Autonomy Freedom:
An Empirical Measure for a Theoretical Concept

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Abstract

In this paper we defend a new empirical measure for Autonomy Freedom. We also argue that Autonomy Freedom is the most appropriate metric of freedom in socio-economical contexts. Firstly, we explain what Autonomy is, by surveying the related literature. This exercise will show that Autonomy is indeed the most adequate framework to capture the notion of freedom in its full understanding. Then, we proceed by arguing that a particular question in the World Value Survey gauges the Autonomy Freedom that the respondent enjoys. This fortunate coincidence endows us with a rather wide and handy data-set on freedom, enabling us for the first time to match consistently the theory and the practice of freedom in a unique and flexible way.

Keywords: Autonomy, Freedom of Choice, Theoretical Measure, Empirical Measure.
1 Introduction

In an important speech delivered at Guys and St Thomas’ Hospital London, on 23 June 2004, Tony Blair, then incumbent Prime Minister in the UK, said:

In reality, I believe people do want choice, in public services as in other services. But anyway choice isn’t an end in itself. It is one important mechanism to ensure that citizens can indeed secure good schools and health services in their communities. And choice matters as much within those institutions as between them: better choice of learning options for each pupil within secondary schools; better choice of access routes into the health service. Choice puts the levers in the hands of parents and patients so that they as citizens and consumers can be a driving force for improvement in their public services.

Blair’s speech marks an understanding of the issue of choice in society that is quite remarkable among politicians and highlights two aspects of choice that are of central concern to this paper. The first is an appreciable intuition about the quantitative aspect of choice. If choice matters, as Blair claims, it presupposes alternatives to choose from and, consequently, a plurality of opportunities open to the decision maker. So, to claim that choice is a political goal for governments requires that choice be measurable. Secondly – and even more importantly for our own purposes – if parents and patients are made, by means of choice, “a driving force for improvement”, then choice should allow them to exercise and develop their own selves, which is a recurrent point of in this paper.

From the first aspect it descends, at the same time, that we need to develop a proper measure of choice consistently bolted into appropriate foundations; but also that it must be amenable to practical policy applications – be they either directed to the design of choice-enhancing interventions or to make governments choice-wise accountable. From the second aspect it follows that not any measure of choice would do since it must be a measure that gauges the extent of choice which, in fact, makes citizens a driving force for improvement. As we will see, such a requirement separates dramatically in at least two classes the measures we review. In this paper we develop such a measure, retrieve its theoretical foundations and apply it to unveiling who are those citizens who, more than others, are the driving force for improvement.

The measure of choice that complies with our requirements is called, in this paper, Autonomy Freedom (AF). Its noble roots date back to the im-
important philosophical work developed, mainly by John Stuart Mill, in the romantic atmospheres which dominated the second half of the XIX century. To highlight the main theoretical features of our measure of choice we compare its merits vis-à-vis the characteristics of an alternative approach that, in our view, provides a quantitative assessment for choice that does not capture situations where people are “a driving force for improvement”. Analytically, our task has been pursued in the literature by establishing propositions, syntactically articulated in the form of sets of axioms, that capture what choice is and how much of it is available. In so doing, the literature offers an abstract perspective on the measurement of choice according to which a state of the world delivers wider choice the more it conforms to the prescriptions stated in the axioms.

Although a theoretical measure together with its conceptual underpinnings is important, we acknowledge that it is not sufficient to meet the challenge Blair’s speech is posing to the measurement of choice. We then move on towards an empirical translation of our theoretical measure. Our work is motivated by the feeling that the issue of choice and its measurement is becoming increasingly central for the practice of economics and the accurate framing of social policies. The practical (empirical) approach to the measurement of choice takes quite a different methodological direction. Whereas theoretical measures descend from a purely deductive reasoning where axioms fix the guidelines which drive the quantitative assessment, empirical measures are based on boxes thicken by respondents who face questions about how much choice they feel they enjoy. Unsurprisingly, the two (potentially) complementary approaches do not integrate smoothly. On the one hand, it stands a theoretical framework that lacks an empirical measure; on the other, an empirical approach that doesn’t have a theory: this status quo is far from being satisfactory.

