tilde{\tau}^{dsU,\varepsilon}$ is the lowest Condorcet winner tax rate of the five scenarios considered. We now ask the question in which economies wrong beliefs ($p_{\underline{w}\bar{e}}^b \neq (1 - \alpha)\beta$) lead to a $\tilde{\tau}^{dsU,\varepsilon}$ that is even smaller than $\tilde{\tau}_{benchmark}^{dsU,\varepsilon}$. In other words, we try to identify how imperfect information can further increase the difference between the Condorcet winner tax rate in the desert-sensitive utilitarian scenario and the Condorcet winner tax rates in the other scenarios. The necessary condition to have that $\tilde{\tau}^{dsU,\varepsilon} < \tilde{\tau}_{benchmark}^{dsU,\varepsilon}$ is that individuals of type (\underline{w}, \bar{e}) underestimate the true proportion of individuals of their own type, i.e. $p_{\underline{w}\bar{e}}^b < (1 - \alpha)\beta$. The intuition is clear: this underestimation leads individuals of type (\underline{w}, \bar{e}) to an underestimation in their social indirect utility function of the proportion of their own type (\underline{w}, \bar{e}) relative to the proportion of individuals of type (\bar{w}, \bar{e}) . As individuals of type (\bar{w}, \bar{e}) egoistically prefer a lower tax rate than individuals of type (\underline{w}, \bar{e}) (cfr. the proof of the lemma in Section 3), the underestimation of the proportion of the latter type leads to a lower preferred tax rate of individuals of type (\underline{w}, \bar{e}) in the desert-sensitive utilitarian altruism scenario.

In order to study the exact formation of beliefs, it is important to distinguish between the case where individuals *know* that w and e are independently distributed and the case where individuals *do not know* that w and e are independently distributed.

Individuals know that w and e are independently distributed

When individuals know that w and e are independently distributed (i.e. individuals know that $p_{\bar{w}\underline{e}} + p_{\underline{w}\bar{e}} = (1 - \beta)\alpha + (1 - \alpha)\beta$), beliefs can only take two different values, namely $p_{\underline{w}\bar{e}}^b = (1 - \alpha)\beta$ (which is correct) or $p_{\underline{w}\bar{e}}^b = (1 - \beta)\alpha$ (which is wrong). Let $\hat{\mathcal{E}}' = \{\varepsilon \in \mathcal{E}' : \alpha < \beta\}$ be a proper subset of \mathcal{E}' that comprises all economies in \mathcal{E}' where there are more low-skilled individuals than lazy individuals. The following proposition states that exactly for those economies wrong beliefs lead to even lower levels of redistribution in the political equilibrium. This stems from the fact that in these economies $(1 - \beta)\alpha < (1 - \alpha)\beta$, which leads to an underestimation of the proportion of individuals of type (\underline{w}, \bar{e}) and as a result to a smaller Condorcet winner tax rate (cfr. supra).

Proposition A1 (impact of imperfect information): When individuals know that w and e are independently distributed and $p_{\underline{w}\bar{e}}^b \neq (1 - \alpha)\beta$:

$$\forall \varepsilon \in \hat{\mathcal{E}}' : \tilde{\tau}^{dsU,\varepsilon} < \tilde{\tau}_{benchmark}^{dsU,\varepsilon}.$$

Proof: The proof follows from a direct comparison between $\tilde{\tau}^{dsU,\varepsilon}$ when $p_{\underline{w}\bar{e}}^b = (1-\alpha)\beta$ and $\tilde{\tau}^{dsU,\varepsilon}$ when $p_{\underline{w}\bar{e}}^b = (1-\beta)\alpha$. The latter is smaller than the former when $\alpha < \beta$, which is the case for all economies in $\hat{\mathcal{E}}'$. \square

Individuals do not know that w and e are independently distributed

When individuals do not know that w and e are independently distributed, beliefs can be situated anywhere in the closed interval between zero and $1-p_{\underline{w}\bar{e}}-p_{\bar{w}\underline{e}}$, i.e. $p_{\underline{w}\bar{e}}^b \in [0, \alpha+\beta-2\alpha\beta]$. Let $\hat{\mathcal{E}}' = \{\varepsilon \in \hat{\mathcal{E}}' : \beta > 1/2\}$ be a proper subset of $\hat{\mathcal{E}}'$ that comprises all economies in $\hat{\mathcal{E}}'$ where more than one half of the population is low-skilled. The following proposition summarizes sufficient (not necessary) conditions to have $\tilde{\tau}^{dsU,\varepsilon} < \tilde{\tau}_{benchmark}^{dsU,\varepsilon}$. The most general result (which holds for all economies in \mathcal{E}') states that, in order to obtain $\tilde{\tau}^{dsU,\varepsilon} < \tilde{\tau}_{benchmark}^{dsU,\varepsilon}$, it is sufficient that individuals of type (\underline{w}, \bar{e}) believe that the majority of low-skilled individuals are lazy or that individuals of type (\underline{w}, \bar{e}) believe that there are more lazy individuals than hard-working individuals in society. Moreover, for all economies in $\hat{\mathcal{E}}'$, it is sufficient that individuals of type (\underline{w}, \bar{e}) believe that most of the middle type individuals are lazy. Further, for all economies in $\hat{\mathcal{E}}'$, it is sufficient that individuals of type (\underline{w}, \bar{e}) believe that the majority of hard-working individuals are also high skilled or that individuals of type (\underline{w}, \bar{e}) believe that there are more high-skilled individuals than low-skilled individuals in society. In all of these cases, these beliefs lead to an underestimation of the proportion of individuals of type (\underline{w}, \bar{e}) and as a result to a smaller Condorcet winner tax rate (cfr. supra).

Proposition A2 (impact of imperfect information): When individuals do not know that w and e are independently distributed, any of the following beliefs are sufficient to have $\tilde{\tau}^{dsU,\varepsilon} < \tilde{\tau}_{benchmark}^{dsU,\varepsilon}$:

$$\begin{aligned} \forall \varepsilon \in \mathcal{E}' : p_{\underline{w}\bar{e}}^b &< p_{\underline{w}\underline{e}}, p_{\underline{w}\bar{e}}^b < p_{\underline{w}\underline{e}} + p_{\bar{w}\underline{e}}^b - p_{\bar{w}\bar{e}} \\ \forall \varepsilon \in \hat{\mathcal{E}}' : p_{\underline{w}\bar{e}}^b &< p_{\bar{w}\underline{e}}^b \\ \forall \varepsilon \in \hat{\hat{\mathcal{E}}}' : p_{\underline{w}\bar{e}}^b &< p_{\bar{w}\bar{e}}, p_{\underline{w}\bar{e}}^b < p_{\bar{w}\underline{e}}^b + p_{\bar{w}\bar{e}} - p_{\underline{w}\underline{e}}. \end{aligned}$$

Proof: To prove that $p_{\underline{w}\bar{e}}^b < p_{\underline{w}\underline{e}}$ is sufficient, note that $p_{\underline{w}\underline{e}} = \alpha\beta$ is smaller than $(1-\alpha)\beta$ when $\alpha < \frac{1}{2}$, which is the case for all economies in \mathcal{E}' . To prove that $p_{\underline{w}\bar{e}}^b < p_{\underline{w}\underline{e}} + p_{\bar{w}\underline{e}}^b - p_{\bar{w}\bar{e}}$ is sufficient, note that this amounts to $p_{\underline{w}\bar{e}}^b < \alpha + \beta - \alpha\beta - \frac{1}{2}$, since $p_{\bar{w}\underline{e}}^b = \alpha + \beta - 2\alpha\beta - p_{\underline{w}\bar{e}}^b$. Then $\alpha + \beta - \alpha\beta - \frac{1}{2}$ is smaller than $(1-\alpha)\beta$ when $\alpha < \frac{1}{2}$, which is the case for all economies in \mathcal{E}' . To prove that $p_{\underline{w}\bar{e}}^b < p_{\bar{w}\underline{e}}^b$ is sufficient, note that this amounts to $p_{\underline{w}\bar{e}}^b < \frac{\alpha+\beta-2\alpha\beta}{2}$ and that $\frac{\alpha+\beta-2\alpha\beta}{2}$ is smaller than $(1-\alpha)\beta$ when $\alpha < \beta$, which is the case for all economies in $\hat{\mathcal{E}}'$. To prove that $p_{\underline{w}\bar{e}}^b < p_{\bar{w}\bar{e}}$ is sufficient, note that $p_{\bar{w}\bar{e}} = (1-\alpha)(1-\beta)$ is smaller than $(1-\alpha)\beta$ when $\beta > \frac{1}{2}$, which is the case for all economies in $\hat{\hat{\mathcal{E}}}'$. To prove that $p_{\underline{w}\bar{e}}^b < p_{\bar{w}\underline{e}}^b + p_{\bar{w}\bar{e}} - p_{\underline{w}\underline{e}}$ is sufficient, note that this amounts to $p_{\underline{w}\bar{e}}^b < \frac{1}{2} - \alpha\beta$

and that $\frac{1}{2} - \alpha\beta$ is smaller than $(1 - \alpha)\beta$ when $\beta > \frac{1}{2}$, which is the case for all economies in $\widehat{\mathcal{E}}$. \square

Appendix B: descriptive summary

Table 4 provides a detailed descriptive summary of the data used in the ordered logit estimation presented in Section 4. It reports the exact questions used to define the variables and indicates for each variable the proportion of answers given.