The main contribution we wish to provide with this work is a solution to overcome this difficulty. We adopt AF as the measure of choice. Accordingly, the extent of an individual’s possibility for choice is given by the interplay of two components. One is the objective-substantive part: a person, to enjoy autonomy freedom, must have many non trivial options to choose from. The other part is subjective-instrumental: an individual has autonomy freedom if he can express himself and his personality through his choices, without heteronymous restrictions. In other words, the more the individual is aware of what he is choosing and why he is choosing it, the better off, AF-wise, he is. These insights have recently been formalized by a set of axioms, that allow us to deal, in a rigorous fashion, with autonomy freedom at the theoretical level.
We argue that this formal theory has a straightforward empirical counterpart. Specifically, one of the questions in the World Value Survey (ref.) seems to be tailored to capture people’s feelings about AF, explicitly investigating both the objective and subjective components. In this work we establish and defend the logical connection that ties together the empirical and the theoretical sides of our measure of Autonomy Freedom. If our reasoning is correct, then, the World Value Survey data-set may have potentially strong implications both for economics and social sciences in general, as it provides a new and yet unexplored understanding of choice that satisfies important requirements acknowledged even by people who have government and administrative responsibilities.

The rest of the paper is organized as follows: section 2 explains the core notion of Autonomy Freedom. Section 3 discusses the formal theory that makes it possible to actually use that concept. Section 4 moves to the empirical, and defends the use of the WVS question as a measure for Autonomy Freedom. Section 5 surveys the data collected in the spirit of this framework and traces an identikit of autonomous people in terms of certain socio-economic variables. Section 6 concludes.

2 The Millian concept of Autonomy Freedom

The intuition behind Autonomy Freedom goes back to John Stuart Mill. For him, “the only freedom which deserves the name is that of pursuing our own good in our own way, so long as we do not attempt to deprive others of theirs, or impede their efforts to obtain it” (Mill, 1859, p. 72). If one accepts this statement to be true, as we do, it follows that freedom comes from the interplay of two conditions: firstly that an individual has options to choose from, “variety of situations” (p. 121); secondly that he can exercise control over his choices, “it is desirable [that] people should exercise their understandings ” (p. 121). We call the former requisite objective-substantive freedom, and the second subjective-instrumental freedom. Each of them is necessary to have full freedom, but, by itself, none of the two is sufficient.

AF is what results from the combination of the objective and subjective components. Similarly to other approaches, Mill’s AF is concerned with endowing individuals with alternatives to choose from. Opportunities are valuable because they are good per se – choosing is always better than non choosing. Yet, while other approaches stop there, Mill’s goes on claiming that having opportunities is instrumental to shaping life one’s own way: thanks to our choices, we build our fortune or, with the Latin historian Sallust, faber est suae quisque fortunae.
Autonomy Freedom is then of vital importance for human life: “To give any fair play to the nature of each, it is essential that different persons should be allowed to lead different lives.” (Mill, p.? 1859). And also the “free development of individuality is one of the leading essentials of well-being” (Mill, p.? 1859). Moreover, the free development of some individualities helps to make society a better place to live in. Firstly, by letting those less original learn something they wouldn’t otherwise have ever known and secondly by “opening their [the less original] eyes; which being once fully done, they would themselves have a chance to be original” (Mill, p.? 1859).

We believe that among the existing alternative measures of choice, Autonomy Freedom offers the most appealing perspective. Other approaches see choice as a merely quantitative concept: the more options to choose from, the better. But their perspective is overly reductive, especially in view of the rich policy implications connected with having choice. Autonomy Freedom builds on the insights gained by other approaches as it does not reject the substantive-objective value of choice. Yet, it adds something new, the instrumental-subjective component of choice. In this way, it maintains that having options is good, while simultaneously creating space for the procedural relationship between choice and real life outcomes. Moreover, since it emphasizes self-realization, AF becomes the framework to connect choice with control over the outcomes in one’s life.

3 Measuring Autonomy freedom: the Theory

In this section we deal with the quest for an axiomatic measure of AF. Until recently the Millian concept of autonomy had not been framed in a set of axioms preventing any systematic application to the development of an empirical measure of choice and to reasoning about its policy consequences. Though choice was measured at the theoretical level, the prevailing quantitative frameworks were based entirely on the suggestions made by Pattanaik and Xu (1990) and Sen (1998) which, as we will see, develop their metrics of choice upon the method of option counting that is informationally inadequate to accommodate the Millian concept of autonomy.

A metric for AF should, on the contrary, offer an axiomatization that makes it possible to evaluate and assess individual choice in socio-economic contexts. This is because of the Millian message which requires individuals to be, at the same time, objectively free to choose, but also instrumentally free to use their own opportunities to shape their life their own way. (Bavetta,

The analytical difficulty posed by a formal characterization of the Millian idea of AF is that it requires to capture the extent of an individual’s subjective-instrumental freedom and, at the same time, to take into account the enjoyment of some level of objective-substantive freedom on the part of the decision maker. This difficulty has been solved by Bavetta and Guala (2003) and Bavetta and Peragine (2006) by choosing to characterize choice by a pair of separate variables: “the proper metric [...] should be constructed in the Cartesian product of opportunity sets and sets of potential preferences relations” (Bavetta and Guala, 2003). The first variable, defined in the domain of the set of opportunity the decision maker confronts, delivers information about the degree of objective freedom by looking at the number of relevant options to choose from; the other, defined in the domain of preferences over the conceivable opportunities, measures the level of subjective freedom enjoyed by an agent by looking at his potential preferences. By working in the Cartesian product of opportunity sets and sets of potential preferences relations (i.e., in the domain of an opportunity or choice situation), we make a more efficient use of information and may attach to each opportunity situation a given level of AF so that higher scores signal more autonomous choice.

3.1 Objective freedom

Objective freedom is about having opportunities to choose from. This concept of choice is rather easy to understand and straightforward to measure. For these reasons, mainstream approaches deal mostly with it.

The Simple Cardinality Ordering (SCO), due to Pattanaik and Xu (1990), provides the first metric of freedom, simply by formalizing axiomatically the idea that the more the extent of options a decision maker may choose from, the larger his extent of choice. Yet, if we were to rely only on the options counting method, we would end up overlooking the lurking differences between options. In fact, the problem with SCO is that it neglects differences among opportunities. According to Pattanaik and Xu, a situation where an agent faces the choice between a bus or the tube (2 options) is as free as one in which he faces a choice between a bike and a car (2 options, as well). This clearly misses individual differences. Think about a disabled person in a wheelchair. For him the second situation is actually a non-choice situation, because he can’t use either means of transportation, while the first one would offer him real possibility to choose.

SCO does count the number of options, and, in this sense, it is an appropriate measure of objective freedom. It fails, though, to provide an account
of choice in the subjective-instrumental sense. This last concept, in fact, needs to be tailored upon the specific circumstance of each individual, to avoid incurring in the paradox described in the example above.

In the attempt to capture individual differences while ranking availability of opportunities, Sen proposed to refine Pattanaik and Xu’s cardinality measure with his Preference Ordering (Sen, 1988, 1991). Specifically, he took into account the preferences that an individual has over the available opportunities. A person enjoys a greater degree of choice if he may choose among more preferred options. In practice, the axioms rank different opportunity sets by counting the number of alternatives that each of them offers, once the options that the agent dislikes are, in some sense, screened away.

PO then measures not only the degree of objective freedom, but something more, because it makes use of information about some individual characteristic. Yet if we accept the notion of Autonomy Freedom, PO does not measure the “right” understanding of choice, as it misses, alike SCO, the subjective-instrumental dimension required by the Millian notion. Or, to put it in other words, it lacks emphasis on the procedural value of having choice. By taking the individual preferences as exogenously given, Sen’s approach misses the point that choice must be measured in the process of preference formation.

What we learnt from Pattanaik and Xu and Sen’s theories is that an appropriate theoretical measure of AF has to account for the objective freedom in the spirit of SCO, and has to embed subjective freedom avoiding PO’s error. To accomplish this task, Bavetta and Guala (2003) and Bavetta and Peragine (2006) engineer a description of choice situations by means of a pair of variables. The first one counts the number of options that a choice situation is offering, and the second one accounts for the subjective freedom, as will be explained in the following subsection. Note that they are not using Sen’s preference-wise counting method. Recall that Sen introduced that device to capture the specific circumstances of the individual in the process of choosing. Here such a requirement is solved in a different way. By explicitly introducing the subjective freedom variable, the agent is free not only to choose the option, but also to pick his actual preference relation among all possible ones, in a process that is freedom enhancing by itself.