Variable	Question	Coding	Proportion (%) N=2959
REDISTRIBUTION	'It is the responsibility of the government to reduce the difference in income between people with high incomes and those with low incomes'	=1: strongly disagree =2: disagree =3: agree =4: strongly agree	=1: 8.1 =2: 21.5 =3: 47.2 =4: 23.1
SELF-INTEREST	'If incomes became more equal, some people would get higher incomes and some would get lower incomes. Do you think that your income...'	=1: would definitely go down =2: would probably go down =3: would stay the same =4: would probably go up =5: would definitely go up	=1: 1.6 =2: 7.4 =3: 42.2 =4: 33.9 =5: 14.9
POUM	'Compared to your father when he was about your age, are you better off or worse off in your income and standard of living generally?'	=1: much worse off =2: worse off =3: about equal =4: better off =5: much better off	=1: 2.2 =2: 9.7 =3: 16.3 =4: 4.4 =5: 27.7
AMBITION	'For getting ahead in life, how important is...' '...having ambition?'	=1: not important at all =2: not very important =3: fairly important =4: very important =5: essential	=1: 1.4 =2: 4.2 =3: 19.7 =4: 44.7 =5: 29.9
HARD WORK	'...hard work?'	the same as for AMBITION	=1: 1.5 =2: 6.8 =3: 25.8 =4: 43.8 =5: 22.1
NATURAL ABILITY	'...natural ability?'	the same as for AMBITION	=1: 1.1 =2: 6.7 =3: 36.9 =4: 42.1 =5: 13.3
FAMILY BACKGROUND	'...coming from a wealthy family?'	the same as for AMBITION	=1: 15.3 =2: 33.2 =3: 31.4 =4: 15.0 =5: 5.1
INCOME		=1: if belongs to the 1 st quintile =2: if belongs to the 2 nd quintile =3: if belongs to the 3 rd quintile =4: if belongs to the 4 th quintile =5: if belongs to the 5 th quintile	=1: 17.5 =2: 17.6 =3: 18.3 =4: 22.6 =5: 24.0
UNEMPLOYED		=1: if unemployed =0 otherwise	=1: 2.9
OTHERS NOT IN LABOUR FORCE		=1: if retired, if housewife, if student, if other inactive =0 otherwise	=1: 26.3
EDUCATION		=1: if no qualification or primary school =2 if secondary school =3 if high school =4 if university	=1: 9.4 =2: 36.9 =3: 36.4 =4: 17.2
AGE		=1: if under 24 =2: if between 25 and 34 =3: if between 35 and 44 =4: if between 45 and 54 =5: if between 55 and 64 =6: if above 65	=1: 11.2 =2: 24.7 =3: 22.9 =4: 16.6 =5: 12.5 =6: 12.2
MALE		=1: if male =0: if female	=1: 54.3
MARRIED		=1: if married or living as married =0 otherwise	=1: 63.6
DUM		=1: if US =0: if Europe	=1: 19.1

Table 4: Descriptive statistics

The variable responsibility is computed as an arithmetic average of the variable ambition and the variable hard work. Similarly, the variable compensation is computed as an arithmetic average of the variable natural ability and the variable family background. It is worthwhile to mention the relatively low correlation between the variable ambition and the variable hard work of 0.329 and the relatively low correlation between the variable natural ability and the variable family background of 0.209. Taking up either the variable ambition or the variable hard work instead of the variable responsibility does not change the qualitative conclusions; it only decreases the overall explanatory power of the model. The same holds true for taking up the variable natural ability or the variable family background instead of the variable compensation. Constructing the dependent variable as a dummy and estimating a binary logit model yields similar results as estimating an ordered logit model. The same holds true when estimating an ordered or a binary probit model.⁷

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Containing ethnic conflicts through ethical voting? Evidence from Ethiopia*

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Abstract

In an ethnically polarized country, does aversion towards inter-ethnic inequity induce citizens to vote for a party promoting an equitable allocation of national resources among ethnic groups? We base our analysis on a survey that we conducted among 331 students from Addis Ababa University. We show that aversion towards inter-ethnic inequity does exert a significant influence on university students' vote. Yet, its relative impact is small in comparison to the impact of ethnic group loyalty which determines ethnic voting. We provide confirmation that some specific sociodemographic characteristics significantly (i) increase the degree of aversion towards inter-ethnic inequity and (ii) lower ethnic group loyalty. Those characteristics have in common that they reduce the 'psychological' distance between ethnic groups, like living in a cosmopolitan city and having parents belonging to different ethnic groups.

JEL Classification: D02, D63, D64, D72, H77, N47.

Keywords: Africa, Ethiopia, ethnic conflict, voting behavior, aversion towards inter-ethnic inequity.

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1 Motivation

The impact of ethnic heterogeneity on economic development has triggered off a large interest among economists and political scientists over the last decade (see Alesina and La Ferrara (2005) for a survey). Research on the relationship between ethnic heterogeneity and economic development is based on a definition of ethnicity which goes back to the seminal works of Schermerhorn (1970), Banton (1983) and Horowitz (1985). These authors define ethnicity as a sense of common belonging derived from a ‘real or putative common ancestry’ (Schermerhorn (1970)). In reality, ethnic cleavages are often characterized by both objective and subjective foundations so that ethnic belonging is neither a pure falsification nor a scientifically determinable social phenomenon. The intermediate status of ethnicity between objectivity and subjectivity is widely considered by social scientists as the fundamental reason why the traditional obstacles to collective action presented by Olson (1971) tend to disappear when it get organized along ethnic lines. Objective and subjective feelings of ethnic belonging are indeed likely to create the necessary level of affect, emotions and other non rational factors to trigger off the unconditional participation of an individual in the defense of his ethnic group’s interest (see Smith (1986) and Carment (1993) for a discussion). Yet, the impact of ethnic mobilisation and competition on economic development may fluctuate, depending on the degree of ethnic heterogeneity shown by the context in which the mobilisation and the competition occur. Research has initially focussed on the economic impact of ethnic fractionalization. More recently however, a greater attention has been paid to the economic consequences of ethnic polarization.

Ethnic fractionalization is captured through an index called the ‘ethnolinguistic fractionalization index’ (‘ELF index’ henceforth). The ELF index was originally calculated by Taylor and Hudson (1972). It has a simple interpretation as the probability that two randomly selected individuals from a given country will not belong to the same ethnic group.

Several studies have found a negative direct impact of ethnic fractionalization on growth (see Easterly and Levine (1997), Alesina et al. (1999) and Alesina et al. (2003)). There also exists strong empirical evidence of the negative indirect impact of ethnic fractionalization on growth. Mauro (1995) finds out that ethnic fractionalization enhances corruption which itself lowers investment in productive activities and thereby reduces economic growth. La Porta et al. (1999) emphasize the negative impact of ethnic fractionalization on various indicators of ‘government performance’ like the protection of property rights or the limitation of government expenditures which significantly increase economic growth (see Knack and Keefer (1995) for the economic impact of the protection of property rights; see Barro (1991) and Tavarez and Wacziarg (2001) for the economic impact of the ratio of government consumption to GDP). Finally, Alesina and La Ferrara (2002) provide evidence that ethnic fractionalization significantly lowers inter-individual trust which is a determining factor of economic growth (see Algan and Cahuc (2007)). However, while the devastating character of civil

wars on both the host country's and its neighbours' growth has been confirmed (see Alesina et al. (1996) and Murdock and Sandler (2002, 2004)), none of the studies which investigated the impact of ethnic fractionalization on the emergence of civil wars¹ concluded that this impact was positive and significant (see Collier and Hoeffler (1998, 2002, 2004), Fearon and Laitin (2003), and Montalvo and Reynal-Querol (2005a)).

Alesina et al. (1999) develop a theoretical argument explaining the negative impact of ethnic fractionalization on growth. They assume that citizens' demand for growth-enhancing public goods (education, roads, health care) decreases as ethnic fractionalization increases because of ethnic prejudice. More specifically, the support for public good policies of an individual belonging to a specific ethnic group decreases when the proportion of people belonging to other ethnic groups among the potential beneficiaries increases. This theoretical assumption has been empirically backed by Alesina and La Ferrara (2000) and by Luttmer (2001). Alesina and La Ferrara (2000) show that American citizens living in racially fragmented communities are significantly less likely to participate in collective activities than American citizens living in more racially homogenous communities. Luttmer (2001) provides strong empirical evidence that 'racial group loyalty' in the US significantly induces nonblack (black) citizens to reduce their support for welfare spending when an additional black (nonblack) welfare recipient emerges in his tract. The non significant relationship between ethnic fractionalization and the emergence of civil wars is somewhat easier to interpret. Horowitz (1985), the seminal reference on the issue of ethnic groups in conflict, had already emphasized that the relationship between ethnic heterogeneity and civil wars is not monotonic. One indeed expects more violence in societies where a large ethnic minority faces ethnic majority and less violence in highly heterogenous societies. The main reason behind this intuition has been developed by Collier and Hoeffler (1998). They claim that the coordination costs for the implementation of collective action in ethnically polarized societies are substantially lower than in ethnically fractionalized societies. Research on the relationship between ethnic heterogeneity and economic development has therefore shown an increasing interest in completing the analysis of the economic impact of ethnic fractionalization by the analysis of the economic impact of ethnic polarization.

Ethnic polarization is captured through an index called the 'ethnic polarization index' ('EP index' henceforth). The EP index was originally proposed by Reynal-Queyrol (2002)². It ranges from 0 to 1 and increases the closer the ethnic composition of a country gets to a benchmark (coinciding with the highest level of polarization) where the population is composed of two ethnic groups standing for exactly one half of the population. When confronting the defini-

¹The definition of 'civil war' in these studies generally coincide with the definition provided by Doyle and Sambanis (2000). Notably, the first requirement for an armed conflict to be referred to as a 'civil war' is that it caused more than one thousand deaths.

²In the context of income, the polarization index was initiated by Esteban and Ray (1994) and Wolfson (1994).

tion of the ELF index with the definition of the EP index, one would expect that the correlation between both indexes is positive and high for low levels of ethnic fractionalization. For high levels of ethnic fractionalization however, one would anticipate a negative correlation between both indexes. These intuitions are empirically confirmed by Montalvo and Reynal-Querol (2005b).

Montalvo and Reynal-Querol (2005a) investigate the impact of ethnic polarization on economic development. They find out that, contrary to ethnic fractionalization, ethnic polarization has no direct effect on growth. However, they tease out the significant enhancing effect of ethnic polarization on the emergence of civil wars, thereby confirming that the effect of ethnic polarization on growth is indirect.