Therefore, the objective freedom variable that AF needs is just the number of raw options that an agent is faced with. Once the agent has alternatives to choose from, his subjective freedom comes in, letting him to screen the options by compiling the preference ordering that best suits his needs and beliefs.
3.2 Subjective freedom

Subjective freedom matters for the exercise of the self, i.e., of one’s autonomy, and it is a central requisite for leading a fully free life. Moreover, the issue of freedom as exercising (Mill, 1859, Bavetta and Guala, 2003) is critical and of central interest for the practice of economics because it provides the ground for the relationship between choice and individual control over real-life outcomes such as, for example, individual self-satisfaction and perceived success (Bavetta, Bottero and Navarra, 2008).

To capture such a relationship formally requires more information than that used by SCO or PO since subjective freedom entails instrumental/procedural considerations. These account for the fact that to actually engage in a non trivial decision makes an agent a better person, by fostering his intellectual capacities: “selecting among different alternatives is important for its consequences on the development and exercise of one’s own individuality” (Bavetta, 2006). To measure Autonomy Freedom, therefore, one needs to frame to what extent the decision maker is actually free to be “his own master” in different choice situations.

To accomplish this task, Bavetta and Guala (2003) and Bavetta and Peragine (2006) look at the pre-deliberation stage of a choice, when an agent is going to face a decision but has not really still thought about it. At this stage, the individual has not yet formed his preference relation over the alternatives, but he needs to form one of his own, that will subsequently guide him in the decision process. We can say that at the pre-deliberations stage the individual faces only potential preferences. These are all the possible preference-wise arrangements that can be formed out of the options he faces: “sets of preference relations that an agent may (but not necessarily do) endorse” (Bavetta and Guala, 2003). To actually choose an alternative, the individual has first to pick an ordering over the others and then to act accordingly. This process is relevant and being free to carry it out is what we mean by subjective freedom. It is a “process of conscious evaluation” that ensures that “what is achieved must have been chosen, what is chosen must have been preferred, and preferences must be of one’s own” (Bavetta and Guala, 2003).

Anyway, the set of potential preferences over a given choice set is different from the set of all the possible combinations of the available alternatives. Potential preferences are those orderings that the individual may be willing to endorse, for good reasons. I may have good reasons to prefer “quitting smoking” over “smoking” (health considerations), and by the same token, I may have good reasons to prefer “smoking” to “quitting smoking” (smoking is a short-term remedy to stress). These two orderings are potential preference
orderings. But suppose in my choice set there is another option that I don’t know, i.e., “use schnuss”. This alternative can’t be potentially preferred to any other, because I don’t know “what it feels like” (Bavetta and Guala, 2003). Yet, I can learn about this new alternative from the experience of the others, and in that case schnuss would rightfully enter as an option in my potential preference relations.

The introduction of potential preferences as a device to measure subjective freedom is the novelty of Sugden (1999, 2004) first, and of Bavetta and Guala (2003) and Bavetta and Peragine (2006) metric, which made it possible to formalize Autonomy Freedom. While the cardinality of the choice set provides a good measure of the objective freedom, potential preferences capture the extent of the decision process in which the agent’s is engaged. The more potential preferences an agent has, the more he has to think to decide what he really wants to do, and the more he gets into the decision process as an expression of himself and his personality.

Therefore, under this metric, agents enjoy greater freedom of choice when a) they have more options to choose from, and b) a wider space to express themselves through the choice they undertake.

Summing up, Bavetta and Guala and Bavetta and Peragine’s formalization succeeds in granting the applicability of the Millian concept of autonomy thanks to the combination of two factors: the notion of potential preferences and the two-variables characterization of AF. Once we make use of such a more refined set of information, we may arrive at a unique ranking of choice situations.

The formal problem connected with the applicability of AF is then solved. We can now concentrate on how to measure it empirically.

4 Measuring Autonomy Freedom: from Theory to Empirics

Autonomy Freedom is pretty much a microeconomic data and information about its extent can only be collected through surveys. Fortunately, we now have a great variety of micro data-set, collected world-wide and at regular time intervals. These data-sets gather information on how people feel and how they perceive themselves and the society around them. The Eurobarometer, the European Social Survey or the World Value Survey (WVS) are some examples among the many.