The channel through which ethnic polarization increases the probability of civil war onset mostly consists in the division of political parties along ethnic lines in ethnically polarized societies³. Banerjee and Pande (2007) define ‘ethnic political parties’ as ‘political parties which derive their support from, and claim to serve the interests of, an identifiable ethnic group’⁴. The reasons why political parties tend to divide along ethnic lines in ethnically polarized countries are essentially functional. First, as already emphasized, feelings of ethnic belonging facilitate collective action and therefore strengthens the support of grassroots to the ethnic party which represents their interest. Second, ethnic patronage is one of the easiest way for politicians to reward grassroots for their support (see Chandra (2004)). Third, ethnic identities are relatively fixed. From a strategic differentiation point of view, the incentive for a political party to defend the interests of its ethnic group is strong since there is less risk that others will adopt the same identity in order to get power (see Fearon (1999) and Caselli and Coleman (2006)). The division of political parties along ethnic lines in ethnically polarized societies is expected to enhance ethnic competition for the control of national resources and to consequently stir up ethnic grievance as soon as the ethnic majority deprives minority ethnic groups from part of what they consider as their ‘fair share’ of national resources. In other words, in ethnically polarized countries where political parties tend to divide along ethnic lines, the potentiality of conflict is particularly high.

From what has been written, the overall effect of ethnic heterogeneity on economic development, should one consider ethnically fractionalized or ethnically polarized countries, seems negative⁵. In ethnically fractionalized countries, ethnic group loyalty induces citizens to favor the public delivery of private goods

³In ethnically fractionalized societies, the division of political parties along ethnic lines would make little sense since none of the ethnic parties would benefit from a sufficiently large support to get power.

⁴Note that the emergence of ethnic political parties in societies which are ethnically polarized is rather a particularity of developing countries. Western democracies are characterized by a long history of economic development and modernization which favors the supremacy of cleavages based on income classes over ethnic cleavages, even when the degree of ethnic polarization is high. Lipset (1960) emphasizes: ‘the principal generalization which can be made [concerning Western democracies] is that parties are primarily based on either the lower classes or the middle and upper classes’.

⁵Montalvo and Reynal-Querol (2005a) compute that the reduction in economic growth

to local ethnically homogenous communities over nationwide provision of productive public goods. This has a clear negative effect on national economic growth since national resources are wasted into non productive vote-catching activities. Note that low economic growth and subsequent low per capita income are in turn likely to trigger off outbreaks of violence, as it has been shown by Fearon and Laitin (2003), Collier and Hoeffler (2004) and Montalvo and Reynal-Querol (2005a, 2005b)⁶. In ethnically polarized countries, ethnic group loyalty induces citizens to vote for their ethnic party which increases ethnic grievance and the probability of civil war. This conflicting context in turn affects economic growth negatively. Whatever the degree of ethnic heterogeneity, it therefore appears that ethnic group loyalty increases the probability for a country to be locked in a conflict-poverty trap. Finding ways of mitigating the effect of ethnic group loyalty on individuals' vote, specially in low-income ethnically heterogenous countries, could therefore be a promising strategy to enhance economic development. In both cases, this strategy boils down to favoring 'ethical voting'. In the case of ethnically fractionalized countries, 'ethical voting' would amount to a kind of 'utilitarian altruism'. It indeed implies to renounce of the short-term material benefit of publicly provided private goods at a local level to promote instead a nationwide provision of productive public goods likely to maximize the country's global surplus. In the case of ethnically polarized countries, 'ethical voting' would rather amount to 'Rawlsian' altruism, although this assertion holds under very specific conditions (see the Appendix for some theoretical insights). More generally, it implies to renounce of voting for one's ethnic party which is likely to deprive other ethnic groups from part of their 'fair share' to promote instead a non ethnic party favoring an equitable allocation of national resources among ethnic groups. Broadly speaking, ethical voting in an ethnically polarized country boils down to expressing aversion towards inter-ethnic inequity through one's vote.

Wantchekon (2003) and Atchade and Wantchekon (2006) provide first clues about how to enhance ethical voting in an ethnically fractionalized context. They concentrate on Benin which shows a high ELF index of 0.868 (see Montalvo and Reynal-Querol (2005b)). Note that over the 138 countries worldwide, only 7 have a larger ELF index than Benin. Wantchekon (2003) presents the results from a field experiment that he conducted during the first round of the 2001 presidential elections in Benin, with the cooperation of political candidates. More specifically, in a first group of treatment villages, political candidates were competing along platforms which were exclusively promoting a nationwide provision of productive public goods (education, roads, health care). In a second

triggered off by the indirect influence of ethnic polarization is as large as the reduction in economic growth resulting from the direct effect of ethnic fractionalization.

⁶According to Fearon and Laitin (2003), a higher per capita income is associated with a lower risk of civil war onset because (i) it is a proxy for a state's overall financial, administrative, police, and military capabilities, and (ii) it characterizes more developed countries with terrain more 'disciplined' by roads and rural society more penetrated by central administration. According to Collier and Hoeffler (2004), a low economic growth and a low per capita income are associated with a greater risk of civil war onset because it facilitates the enrollment of people by rebels at low cost.

group of treatment villages, political candidates were competing along platforms which were exclusively promoting publicly provided private goods at a local level (among which the hiring of local people in public administration). The control villages were exposed to the regular platforms consisting in a mix between promises of a nationwide provision of productive public goods and promises of publicly provided private goods at a local level. Wantchekon (2003) finds out that the support to political candidates in the ‘public good’ treatment villages was significantly lower than in the control villages. Conversely, the support to political candidates in the ‘private good’ treatment villages was significantly higher than in the control villages. This empirical evidence is consistent with the fact that vote-catching political platforms are more successful than political platforms enhancing the nationwide provision of productive public goods in ethnically fractionalized countries because of ethnic prejudice. Atchade and Wantchekon (2006) analyze the sociodemographic determinants reducing the impact of ethnic group loyalty on individuals’ vote and enhancing instead ‘ethical voting’ (i.e: the support to nationwide public good policies). They find out that travelling frequently across the country, speaking more than one language, watching TV regularly, and having a child living outside the village significantly lowers individuals’ temptation to support vote-catching political platforms. In other words, individuals which do not perceive Benin as completely fractionalized are significantly more likely to promote ‘public good’ policies. This result suggests that campaigns of civic education aiming at reducing the psychological distance between ethnic groups could have a significant positive effect on economic development in highly ethnically fractionalized countries.

To our knowledge, no research has been dedicated so far to determining whether ‘ethical voting’ would help reduce risks of conflicts in highly ethnically polarized countries. The published research on conflict reducing strategies in this context has essentially focussed on institutional design, and notably on the institutional arrangements favoring an efficient power-sharing among ethnic parties (see Rothchild (1996) and Bardhan (1997) for an overview). However, if such institutional arrangements are necessary, they are clearly not sufficient conditions for the settlement of conflicts in ethnically polarized countries. As shown by Schneckener (2002), the best power-sharing constitution will fail if favourable conditions are missing, among which the support for power-sharing arrangements by citizens. This condition was already emphasized by Przeworski (1991) who writes: ‘if sovereignty resides with the people, the people can decide to undermine all the guarantees reached by politicians around a negotiation table. Even the most institutionalized guarantees give at best a high degree of assurance, never certainty’. Our paper therefore aims to conclude whether, in an ethnically polarized country, aversion towards inter-ethnic inequity lowers citizens’ temptation to support their ethnic party and induces them to vote instead for a non ethnic party promoting an equitable allocation of national resources among ethnic groups. We also intend to give some preliminary insights into the sociodemographic determinants of both ethnic group loyalty and aversion towards inter-ethnic inequity. We concentrate on Ethiopia which shows

a high EP index of 0.778 (see Montalvo and Reynal-Querol (2005b)). Note that over the 138 countries worldwide, only 15 have a larger EP index than Ethiopia. This highly polarized context has favored the breakdown of political parties along ethnic cleavages since the instauration of democracy in the early 90s, what is referred to as the ‘ethnicization’ of Ethiopian politics by Vaughan (2003). The ethnicization of Ethiopian politics has been generating an increasing grievance among ethnic groups which makes the tension between ethnic group loyalty and aversion towards inter-ethnic inequity behind Ethiopian citizens’ vote particularly vivid. Note that in their 2005 Peace and Conflict Report, Gurr and Marshall point out that Ethiopia is among the five countries⁷ having five or more of the seven risk factors that have preceded mass killings of the past half-century (see Harff (2003) for a presentation of these risk factors).

More specifically, we base our analysis on a survey that we conducted in May 2004 among 331 students from Addis Ababa University, one year before May 2005 national elections. One may consider the nature of our subject pool as a serious drawback. However, although university students do not constitute a representative sample of the Ethiopian general population, we expect to derive from this very specific subject pool some rough insights into the voting behavior of the average Ethiopian citizen. We back this expectation by the claim that the intensity of aversion towards inter-ethnic inequity in students’ voting behavior constitutes an ‘upper bound’ of the intensity of this concern for fairness in the voting behavior of the average citizen. Three main reasons motivate this claim. First, the university context is known to be a cosmopolitan one. The campus community favors greater interactions between people from different social, cultural and religious backgrounds than its surrounding society. This cosmopolitan context is therefore expected to reduce the ‘psychological’ distance between individuals from different ethnic groups. Second, promotion in the academic studies is based on merit which is often in contrast to the advancement traditions of developing societies where pre-modern ties, like ethnic ones, keep playing an important role. This meritocratic context may reduce students’ reliance on ethnic patronage in their everyday life and notably in their voting behavior. Third, and most importantly, Altbach (1984) recalls that the prominence of anti-establishment ideologies is the main particularity of university student politics. More specifically, the university context induces students to develop an ‘oppositional’ political subculture running counter the political dominant ideology by looking critically at the functioning of the society in which they live, and searching for solutions to the problems potentially endangering its stability. In an ethnically polarized country threatened by inter-ethnic conflict like today’s Ethiopia, it is therefore likely that students struggle for the introduction of non ethnic politics⁸. Consequently, if we find out that aversion towards inter-ethnic inequity does not exert any significant influence

⁷The four other countries are Algeria, Burma, Burundi and Rwanda.

⁸Note that, conversely, students struggled for the empowerment of ethnic groups when Ethiopia was submitted to Haile Selassie’s and Mengistu’s totalitarian regimes which were denying people their ethnic identity and culture.

on university students' vote, we will conclude that there is little hope for this ethical concern to impact the voting behavior of a more representative cross section of the Ethiopian population.

Our findings yield reasons for both optimism and pessimism. First, we show that aversion towards inter-ethnic inequity significantly lowers university students' temptation to vote for their ethnic party, even when controlling for a wide range of motivations influencing the trade-off between voting for one's ethnic party and voting for a non ethnic party. This finding is encouraging since it suggests that ethical concerns could also influence the voting behavior of the average Ethiopian citizen. Enhancing inter-ethnic tolerance through civic education programmes could therefore be a promising conflict-reducing strategy in ethnically polarized countries. Second however, we provide evidence that, though significant, the relative impact of aversion towards inter-ethnic inequity is very small in comparison to the impact of ethnic group loyalty which determines ethnic voting. This finding is discouraging since it suggests that the relative impact of ethical concerns will be even lower across a more representative sample of the Ethiopian population. In other words, the 'return' on nationwide civic education programmes in terms of switch from ethnic voting to 'ethical voting' is expected to be low. Finally, we analyse the sociodemographic determinants of university students' aversion towards inter-ethnic inequity and ethnic group loyalty. We provide confirmation that some specific sociodemographic characteristics significantly (i) increase the degree of aversion towards inter-ethnic inequity and (ii) lower ethnic group loyalty. Those characteristics have in common that they reduce the 'psychological' distance between ethnic groups, like living in a cosmopolitan city and having parents belonging to different ethnic groups.

The paper is organized as follows. In section 2, we provide insights into the 'ethnicization' of Ethiopian politics. In section 3, we present our survey, our econometric approach and the descriptive statistics of the variables entering our econometric specification. Section 4 emphasizes our major statistic and econometric results. Section 5 summarizes our conclusions and highlights avenues for future research. In the Appendix, we provide theoretical evidence of the claim laid in Section 1 according to which, under very specific assumptions, ethical voting in an ethnically polarized country boils down to 'Rawlsian altruism'.

2 The 'ethnicization' of Ethiopian politics

We first present the four main ethnic groups forming the Ethiopian nation. We then show how ethnic grievance has been sharpened by the instauration of ethnic federalism in 1994. We finally highlight the division of political parties along ethnic lines that ensued from this context.

2.1 The four main ethnic groups in Ethiopia

Levine (1974) goes back to the third millennium B. C. to find a primordial differentiation criterion (that of language) between ancestors of the current four major ethnic groups in Ethiopia: the *Amharas*, the *Oromos*, the *Tigreans* and the *SNNPs* (Southern Nations Nationalities and Peoples). At that period, these ancestors were divided into three families of Afro-Asiatic languages: the Semitic languages, the Cushitic languages and the Omotic languages.

By the second millennium B. C., these linguistic groups further differentiated along cultural lines. During this evolution, Cushitic speakers split up into three branches among which eastern Cushites who occupied the southern part of the Great Rift Valley in Ethiopia and who are the ancestors of the *Oromo* ethnic group. Semitic speakers divided into two groups: northern semitic speakers who settled in the northern plateau regions and southern semitic speakers who populated the central part of the country. Northern and Southern semitic speakers are the ancestors of the *Tigray* ethnic group and of the *Amhara* ethnic group respectively. Omotic speakers settled in the southwest and diversified into around fifty communities with distinct languages and cultures. They are the ancestors of a large number of tribes and ethnic groups forming the ethnic patchwork that is nowadays referred to as the *SNNPs*.

Ethiopian history can be interpreted as the history of the ethnic competition essentially between Amharas, Oromos and Tigreans, the SNNPs being too fragmented to get organized efficiently for collective action. Between the eighteenth and the twentieth centuries, the competition was dominated by Amharas. This domination officially ceased with the overthrow of the Amhara emperor Haile Selassie in 1974 by the Derg, the military committee led by Mengistu that established a Stalinist authoritarian regime. However, the Derg's regime preserved the centralized administration inherited from the Amhara empire (see Prunier (2007) for further details), which reinforced ethnic grievance among former Amhara-dominated ethnic groups. Tigreans and Oromos therefore engaged in armed struggle to free themselves from what they perceived as the perpetuation of the Amhara rule. The TPLF (Tigray People's Liberation Front) was created in February 1975 (see Young (1997) for more details). The OLF (Oromo Liberation Front) was created in 1976 because of 'a widespread feeling that Oromos were under-represented in the central government [Mengistu's regime] and treated as 'second-class citizens' (Joireman (1997)). TPLF was the main force which drove the Derg's regime out of power in May 1991. It consequently played a leading role in the democratization process that followed.

2.2 The adoption of ethnic federalism in the 1990s

In the early 1990s, TPLF created a political party called the EPRDF (Ethiopian People's Revolutionary Democratic Front) which has been ruling the country since Mengistu's withdrawal. It is a coalition of three ethnic parties dominated by TPLF. These three satellite parties officially represent the interests

of Amharas through the ANDM (Amhara National Democratic Movement), of Oromos through OPDO (Oromo People’s Democratic Organisation) and of SNNPs through SEPDM (Southern Ethiopian People’s Democratic Movement).

EPRDF initiated a new way of organizing the state: ethnic federalism. Ethnic federalism was endorsed through the Constitution of the Federal Democratic Republic of Ethiopia (FDRE) that was ratified in December 1994. This constitutional arrangement led to the division of the country into nine federal states ‘delimited on the basis of settlement patterns, identity, language and the consent of the people concerned’ (Art. 46-47) and 2 special administrative zones. The nine federal states are⁹: Afar (1.9%), Amhara (25.5%), Benishangul-Gumuz (0.8%), Gambella (0.3%), Harar (0.3%), Oromiya (35.3%), Somalia (5.8%), SNNPR (Southern Nations Nationalities and Peoples Region) (19.8%) and Tigray (5.8%). The two special administrative zones are Addis Ababa (4%) and Dire Dawa (0.5%).



Figure: Map of the Ethiopian federal states and administrative zones

Officially, ethnic federalism aimed to satisfy the demand for recognition coming from former Amhara-dominated ethnic groups through the acknowledgement of the right to self-determination to each federal region¹⁰. Some observers however (see Ghai (2000) and Gudina (2003)) consider that the strategy followed by TPLF was the one of the ‘divide and rule’, the only strategy that could allow this party to keep power despite the fact that it stands for only a minority (Tigreans count for less than 6% of the Ethiopian population).

⁹The percentage of the Ethiopian population living in the region is given into parentheses (Ethiopian Central Statistical Authority (2004)).

¹⁰The right to self-determination is defined by the Transitional Charter in three steps: ‘the right a) to preserve its identity and have it respected, promote its culture and history, and use and develop its language; b) to administer its own affairs within its own defined territory and effectively participate in the central government on the basis of freedom, and fair and proper representation; c) to exercise its right to self-determination of independence, when the concerned nation/nationality and people is convinced that the above rights are denied, abridged, or abrogated.’ (Transitional Conference, 1991: Part One, Article Two).

2.3 The division of political parties along ethnic lines

Ethnic federalism indeed turned out to be a conflict-enhancing arrangement. The first reason why ethnic federalism sharpened ethnic competition consists in its premature character. It endorsed the administrative division of the country along ethnic lines without previously ensuring a nationwide political debate on what, after decades of oppression of one group over the others, nevertheless would keep unifying Ethiopian people. This argument is particularly emphasized by Abbink (1997): ‘Ethiopian political model shows that a country can be post-modern without having gone through a successful modern phase (it has no shared idea of the national state ‘project’, no solid industrial society, no mass consumption, no media culture, and so on)’. As a consequence, ‘most elites of the ethno-regional groups now carved out seem to want to grab political power regardless of the consequences’ (Abbink (1997)).

Ethnic grievance on the part of non Tigrean ethnic groups has been exacerbated by the TPLF’s temptation towards ethnic patronage. Abbink (1995), Aalen (2001) and Mesfin (2006) report a privileged access of Tigrayan elites to key posts in the public administration, what Gudina (2003) describes as a ‘Tigrayanization’ of Ethiopian political elites. Gurr and Marshall (2005) illustrate their definition of the ‘ethnic character’ of a ruling elite through the Ethiopian example, referring to ‘the Tigrean-dominated regime of Ethiopia’.

Ethnic grievance expresses through the division of opposition parties along ethnic lines, but also through the radicalization of the pro-ethnic character of their political platforms. It is particularly vivid on the part of Oromos who, while they stand for the largest ethnic group in Ethiopia, are excluded from the political power.

The two main Oromo opposition parties are OLF and ONC (Oromo National Congress). OLF is the more radical of them. It fights for ethnic separatism, arguing that ‘Oromia was not part of Ethiopia before its colonisation in the last decades of the nineteenth century’ and that ‘Oromos ha[d] always been historically, culturally and linguistically different from the Ethiopians’ (Asafa (1993)). OLF is still involved in armed struggle. It is consequently not authorized to participate in elections. ONC was created in 1996 and promotes self-determination without secession, claiming that the history of the incorporation of Oromos into Ethiopia, though having operated through their subjection, cannot validate the thesis of a separate historical and geographical identity. OLF and ONC constitute serious challengers to TPLF. First, as already emphasized, Oromos stand for 35.3% of the Ethiopian population. Provided that they massively support their ethnic party and that elections are organized on a competitive, free and fair basis, this numerical superiority would provide them with a strong bargaining power at the House of People’s Representatives¹¹. Second, Oromiya is the

¹¹Elections in Ethiopia are based on a ‘first past the post’ rule. This means that each federal region is awarded a given number of seats (proportionally to the demographical size of the region) which are wholly won by the political party having gathered the strongest support in the region.

richest federal region in Ethiopia and is often referred to as the ‘storehouse’ of the country. This makes OLF’s threat of secession particularly credible.

AAPO (All Amhara People’s Organisation) is the most famous Amhara opposition party. It was created in 1992 and crystallizes the resentment of Amharas who have lost ‘the dominant position they enjoyed in Ethiopia for a century’ (Henze (1998)). AAPO’s political priority consists in the preservation of Ethiopia’s political and geographical integrity that AAPO believes to be jeopardized by ethnic federalism. Given that this priority is shared by the emerging non ethnic parties (see below), many Amhara opposition parties joined the non ethnic coalition that competed during 2005 national elections to increase their chance of getting elected.