One of the questions of the WVS seems adequate to translate the theoretical measure of AF into an empirically sizeable quantity. The WVS is
a survey carried out by the World Value Survey Association, which aims to survey the “values and beliefs of people on a global scale”, in order to “help social scientists and policy makers better understand world views and changes that are taking place in the beliefs, values and motivations of people throughout the world” \(^1\). The Survey is repeated every ten years, and consists of the administration of a detailed questionnaire in face-to-face interviews. So far five waves have been carried out, and the data-sets can be viewed in full on the WVS website.

The question that interests us is labeled “A173 - How much freedom of choice and control” and it goes as follows: “some people feel they have completely free choice and control over their life, while other people feel that what they do has no real effect on what happens to them. Please use a ten-point scale in which 1 means none at all and 10 means a great deal to indicate how much freedom of choice and control you have over the way your life turns out”\(^2\). This question sounds pretty much to work for measuring autonomy freedom: it explicitly refers both to “free choice” (substantive-objective freedom) and “control” (instrumental-objective freedom). Therefore, *prima facie*, it captures the core intuition of autonomy freedom. What we want to show in the two following subsections is that the first part, “free choice”, is a good measure of the objective freedom, while the second, “control over life” captures the extent of an individual subjective freedom. This formulation of the question then matches the structure of Autonomy Freedom and hence endows us with a wide and accurate data-set reporting people’s feeling about the extent of AF they enjoy.

### 4.1 “Freedom to choose”

Let’s now focus on that part of the question that refers to “freedom of choice”. The term is repeated twice, and the question is about “how much freedom of choice” an individual is feeling to be enjoying in a certain moment of his life. “Freedom of choice” naturally leads us to think about the number of opportunities we have. Intuitively, it appeals to the extent of the available opportunities, and their accessibility. Moreover, it is a static concept, in the sense that it is not extended over more than one period (now): how many options I have today does not influence how many options I may have at any future date.

Therefore, when answering this question, most of the people just rapidly think of how many alternatives they have, and answer accordingly: 10 for “a great deal” and 0 for “none at all”. This measure gauges the objective

\(^1\)This is the Mission statement and goals of the WVS Association
freedom that an individual enjoys. Logically, it is equivalent to ask: “how many different elements do you have in your choice set?” and given that the more the better, high self reported values should indicate realities where people enjoy more choice.

Moreover, since the values are self reported, this indicator signals the real amount of objective freedom, screening away the “useless” options. Suppose in fact that in country A you have a huge variety of entertainments but very little options when it comes to work possibilities. An objective snapshot of that society may actually fail to recognize the imbalance between the number of options, and just count the remarkably high number of them, and hence wrongly conclude that that country enjoys a high level of freedom. When we use self reported data, this problem is solved at the root. When answering, the individual is already weighting out his personal characteristics. This means that if instead of taking an objective statistics, we interview the people in country A, some of them will report to enjoy a great deal of free choice – those for whom entertainment is more important than work – and some of them will report very little – those who value more the free choice in the labour market. Looking at the “average individual” then, we should be able to have a realistic idea of the averages of the two groups: if the group of people that love more choice in work is big enough, then the statistic will report very low perceived levels of freedom of choice.

Saying this concept differently, the survey takes into account the range of available options given each person’s preferences. This measures the objective value of freedom, whose theoretical counterparts are the Simple Cardinality Ordering (SCO) and the Preference Ordering (PO). When answering, the person reports his feeling about the number of options he may choose from that he actually likes, thus washing away the inflating effect of the availability of options that he would never choose.

Therefore, this part of the question in the survey takes into account the quantitative interpretation of freedom. This should not be surprising if we want that question to measure the extent of Autonomy Freedom: actually, it is indeed necessary. Autonomy Freedom, in fact, does not reject the findings of the cardinal branch of the theory, but it builds on them. If we take options away from a choice situation, there is no way we are going to increase its attached levels of freedom. It is necessary, then, for a coherent measure of Autonomy Freedom, that the objective-substantive freedom is clearly taken into account. Yet, it is not sufficient: Autonomy Freedom is more than options, it is also freedom to exercise control over one’s life, the possibility of using freedom as an instrument to shape one’s life in accordance with his ideals.
4.2 “Control over one’s life”

We said that Autonomy Freedom is made up by two components: one objective-substantive and one subjective-instrumental. So far we have shown that, theoretically, the objective part has been framed by SCO and PO, and the subjective by the AF bivalent characterization. On the empirical level, we argued that the first part of the question in the WVS measures the objective component. It is now left to show that the “control over your life” part mentioned in the remaining of the question actually takes into account what we mean by subjective value of freedom.

“Control” is a dynamic concept, which intuitively leads us to think whether we can achieve what we choose for ourselves. Therefore it refers to both the possibility of choosing one own’s ends, and to the freedom to pursue them. Autonomy Freedom is pretty much this, since it is meant to take into account the degree of awareness that people have over their lives, given that they have objectively different options to choose from.

So the crucial link here is the following: when someone is subjectively free, he is also more likely to feel that he exerts control over the outcomes in his life. Therefore, when we ask him how much control does he feel to have over his life, we are asking how much subjectively free he is. How can we say that there is a direct relationship between subjective freedom and control over outcomes?

This follows from the definition of Autonomy Freedom which, other things being equal, corresponds to the individual subjective’s freedom. Being autonomously free implies that “what is achieved must have been chosen, what is chosen must have been preferred and preferences must be “of one’s own”” (Bavetta and Guala, 2003). Moreover, “autonomy is then linked to a process of conscious evaluation […]”. An individual enjoys autonomy freedom to the extent to which he or she may accomplish conscious evaluations of the available alternatives and root his or her choice on such an evaluative process” (Bavetta and Peragine, 2006). These considerations mean that the subjectively free individual is more likely to feel that he exerts control over the outcome in his life, and this makes the question “how much control do you feel you have?” an appropriate question to measure an individual’s subjective freedom.
5 Autonomous individuals: Who they are and what they think

We pointed out so far that the survey question A173 included in the World Value Survey (WVS) database is appropriate to construct an empirical measure of autonomy freedom. In this section our objective is to unveil the identikit of autonomous individuals and examine their socio-demographic characteristics as well as their thinking about politics, economics, religion and society.

5.1 The Data and the Empirical Model

We use data from the WVS database which is designed to enable a cross-national, cross-cultural comparison of values and norms on a wide variety of topics and to monitor changes in values and attitudes across the globe. This data collection contains the survey data from the four waves carried out in 1981-1984, 1990-1993, 1994-1997, and 1999-2004. These survey responses have now been integrated into one data-set, to facilitate time series analysis. Coordinated by a group of social scientists from leading universities, the survey is performed on nationally representative samples of approximately 80 societies covering 60 countries that contain 85% of the world’s population. These societies span over a full range of variation, from societies with per capita incomes below 300 dollars per year, to societies with per capita incomes of more than 35,000 dollars per year; from long-established democracies to authoritarian states; from societies with market economies to societies that are in the process of emerging from state-run economies.

To examine who the autonomous individuals are and what they think about politics, economics, religion and society we estimate the following ordered logistic model:

$$AF_{i,c,t}^s = \alpha^s Dmg_{i,c,t}^s + \beta^s Pol_{i,c,t}^s + \gamma^s Soc_{i,c,t}^s + \delta^s Econ_{i,c,t}^s + \theta^s Rlig_{i,c,t}^s + \eta^s + \nu_t + \epsilon_{i,c,t}^s$$

(1)

where $AF_{i,c,t}^s$ measures the level of autonomy freedom of individual $i$ in country $c$ at time $t$. It ranges from 1 (low autonomy freedom) to 10 (high autonomy freedom); $Dmg_{i,c,t}^s$ is a vector of socio-demographic characteristics including sex, age, marital status, education level, income and employment status; $Pol_{i,c,t}^s$ reflects the individual’s political orientation; $Soc_{i,c,t}^s$ measures the individual’s level of trust in other people; $Econ_{i,c,t}^s$ indicates the individual’s support in market-oriented institutions; $Rlig_{i,c,t}^s$ is a vector reflecting
the religious beliefs of the respondents; $\eta^s_i$ refers to country dummies, $\nu^s_t$ to year dummies and $\epsilon^s_{i,c,t}$ is the i.i.d. error term.