The SNNPs opposition party is SEPDC (Southern Ethiopian Peoples Democratic Coalition). It was created in 1992 and is an umbrella organisation for 15 different SNNPR-based parties. As already mentioned, SNNPs are not among the most vocal ethnic groups in Ethiopia and SEPDC merely struggles for ‘a modest self-rule’ (Gudina (2003)).

Besides these three ethnic opposition parties, an increasing number of non ethnic parties have been emerging. They started becoming particularly influential after 2000. They are mainly supported by the cosmopolitan urban electorate and most of them joined the non ethnic CUD (Coalition for Unity and Democracy) which competed alongside EPRDF and Oromo opposition parties during the 2005 national elections. In the following, we particularly focus on three non ethnic parties which were among the most popular at the time when the survey was conducted. The first one is CAFPDE (Council of Alternative Forces for Peace and Democracy), a coalition of 31 political organisation that was created in 1993 in Addis Ababa to counter the domination of TPLF over the transitional regime. The two others are EDUP (Ethiopian Democratic Union Party) and EDP (Ethiopian Democratic Party) which promote the recognition of human rights not so much on an ethnic basis than on an individual basis. They struggle for the abrogation of ethnic federalism and for an equitable treatment of the various Ethiopian ethnic groups (see Pausewang et al. (2003) for more details).

3 Data, econometric method and descriptive statistics

We present our survey, our econometric approach and the descriptive summary of the variables entering our econometric specification.

3.1 Survey

Our questionnaire consisted in roughly hundred questions about the students’ perception of democracy, politics, political parties and vote, both as concepts and realities of Ethiopian politics (see Valfort (2005) for a detailed description of the survey).

The survey was filled in on an anonymous basis by 331 students from Addis Ababa University in May 2004, one year before May 2005 national elections. The students were recruited with the help of research assistants. The sample gathers graduate and undergraduate students enrolled both in the ‘regular’ and in the ‘extension’ programs. They come from various faculties of the Addis Ababa University. Over the 325 students who answered the ‘faculty’ question, 40% come from the faculty of Management, 26% from the faculty of Sciences, 14% from the faculty of Economics, and 9% from the faculty of Political Science. The remainder (11%) gathers students from the faculties of Law, Languages and Philosophy. We ran 6 sessions of 50 to 60 students at a single point in time so as to avoid contamination. Each student was paid 30 Birrs (roughly 3 Euros) for showing up, knowing that, according to the 1997 urban household survey reported by Bigsten et al. (2005), 70% of Addis Ababa households earn less than 600 Birrs per month (roughly less than 20 Birrs per day). This rather large amount was necessary since the survey was lengthy and conducted over a week-end.

A system of student exchange between Ethiopian universities has been implemented by EPRDF. Our sample therefore shows a fair diversity in terms of ethnicity and geographical origin. 326 of the 331 students belong to one of the four main ethnic groups¹². Among them, 40% are Amharas ($N = 130$), 21% are Oromos ($N = 69$), 12% are SNNPs ($N = 39$), and 27% are Tigreans ($N = 88$). From now on, we consider these 326 students as our reference sample. Among them, only 21% originate from Addis Ababa while almost one third stems from rural areas (note that 80% of the Ethiopian population is rural).

As regarding the income distribution, 40% of the respondents grew up in an household with an average monthly income of less than 300 Birrs (45% among the urban Ethiopian population according to Bigsten et al. (2005)); 38% grew up in an household with an average monthly income of more than 600 Birrs (30% among the urban Ethiopian population).

14.2% of the reference sample are between 18 and 20; 64.1% are between 21 and 24; 16.4% are between 25 and 29; 5.6% are above 30. Besides, the sample encompasses 11% of female.

3.2 Econometric method

We study the determinants of a dummy variable which takes the value of 1 if the respondent claims to support an ethnic party (AAPO, EPRDF, OLF, ONC, or SEPDC) and the value of 0 if the respondent claims to support a non ethnic party (CAFPDE, EDP or EDUP) or no party at all. We carry out a multivariate binary logit analysis with hierarchical block-wise entry. Given the dichotomous character of our dependent variable a logit analysis has greater

¹²We derive the respondent’s ethnicity from his father’s ethnicity due to the patriarchal organisation of the Ethiopian society (see Giorgis (2002)). Wright (2000) emphasizes: ‘a woman who marries a man from another ethnic group will adopt his identity’.

statistical efficiency than an ordinary least square regression. Note that a probit analysis yields similar results as the ones presented in section 4.

We assume that the variable measuring the utility derived by respondent i when he decides to support an ethnic party can be modeled as follows:

$$y_i^* = \alpha + \beta E_i + \gamma I_i + \delta N_i + \lambda A_i + \mu X_i + \xi e_i + \epsilon_i,$$

where the random component ϵ_i is distributed according to a logistic distribution. The variable y_i^* is not observable. What we do observe is a dummy variable y_i which is the realization of a binomial process defined by $y_i = 1$ if $y_i^* > 0$ and $y_i = 0$ otherwise, where $y_i = 1$ means that the respondent supports an ethnic party.

We categorize our explanatory variables in six ‘vectors’.

First, the E vector (where E stands for ‘**E**thnic group loyalty’) encompasses the motivations behind individuals’ decision to vote for their ethnic party. Three determinants of ethnic voting have been identified by the literature in political science. The first determinant was emphasized by Horowitz (1985). It captures the idea that, when they are *proud of their ethnic identity*, individuals vote for their ethnic party because they derive a psychological benefit (an enhanced self-esteem) in expressing their ethnic identity through their vote. The second determinant was notably emphasized by Mattes (1995). It captures the idea that, when they consider people from their ethnic group as more *trustworthy* than people from other ethnic groups, individuals also tend to vote for their ethnic party because they hold their ethnic party as the only credible political party. The third determinant derives from the very nature of ethnic parties which implement *ethnic patronage* (see Chandra (2004)). It captures the idea that individuals vote for their ethnic party because they care about the material reward that they will receive if their ethnic party get elected, simply because they belong to the *ethnic group* whose interests are defended by the ethnic party.

Second, the I vector (where I stands for ‘**I**ncumbent’) encompasses the motivations behind individuals’ decision to vote for EPRDF, not because EPRDF stands for their ethnic group but because EPRDF is the incumbent party. First, individuals may vote for the incumbent EPRDF because they consider that EPRDF *performed* well during its political mandate(s). Second, they may be willing to reelect EPRDF simply because they consider that there is *no credible political alternative*.

Third, the N vector (where N stands for ‘**N**ationwide’) encompasses the reasons other than aversion towards inter-ethnic inequity that could explain individuals’ decision to vote for a non ethnic (or nationwide) party. More precisely, these reasons include all the characteristics which could explain why individuals do not experience a strong feeling of ethnic belonging. A first characteristic could consist in their living in a large cosmopolitan city (like *Addis Ababa*). Urbanization is often viewed by scholars as a process weakening ‘bonding’ linkages with one’s ethnic community and strengthening instead ‘bridging’ linkages with other

ethnic communities (see Norris (2003) for an analysis). A second characteristic could consist in the *belonging of their parents to different ethnic groups*.

Fourth, the A vector (where A stands for ‘**A**bstention’) encompasses the motivations behind individuals’ decision to vote for no party. First, individuals may decide to abstain because they consider that *politicians do not care* about citizens’ well-being. They may also *do not feel interested* by politics.

Fifth, the X vector encompasses various socio-demographic variables that could account for individuals’ voting behavior in different ways. The X vector includes the *monthly average income* of the household in which the respondent grew up in, the *profession* of the respondent’s father, and the respondent’s *age, gender, and faculty*.

Sixth, and most importantly given the purpose of our research, the e vector (where e stands for ‘ethical voting’) encompasses the crucial ethical concern behind individuals’ decision to renounce of voting for their ethnic party. We call this ethical concern ‘*aversion towards inter-ethnic inequity*’. More specifically, we measure individuals’ aversion towards inter-ethnic inequity through their degree of political mobilization to fight the potential unequal treatment of citizens by the Ethiopian government.

3.3 Descriptive statistics

Table 1 provides a descriptive summary of the dependent variable and of the explanatory variables entering our econometric specification. In the column entitled ‘Variable’, we report the total number of respondents, among the 326 of our reference sample, who answered the question(s) from which the variable is derived. We then decompose this total number by indicating the number of Amharas, of Oromos, of SNNPs and of Tigreans who answered the question. For instance, among the 307 individuals of our reference sample who answered the question related to the ‘ethnic pride’ variable, 125 are Amharas, 65 are Oromos, 36 are SNNPs, and 74 are Tigreans. The same remark holds for the column entitled ‘Proportion’. Concerning the ‘ethnic pride’ variable, it indicates that 7% of the 307 respondents feel most proud when people refer to them as members of their ethnic group. More particularly, 4% of the 125 Amhara respondents, 23% of the 65 Oromo respondents, 3% of the 36 SNNPs respondents and 2% of the 74 Tigrean respondents feel so.