The superscript $s$ in the equation indicates that in carrying out the empirical analysis we consider the full sample (in which case $s = \text{full sample}$) as well as different sub-samples divided along geo-economic lines ($s = \text{individuals living either in OECD countries, or in developing economies or in transition countries}$), political orientation ($s = \text{either left-wing or right-wing party supporters}$) and religious beliefs ($s = \text{either Catholics, or Muslims, or Protestants or Orthodox}$).

In Appendix A we report the list of countries considered in our study, the data definitions with their respective sources. In Table 1 we display some descriptive statistics of the variables used in the empirical investigation.

It is important to stress from the outset that the empirical results that we obtain do not allow us to establish any causal relationship between regressands and regressors, but rather only conditional correlations. We believe that such correlations are interesting since, beside being statistically robust, they allow us to establish some important individual characteristics that help us to identify the autonomy free individuals in general and across countries, political orientation and religious beliefs.

### 5.2 The Data and the Empirical Model

In Table 2 we report regression results for the full sample. Columns (a) and (b) include country and year dummies. In Column (a) we find that the probability of higher levels of Autonomy Freedom increases for those individuals with the following socio-demographic characteristics: male, either young or old, rather than middle-aged, with numerous children, single, well educated, full time employee, rich and living in big cities. In column (b) we also assess what autonomy free individuals think about politics, economics and society. We find that they are more likely to be right-wing politically oriented, free market supporters and more inclined to trust other people. It is important to note that, with the only exception of marital status, both the signs and coefficients of socio-demographic variables are consistent across the two specifications displayed in columns (a) and (b). In column (c) we add the individuals’ religious beliefs. Again, the socio-demographic characteristics of the autonomy free individuals and their opinions about politics, economics and society continue to be unaffected. As far as their religious belief is
concerned, Catholics and Protestants are more likely to be autonomous. On the contrary, the probability of being autonomous declines for Muslims and Orthodox.

In Table 3 we divide the full sample along geo-economic lines according to whether individuals live in OECD (see results in column (d)), developing (see results in column (e)) and transition countries (see results in column (f)). Again, country and year dummies are included in all the three specifications. Although overall results do not change much both across tables and specifications, a more careful look at the estimates reveals some differences across the three sub-samples which deserve to be noted. The probability of being autonomous increases for those individuals displaying the following socio-demographic characteristics: either young or old, well educated, rich and living in big cities. Full time employees are significantly correlated with autonomy freedom for OECD and developing countries. In transition economies only, however, the probability of being autonomous increases if the individuals are male. For what concerns the individual’s opinions concerning politics, economics and society, we note that, regardless the country they live in, the autonomy free individuals are more likely to be right-wing politically oriented, free-market supporters and more inclined to trust other people.

Some interesting differences emerge when we compare the religious beliefs of respondents across geo-economic lines. In OECD countries Catholics are more likely to be autonomous, whereas in developing countries the opposite is the case. In transition economies the correlation between Catholics and Autonomy Freedom, although displaying a positive sign, is not statistically significant. As far as the Muslims are concerned the correlation with the level of AF is always negative, though statistically significant only for those living in OECD countries. This indicates that in OECD countries the probability of being autonomous is more likely to decline for the Muslims. On the contrary, AF is more likely to increase for Protestants in OECD countries. In developing and transition economies the correlation between Protestants and autonomy freedom, although displaying a positive sign, is not statistically significant. Finally, the probability of being autonomous systematically declines for the Orthodox.

In Table 4 we divide the full sample into two smaller sub-samples according to whether the individuals are left-wing or right-wing party supporters.
Our findings are displayed in columns (g) and (h). As before, in both the estimations we include country and year fixed effects. The results that appear in the table do not show relevant differences across specifications. Signs and coefficients of the estimates are largely consistent also with those appearing in Table 1. Therefore, regardless whether the sample of individuals under consideration is made up of right-wing or left-wing supporters, Autonomy Freedom is more likely to increase if individuals possess the following socio-demographic characteristics: male, either young or old, with numerous children, single, well educated, rich and living in a big town. Further, individuals, again regardless their political orientation, are more likely to be autonomous if they are market-oriented, more inclined to trust other people and if their religion is either Catholic or Protestant. The only difference with the results reported in the two columns of Table 3 is that full employment increases the probability of being autonomous for left-wing party supporters and it is not statistically significant for those supporting right-wing parties.

Finally, in Table 5 the full sample is divided in four different sub-samples according to the religious beliefs of the individuals. This generates four different specifications whose estimates are reported in columns (i) to (n). Again, country and year dummies are included in the estimations.

WE HAVE SOME PROBLEMS WITH THE SPECIFICATION CONCERNING THE MUSLIMS, WE ARE TRYING TO FIX IT AND AS SOON AS POSSIBLE WE COMPLETE THE ESTIMATION AND WRITE THE COMMENTS ON THE RESULTS OBTAINED

[Table 5 about here]

6 Concluding remarks

In this paper our aim was to develop an empirical measure of choice based on the Millian concept of Autonomy Freedom. The starting point of our analysis was the axiomatic measurement of Autonomy Freedom. We pointed out that such a theoretical measurement is constructed on the basis of two different components. The first is substantive-objective and the second instrumental-subjective. The theoretical measure of autonomy freedom is then translated in an empirical measure operationalized through and indicator drawn from the World Value Survey database. We collected individual level data across about 60 different countries over a time span covering the period 1981-2004.
After theoretically justifying the appropriateness of the empirical measure of subjective freedom that we propose in this study, we examined who the autonomy free individuals are and what they think about economics, politics, religion and society. To this aim we carried out an empirical investigation dividing the full sample of respondents along geo-economic, political and religious lines. With minor exceptions, we found that in general autonomous individuals display the following socio-demographic characteristics: male, either young or old, with numerous children, single, well educated, full time employee, rich and living in big cities. They are also more likely to be right-wing party supporters, free market oriented and more inclined to trust other people. Finally they are more likely to be either Catholic and Protestant, rather than Orthodox or Muslim.

We believe that it is important to shed light on the relationship that economic and political variables have with the degree of choice perceived by individuals. Yet, questions concerning the mechanisms of economic policy design as well as the processes of collective decision making still remain unanswered. Let us consider some examples.

A vast literature stresses the significance of human capital as a source of competitive advantage to individuals, organizations and societies (Becker, 1964). Individuals’ perception of freedom – their perception of being conscious subjects, instruments of their own destinies – is likely to be correlated with the production of human capital and, in turn, with economic innovation and growth. Undertaking tasks whose design emerges from an autonomous deliberative process strengthens individuals’ responsibilities and, in turn, expands the scope and the return of investments in human capital. We believe that this value-generating potential of freedom may lead to formulate interesting questions that deserve to be investigated: does the degree of freedom affect the process of innovation and technological change? Does it influence entrepreneurial activities? Does it impact on social mobility? What are the implications that can be derived from answering these questions for economic growth, the distribution of income and human well-being?

Individuals’ perception of freedom is also likely to be linked with how democracy works. It has been argued that the performance of democratic systems (as well as their consolidation) depends on civic virtues, i.e., a well-functioning social organization based on networks, norms and social trust that facilitates coordination, cooperation and independent civic engagement (Putnam, 1993 and 2000). Other scholars pointed out that the working of democracies is crucially dependent on a wide-spread sense of autonomy in political choices (Hardin, 2000). As civic virtues and autonomy flourish, so does political accountability and therefore the responsiveness of collective decision-making to individual preferences diffusely held in society. In this
framework, it is possible to identify a relationship between the perception of Autonomy Freedom in political choices in a virtuous society, on the one hand, and political responsibility in the process of democratic decision making, on other. Interesting research questions that is worth exploring are: do higher levels of autonomy bear consequences on representativeness in elected assemblies? Do they affect policy decisions at different governmental levels? What is the effect of greater autonomy on electoral campaigning and on parties’ electoral strategies? Do variations in the degree of autonomy affect political accountability of elected representatives?

Answers to the above questions requires an impressive amount of both theoretical and empirical work to be done. We believe that the empirical measure of subjective freedom proposed in this paper is an important starting point for those researchers in the fields of economics and political science interested in the analysis of the relationship between subjective freedom and the functioning of both democratic and economic systems worldwide.