Variable	Question	Coding	Proportion (%)
DEPENDENT VARIABLE (N=312=126+63+38+85)	'Which party do you support?'	=1: support AAPO, EPRDF, OLF, ONC, or SEPDC =0: support CAFPDE, EDP, EDUP or no party	=1: 38 (21;41;18;69)
'E' VECTOR			
ETHNIC PRIDE (N=307=125+65+36+81)	'What makes you feel more proud?'	=1: people refer to you as a member of your ethnic group =0: people refer to you as an Ethiopian citizen or as a human being	=1: 7 (4;23;3;2)
ETHNIC TRUST (N=282=112+63+33+74)	'How much do you trust (i) someone in your own ethnic group (ii) Ethiopians from other ethnic groups?'	=1: trust more (ii) than (i) =2: trust as much (ii) as (i) =3: trust more (i) than (ii)	=1: 9 (8;8;12;9) =2: 54 (53;46;61;59) =3: 37 (39;46;27;31)
ETHNIC PATRONAGE (N=326=130+69+39+88)	'What is the ethnic group of your father?'	We create a dummy for each of the following ethnic groups: Amharas, Oromos, SNNPs, and Tigreans	40;21;12;27
'I' VECTOR			
INCUMBENT'S PERFORMANCE (N=319=126+68+39+86)	'Overall, would you say that democracy has improved or worsened in Ethiopia over the last 10 years?' & 'Over the last 10 years, how well would you say that government has been improving growth and Ethiopians' access to education, health services... etc?'	=1: democracy has improved, as well as growth and access to education, health services...etc	=1: 47 (35;21;51;85)
NO POLITICAL ALTERNATIVE (N=284=111+62+33+78)	'Do you think that a different government coalition could have done better work at handling these matters than the actual one over the last 10 years?'	=1: rather no or not at all	=1: 37 (32;32;36;47)
'N' VECTOR			
ADDIS ABABA (N=324=10+69+39+86)	'Did you mainly grow up on the countryside/village or in a small, middle-size, or big city?'	=1: a big city (Addis Ababa)	=1: 21 (23;22;31;13)
INTER-ETHNIC MARRIAGE (N=326=130+69+39+88)	'What is the ethnic group of your father?' & 'What is the ethnic group of your mother?'	=1: the parents belong to different ethnic groups	=1: 23 (21;41;36;8)
'A' VECTOR			
CARELESS POLITICIANS (N=325=130+68+39+88)	'In many countries, people say that politicians only care about themselves and not at all about the population. Do you agree with them?'	=1: yes a lot or yes to some extent	=1: 38 (46;43;36;23)
NO INTEREST IN POLITICS (N=317=126+66+39+86)	'Generally speaking, would you say that politics interest you?'	=1: not much or not at all	=1: 40 (45;35;51;33)
'X' VECTOR			
HOUSEHOLD INCOME (N=325=130+69+39+87)	'In which category of monthly average income is the income of the household you grew up in?'	Coded from 1 to 7 (=1 if under 150 Birrs;=7 if above 3,000 Birrs)	=1: 20 (14;20;10;33) =7: 2 (3;1;3;1)
FATHER FARMER (N=324=129+69+39+87)	'What is the profession of your father?'	=1: farmer	=1: 29 (25;29;13;41)
AGE (N=319=127+69+38+85)	'In which year were you born?'	Coded from 1 to 5 (=1 if under 20; =5 if above 30)	Average age: 23 (24;23;22;23)
FEMALE (N=325=130+69+39+87)	'What is your gender?'	=1: female	=1: 11 (11;12;21;8)
'POLITICAL SCIENCE' FACULTY (N=325=130+69+39+87)	'In which faculty are you registered?'	=1: Political Science and International Relations	=1: 9 (9;9;10;9)
'e' VECTOR			
AVERSION TOWARDS INTER-ETHNIC INEQUITY (N=291=116+63+34+78)	'What would you be willing to do if the government distributed the wealth of the country only to those who strongly support him or who belong to the same ethnic group or economic class, to the detriment of other Ethiopian people?'	=1: support the government =2: nothing =3: support an opposition party =4: boycott elections =5: join a protest	=1: 5 (6;5;3;5) =2: 8 (9;3;21;5) =3: 38 (40;41;29;37) =4: 11 (10;13;6;14) =5: 37 (34;38;41;38)

Table 1: Descriptive statistics

4 Results

We first examine the perception of the Ethiopian political landscape by students. We then display the descriptive statistics related to their voting behavior. We finally analyze the determinants of their voting behavior.

4.1 The characterization of political parties by university students

To ensure the relevance of our econometric specification, we analyze whether the perception of the Ethiopian political landscape by university students coincides with the picture provided by political analysts (see Section 2). We concentrate on the answers given to the ‘party characterization’ question of our survey (see Valfort (2005), question QC36 pp. 48). This question asks students to describe each political party by choosing one or more of the six following characteristics: the ‘Ethiopia-oriented’ characteristic to describe parties which ‘defend the interest of ALL Ethiopian people without favoring any group more than the other’; the ‘ethnic-oriented’ characteristic to describe parties which ‘favor people from their ethnic group’; the ‘poor-oriented’ characteristic to describe parties which ‘favor poor people’; the ‘power-oriented’ characteristic to describe parties which ‘only care about getting power and not at all about Ethiopian citizens’; the ‘rich-oriented’ characteristic to describe parties which ‘favor rich people’; the ‘vote-oriented’ characteristic to describe parties which ‘favor people who voted for them’. The ‘Ethiopia-oriented’ characteristic and the ‘ethnic-oriented’ characteristic are the two most frequently used characteristics by the students to describe the Ethiopian political parties. They were used at least once by 85% and 58% of our reference sample respectively. *A contrario*, the ‘poor-oriented’ characteristic and the ‘rich-oriented’ characteristic are the two least frequently used characteristics by the students to describe the Ethiopian political parties (less than 10% of our reference sample used them). This observation shows a major convergence between the perception of the political landscape by university students and the way it is described by external observers. Like external observers, university students consider Ethiopian politics to be mainly divided along ethnic lines, not along income classes.

Table 2 reports the percentage of students characterizing an ethnic party as ‘nationwide’ (or ‘Ethiopia-oriented’), the percentage of students characterizing an ethnic party as ‘ethnic-oriented’, and the difference between these two percentages. We indicate in footnote the total number of the respondents who were able to characterize each ethnic party. We display the decomposition of this total number along ethnic lines, by highlighting the number of Amhara, Oromo, SNNPs and Tigrean respondents respectively. Table 2 shows that each ethnic group is able to characterize the ethnic parties representing the interests of other ethnic groups as ‘ethnic-oriented’. But this assertion also holds for most of the ethnic groups regarding the ethnic parties which represent their own interests. Neither Amharas, not Oromos, nor SNNPs are reluctant to characterize

their ethnic party as ‘ethnic oriented’. The only exception comes from Tigrean students who massively characterize their ethnic party EPRDF as ‘nationwide’.

	EPRDF ^a			AAPO ^b			SEPDC ^c			ONC ^d			OLF ^e		
	nat	ethn	ethn-nat	nat	ethn	ethn-nat	nat	ethn	ethn-nat	nat	ethn	ethn-nat	nat	ethn	ethn-nat
Amharas	20	57	37***	20	63	43***	5	80	75***	1	85	84***	1	88	87***
Oromos	8	52	44***	7	84	77***	12	70	58***	10	71	61***	10	82	72***
SNNPs	11	51	40***	0	82	82***	4	70	66***	0	85	85***	0	94	94***
Tigreans	69	11	-58***	9	67	58***	8	73	65***	2	76	74***	2	85	83***

***significant at 1%

^aN=297=117+64+35+81; ^bN=237=90+55+28+64; ^cN=204=74+43+27+60; ^dN=231=94+49+26+62; ^eN=268=101+57+32+78

Table 2: Students’ perception of ethnic parties

Table 3 reports the percentage of students characterizing a nationwide party as ‘nationwide’ (or ‘Ethiopia-oriented’), the percentage of students characterizing a nationwide party as ‘ethnic-oriented’, and the difference between these two percentages. We indicate in footnote the total number of the respondents who were able to characterize each nationwide party. We display the decomposition of this total number along ethnic lines, by highlighting the number of Amhara, Oromo, SNNPs and Tigrean respondents respectively. Table 3 shows that the percentage of students who characterize CAFPDE, EDUP and EDP as ‘nationwide’ is greater than the percentage of students who characterize them as ‘ethnic oriented’. This difference is significant among Amharas, Oromos, SNNPs, but not among Tigreans.

	CAFPDE ^a			EDUP ^b			EDP ^c		
	nat	ethn	ethn-nat	nat	ethn	ethn-nat	nat	ethn	ethn-nat
Amharas	44	16	-28***	56	15	-41***	65	10	-55***
Oromos	50	9	-41***	45	13	-32***	44	18	-26***
SNNPs	39	4	-35***	57	4	-53***	60	4	-56***
Tigreans	26	21	-5	32	23	-9	37	18	-19**

***significant at 1%; **significant at 5%

^a N=162=64+32+23+43; ^b N=182=68+38+23+53; ^c N=210=83+45+25+57

Table 3: Students’ perception of nationwide parties

From what has been written, it appears that the perception of the Ethiopian political landscape by university students do coincide with the description provided by political analysts, with the striking exception however of a majority of Tigrean respondents.

4.2 Voting results

In Table 4, we report for each ethnic group the percentage of respondents who claimed to support EPRDF, an opposition ethnic party, a nationwide party, or no party at all. We distinguish between those who do not characterize EPRDF

as ‘nationwide’ and the others. This distinction seems necessary since we have shown that the characterization of EPRDF is the most controversial among students.

Among those who do not characterize EPRDF as nationwide, a strong majority of students renounce of voting for their ethnic party. The proportion of abstainers is however greater than the proportion of those supporting a nationwide party. This betrays either a disinterest in politics and/or a general mistrust towards politicians, or simply the fact that the nationwide character of CAF-PDE, EDP and EDUP was not clear enough at the time when the survey was conducted. The relative impact of the A vector compared to the impact of the e vector in our regression results will help us conclude. Note that the temptation towards ethnic voting is high among Oromos, and overwhelming among Tigreans since a majority (58%) support EPRDF.

As expected, among those (mainly Tigreans) who characterize EPRDF as ‘nationwide’, a majority support EPRDF.

	Incumbent EPRDF %	Ethnic opposition party %	Non- ethnic/multi- ethnic party %	Abstention %
ALL SAMPLE				
Amharas (N=126)	13	7	24	56
Oromos (N=63)	10	32	16	43
SNNPs (N=38)	11	8	21	61
Tigreans (N=85)	68	1	6	25
THOSE WHO DO NOT CHARACTERIZE EPRDF AS NATIONWIDE				
Amharas (N=99)	8	4	27	61
Oromos (N=57)	9	32	12	47
SNNPs (N=33)	9	9	24	58
Tigreans (N=31)	58	3	10	29
THOSE WHO DO CHARACTERIZE EPRDF AS NATIONWIDE				
Amharas (N=23)	39	22	13	26
Oromos (N=4)	25	25	50	0
SNNPs (N=4)	25	0	0	75
Tigreans (N=54)	74	0	4	22

Table 4: Voting results

4.3 Logit regression results

EPRDF is clearly the political party whose characterization collects the lowest consensus (although a majority of respondents are reluctant to characterize it as nationwide). To secure the relevance of our logit specification where EPRDF is treated as an ethnic party, we slightly modify our logit regression model. Instead of estimating the previous model:

$$y_i^* = \alpha + \beta E_i + \gamma I_i + \delta N_i + \lambda A_i + \mu X_i + \xi e_i + \epsilon_i,$$

we estimate the following one:

$$y_i^* = \alpha + eprdfnonethio(\beta_1 E_i + \gamma_1 I_i + \delta_1 N_i + \lambda_1 A_i + \mu_1 X_i + \xi_1 e_i) + eprdfethio(\beta_2 E_i + \gamma_2 I_i + \delta_2 N_i + \lambda_2 A_i + \mu_2 X_i + \xi_2 e_i) + \epsilon_i,$$

where ‘eprdfnonethio’ (resp. ‘eprdfethio’) is a dummy which takes the value of 1 if the respondent did not (resp. did) characterize EPRDF as nationwide.

The logit results are reported in Table 5. We only present the coefficients of the explanatory variables which are interacted with the ‘eprdfnonethio’ dummy. As expected, almost none of the coefficients of the explanatory variables which are interacted with the ‘eprdfethio’ dummy is significant.

Three important conclusions can be drawn from Table 5.

First, the explanatory variables entering the ‘Ethnic group loyalty’ vector (the ‘ethnic pride’ variable, the ‘ethnic trust’ variable, and the ‘ethnic patronage’ variable) have a strong significant influence on students’ decision to support an ethnic party. As shown in Table 1, the ‘ethnic patronage’ variable coincides the respondent’s ethnic group. We use SNNPs as the reference ethnic group. The positive and significant coefficients of the ‘Tigrean’ variable and of the ‘Oromo’ variable highlight that ethnic patronage is an important determinant of voting behaviors among Tigreans and Oromos¹³. Tigreans have a clear interest in the perpetuation of TPLF’s pro-ethnic policies. As for Oromos, we already emphasized that their ethnic parties are among the most credible challengers to TPLF. Note that Oromos’ strong temptation towards ethnic voting may also reflect the severity of their grievance. In Section 2, it was mentioned that the preservation of the Ethiopian unity was an objective common to the political platforms of Amhara opposition parties and of non ethnic parties. As an illustration, many Amhara opposition parties joined the non ethnic CUD coalition during 2005 national elections to increase their chance of getting elected. Our regression results are consistent with this reality. Although it is not significant, the negative coefficient of the ‘Amhara’ variable suggests that Amharas have more interest in voting for a non ethnic party than in voting for their ethnic party. The coefficients of the variables capturing the respondent’s ethnic group are strikingly consistent with the results of the 2005 national elections. During these elections, the support to ethnic parties was the highest in the Tigray region and in the Oromiya region. TPLF/EPRDF won 100% of the constituencies in Tigray. UEDF (United Ethiopian Democratic Forces), a coalition encompassing ONC and a party close to OLF, won 29% of the constituencies in Oromiya (against 62% for TPLF/EPRDF and 9% for CUD). In comparison, SEPDC won only 10% of the constituencies in the SNNP region (against 75% for TPLF/EPRDF and 15% for CUD).

¹³Note that the coefficient of the ‘Tigrean’ variable is larger than the coefficient of the ‘Oromo’ variable. This finding is consistent with the theoretical assertion displayed in the Appendix according to which, under very specific assumptions, the cost of renouncing of voting for one’s ethnic party decreases with the size of the ethnic group it stands for.

SUPPORT FOR AN ETHNIC PARTY					
	E vector	+ I vector	+ N vector	+ A vector	+ e vector
ETHNIC PRIDE	1.829*** (0.621)	1.800*** (0.691)	1.662** (0.751)	1.674** (0.812)	2.358*** (0.870)
ETHNIC TRUST	0.409 (0.296)	0.563* (0.334)	0.531^a (0.357)	0.813** (0.411)	1.059** (0.493)

ETHNIC PATRONAGE					
TIGREAN	2.281*** (0.668)	2.422*** (0.803)	2.195** (0.874)	2.491*** (0.970)	2.745** (1.107)
OROMO	0.594 (0.591)	1.260* (0.705)	1.626** (0.768)	1.595* (0.823)	1.793** (0.916)
AMHARA	-0.789 (0.609)	-0.209 (0.719)	-0.372 (0.760)	-0.380 (0.829)	-0.243 (0.919)

INCUMBENT'S PERFORMANCE		0.834* (0.481)	0.982* (0.518)	1.167** (0.568)	0.891 (0.635)
NO POLITICAL ALTERNATIVE		0.201 (0.449)	0.125 (0.490)	0.032 (0.528)	0.114 (0.591)
ADDIS ABABA			-1.206* (0.703)	-1.231^a (0.803)	-2.404** (1.116)
INTER-ETHNIC MARRIAGE			-1.663*** (0.629)	-1.699** (0.706)	-1.381** (0.721)
CARELESS POLITICIANS				-0.429 (0.498)	-1.017* (0.596)
NO INTEREST IN POLITICS				-0.983* (0.538)	-1.554** (0.633)
HOUSEHOLD INCOME				-0.284 (0.200)	-0.145 (0.222)
FATHER FARMER				0.299 (0.632)	0.384 (0.700)
AGE				-0.054 (0.259)	-0.064 (0.291)
FEMALE				-0.750 (0.828)	-0.645 (0.987)
'POLITICAL SCIENCE' FACULTY				1.001 (0.907)	1.444 (1.033)
AVERSION TOWARDS INTER-ETHNIC INEQUITY					-0.711*** (0.250)
Number of observations	251	222	221	213	196
Prob>chi2	0.000	0.000	0.000	0.000	0.000
Pseudo R ²	25.4	27.5	31.8	41.6	47.6

Standard errors between parentheses

***significant at 1%; **significant at 5%; *significant at 10%; ^a significant at 15%

Table 5: The determinants of the support for an ethnic party

Voters in the Amhara region showed the strongest support to the CUD of all federal regions. The CUD won 36% of the Amhara constituencies, against 64% for EPRDF). Note that the votes gathered by EPRDF in the Amhara, Oromiya and SNNP regions mainly come from the rural electorate. As wondered by Tamru (2005), it is not easy, due to a lack of survey data, to account for this massive support. It can reflect various realities like a genuine political attachment to EPRDF's agrarian policy, a spontaneous support towards the incumbent party, the fact that opposition parties are weakly represented in remote rural areas, or even the threat of retaliations from the ruling party if peasants do not support it¹⁴. Pausewang and Tronvoll (2000), Pausewang et al. (2003) and Harbeson (2005) record many irregularities in the election process in rural areas, mentioning for instance the 'vote for food' mechanism consisting in providing food aid during dearth times only to those who showed their support to the ruling party. The non significance of the coefficient of the 'father farmer' variable in our logit regression at least suggests that students whose father is farmer are not more tempted than the others to support EPRDF.

Second, there is clear indication that ethical concerns do play a role in students' voting behavior. The strongly significant negative coefficient of the 'aversion towards inter-ethnic inequity' variable indicates that the reluctance to discriminate against other ethnic groups reduces the impact of ethnic group loyalty. It is important to note that this lowering effect holds for all ethnic groups, should they currently suffer from ethnic discrimination or not. The correlation between the 'aversion towards inter-ethnic inequity' and each of the four 'ethnic group' variables is close to zero (correlation of -0.062 with the 'Amhara' variable, of 0.04 with the 'Oromo' variable, of -0.02 with the 'SNNPs' variable and of 0.04 with the 'Tigrean' variable).

Third, the implementation of a logit analysis with hierarchical block-wise entry allows to isolate the contribution of each vector of independent variables to the general explanatory power of our model. Our model explains 47.6% of the variance in students' voting behavior. The 'Ethnic group loyalty' vector accounts for 53.4% of this global explanatory power, against only 12.4% for the 'aversion towards inter-ethnic inequity' variable. In other words, the impact of ethnic group loyalty on students' decision to support an ethnic party is more than four times as high as the impact of ethical concerns. Note that this assertion holds irrespective of the order in which the various vectors enter our econometric specification (in other words, the correlation between the various explanatory variables is very low).

The variables entering the 'Incumbent' vector are not significant at fair statistical levels in the final logit regression. This suggests that students' support for the incumbent cannot be accounted for by their retrospective assessment of the incumbent's performance during its political mandate(s) nor by the belief that there is no credible political alternative. The variables composing the

¹⁴Diamond (2002) categorizes Ethiopia among the 'authoritarian competitive democracies'. These democracies are characterized by nominally competitive elections but actually seriously flawed elections (with political intimidation, vote buying, questionable ballot counts... etc).

‘Nationwide’ vector exert a significant influence on students’ voting behavior. The significant negative coefficients of the ‘Addis Ababa’ variable and of the ‘inter-ethnic marriage’ variable confirm that living in a cosmopolitan community or having parents from different ethnic groups lowers students’ feelings of ethnic belonging and therefore their temptation to vote for their ethnic party. The coefficient of the ‘Addis Ababa’ variable is consistent with the results of the 2005 national elections. CUD won 100% of the seats (N=23) dedicated to Addis Ababa at the House of Peoples Representatives. The variables forming the ‘Abstention’ vector also show a fair level of significance. Note that the contribution of the ‘Nationwide’ vector to the global explanatory power of our model is twice as high as the contribution of the ‘Abstention’ vector. We have underlined in Section 4.2. that those renouncing of supporting an ethnic party were more likely to support no party at all than a non ethnic party. Our regression results suggest that this trend is less due to a lack of interest in politics and/or a global mistrust towards politicians than to the ambiguity of the nationwide character of CAFPDE, EDP and EDUP at the time when the survey was conducted. Finally, none of the sociodemographic variables plays a significant role in individuals’ voting behavior.

The ultimate purpose of this paper consists in identifying ways of reducing citizens’ temptation to vote for their ethnic party in ethnically polarized countries. We have already shown that the aversion towards inter-ethnic inequity significantly counters the impact of ethnic group loyalty. However, it is worthwhile to complete our analysis by further investigating the sociodemographic determinants of students’ ethnic group loyalty and aversion towards inter-ethnic inequity.

Results of the regression of the ‘ethnic pride’, ‘ethnic trust’, and ‘aversion towards inter-ethnic inequity’ variables over the various sociodemographic variables are reported in Table 6.

Our results confirm that sociodemographic characteristics favorable to a reduction in the ‘psychological’ distance between ethnic groups, like living in a cosmopolitan city and having parents belonging to different ethnic groups, significantly reduce ethnic group loyalty and significantly increase the aversion towards inter-ethnic inequity. More precisely, both the ‘inter-ethnic marriage’ variable and the ‘Addis Ababa’ variable significantly decrease respondents’ degree of ethnic trust. However, only the ‘inter-ethnic marriage’ variable influences the respondents’ degree of ethnic pride and of aversion towards inter-ethnic inequity. Regarding the ‘aversion towards inter-ethnic inequity’ variable, this result may suggest that ethical concerns are rather acquired in the early life of individuals. We do not discuss further the impact of the ‘inter-ethnic marriage’ variable on the respondents’ degree of ethnic pride since the coefficient of this variable hardly reaches statistical significance. Belonging to the Oromo ethnic group significantly increases ethnic group loyalty. This result is consistent with the severity of grievance among Oromos. Being a female significantly lowers aversion towards inter-ethnic inequity. This result is surprising. Literature in sociology usually emphasize that women are socialized in a way that makes

them more concerned about others' well-being (see Waerness (1987) for a discussion). In Western democracies for instance, they are typically more supportive to income redistribution than men.

	ETHNIC PRIDE (logit)	ETHNIC TRUST (ordered logit)	AVERSION TOWARDS INTER-ETHNIC INEQUITY (ordered logit)
HOUSEHOLD INCOME	-0.140 (0.206)	-0.024 (0.104)	0.185* (0.098)
FATHER FARMER	0.373 (0.605)	-0.048 (0.328)	0.012 (0.300)
AGE	0.061 (0.059)	0.014 (0.037)	0.016 (0.029)
FEMALE	0.551 (0.753)	0.265 (0.419)	-0.749* (0.389)
INTER-ETHNIC MARRIAGE	-0.939^a (0.658)	-0.536* (0.303)	0.521* (0.289)
ADDIS ABABA	0.066 (0.673)	-0.532* (0.316)	0.096 (0.296)
AMHARA	0.087 (0.133)	0.357 (0.403)	0.099 (0.382)
OROMO	2.269** (1.076)	0.760* (0.434)	0.310 (0.410)
TIGREAN	-0.478 (0.259)	-0.039 (0.430)	0.465 (0.410)
Number of observations	302	278	285
Prob>chi2	0.0004	0.2351	0.1620
Pseudo R ²	18.7	2.3	1.7

Standard errors between parentheses

**significant at 5%; *significant at 10%; ^a significant at 15%

Table 6: The determinants of ethnic pride, ethnic trust, and aversion towards inter-ethnic inequity

However, one should keep in mind that we measure aversion towards inter-ethnic inequity through the respondent's degree of political mobilisation to fight the potential unequal treatment of citizens by the Ethiopian government. In a country like Ethiopia where peaceful demonstrations can be repressed very violently (as it was the case after May 2005 national elections), 'joining a protest' may

constitute a particularly risky activity. In view of the patriarchal organisation of the Ethiopian society, political mobilisation may therefore be perceived as a ‘matter for men’. Finally, our results show that the degree of aversion towards inter-ethnic inequity depends positively and significantly on the average monthly income of the household in which the respondent grew up in. We see two preliminary ways of interpreting this finding. First, it may suggest that ethical concerns constitute ‘luxury goods’ that increase with individuals’ income (see Margolis (1984)¹⁵ for further evidence). This suggests that enhancing aversion towards inter-ethnic inequity in poor ethnically polarized states is meaningless in case poverty is not being hunted down by other means at the same time. As stressed by Udogu (1999), ‘regardless of these practical and theoretical solutions to the problems of political ethnicity and the future of democracy in Africa, if people are hungry these solutions would be meaningless’. Second, this finding may also reflect that aversion towards inter-ethnic inequity increases with the educational background of one’s parents, under the assumption (to be validated) that income and educational background are correlated. Overall, further research is needed to provide more definitive interpretation of the various socio-demographic determinants of ethnic group loyalty and aversion towards inter-ethnic inequity.

5 Concluding remarks

Could ‘ethical voting’ help reduce risks of conflict in ethnically polarized countries? Relying on data collected among students from Addis Ababa University, our answer is threefold.

First, we show that aversion towards inter-ethnic inequity significantly lowers university students’ temptation to vote for their ethnic party. This finding allows for some enthusiasm, at least to contrast with disillusioned assertions coming from the unconditional believers in the power of institutional arrangement for settling ethnic conflicts: ‘Working toward an incentive structure that induces otherwise disaffected people to patch up and cooperate is more useful than mere exhortations of sermons about solidarity and fraternity’ (Bardhan (1997)). More precisely, under our initial assumption that the degree of ethical concerns of university students constitute an upper bound of the degree of ethical concerns of the average citizen, this finding suggests that ethical concerns could also influence his voting behavior. In other words, ‘exhortations or sermons about solidarity and fraternity’ through nationwide civic education programmes could be a promising conflict-reducing strategy in ethnically polarized countries. Finkel (2002, 2003) shows that civic education programs indeed have a significant impact on participants’ ‘political tolerance’, while his concept of ‘political tolerance’ is close to our notion of ‘aversion towards inter-ethnic

¹⁵Margolis (1984) assumes that the likelihood that an individual allocates a marginal dollar to improve his own well-being rather than the well-being of others increases in the ‘participation ratio g/s ’ where g stands for the amount already given to other people and s the amount already given to himself.

inequity'. Finkel defines 'political tolerance' as 'the extent to which citizens are willing to extend procedural democratic liberties to individuals and groups with whom they may disagree'.

Second however, we provide evidence that, though significant, the relative impact of ethical concerns is very small in comparison to the impact of ethnic group loyalty, an important determinant of ethnic voting. More precisely, we compute that the contribution of ethnic group loyalty to the explanatory power of our voting model is more than four times as high as the contribution of aversion towards inter-ethnic inequity. This finding is discouraging since it suggests that the relative impact of ethical concerns will be even lower across a more representative sample of the Ethiopian population. In other words, the 'return' on nationwide civic education programmes in terms of switch from ethnic voting to 'ethical voting' is expected to be low.

Third, we analyse the sociodemographic determinants of university students' aversion towards inter-ethnic inequity and ethnic group loyalty. We provide confirmation that some specific sociodemographic characteristics significantly (i) increase the degree of aversion towards inter-ethnic inequity and (ii) lower ethnic group loyalty. Those characteristics have in common that they reduce the 'psychological' distance between ethnic groups, like living in a cosmopolitan city and having parents belonging to different ethnic groups. Besides, we find that ethnic group loyalty is particularly strong among ethnic groups experiencing a severe level of grievance. Finally, evidence shows that aversion towards inter-ethnic inequity depends positively on the income of the household in which the respondent grew up in.

Obviously, a deeper understanding of the determinants of ethnic group loyalty is needed for the implementation of conflict-reducing and poverty-reducing policies, should one consider ethnically fractionalized or ethnically polarized countries. The last round of Afrobarometer surveys has covered an unprecedented number of 18 sub-Saharan African countries between 2005 and 2006. Moreover, the survey encompasses for the first time a range of questions capturing the three components of ethnic group loyalty that have been identified so far by the literature in political science: ethnic pride, ethnic trust, and ethnic patronage. One future development of our research would consist in constructing subjective indexes of ethnic group loyalty across Africa and study their determinants. For a comprehensive analysis, explanatory variables should not be limited to the standard measures of economic, political, social or institutional performance of a country during its recent past. They should also include historical variables from both the colonization time and the pre-colonization time. As an illustration, Blanton et al. (2001) emphasize that former British colonies are more prone to organized ethnic conflict than former French colonies because the British colonial style did less to corrode the traditional mobilizing structures that facilitate ethnic collective action. We also expect that the pre-colonial degree of centralisation that was computed by Murdock (1967) for a large variety of African ethnic groups exerts a significant influence on today's ethnic group loyalty.

Appendix: modelling ethical voting in an ethnically polarized country

We provide theoretical evidence that, under very specific assumptions, ‘ethical voting’ boils down to ‘Rawlsian’ altruism in ethnically polarized countries where political parties are divided along ethnic lines.

We consider the ‘fair utility function’ introduced in the **paper 1**, assuming that the parameter γ and the parameter α are the same for all individuals. Let X be the amount of national resources that will be divided among K ethnic groups indexed by k . We assume that each ethnic group k ($k \in [1, K]$) comprises n_k individuals indexed by i , with $n_1 \leq n_2 \leq \dots \leq n_{K-1} \leq n_K$ and $\sum_{k=1}^{k=K} n_k = N$. Let the private utility function of individual i in ethnic group k be equal to the amount of national resources that he receives. We consider a one stage voting game where everybody believes that other individuals are deserving. We suppose that individual i in ethnic group k behaves as if he is pivotal when voting (i.e: he votes sincerely). More specifically, he chooses between voting for his ethnic party who will divide national resources equally among individuals belonging to his ethnic group only, and voting for a non ethnic party who will divide national resources equally among all individuals. Since the sum of individual utilities stay the same whatever the way national resource are allocated (given the very specific assumption that individuals’ private utilities are linear in their consumption), we assume that ‘utilitarian altruism’ does not play any role in individuals’ voting behavior (hence, $\alpha = 1$).

Based on this set of assumptions, individual i in ethnic group k votes for the non ethnic party rather than for his ethnic party if

$$\gamma \frac{X}{N} + (1 - \gamma) \frac{X}{N} > \gamma \frac{X}{n_k},$$

which yields to

$$\gamma \leq \frac{n_k}{N}.$$

This condition trivially shows that individual i in ethnic group k renounces of voting for his ethnic party in case he is sufficiently ‘Rawlsian altruistic’ (or, equivalently in our setting, in case he is sufficiently ‘averse towards inter-ethnic inequality’). Note that this condition is all the more unlikely to hold that the size of ethnic group k is small and therefore that the cost of renouncing of voting for one’s ethnic party is high.

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