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DOES CULTURE AFFECT ECONOMIC OUTCOMES?

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“There are two explanations for economic behavior – a famous economist used to teach his students – I never want to hear from you: cultural differences and ignorance.” Rather than being an isolated position, such an attitude reflects that most economists have toward any cultural explanation of economic phenomena. And justified it is. Most cultural explanations are little more than fig’s leaves for our ignorance, an attempt to “claim the residuals” void of any scientific pretense. There are famous examples of “cultural explanations” that proved to be dead wrong: for example a Western observer in trying to explain Japan’s underdevelopment in 1881 said: “The Japanese are a happy race, and being content with little, are not likely to achieve much.”¹

That culture has been a refuge for ignorance does not mean that it should always be relegated to ignorance, or that cultural explanations should play no role in economics. Sociologists and anthropologists have accumulated a wealth of field evidence on the impact of culture on economic behavior. Salomon (1992), for instance, documents that in Southern Illinois, in spite of the similarity of environmental conditions, the structure of land ownership, farming practices, choice of crops, and female fertility greatly differ between towns inhabited by descendents of German-Catholic who settled in the 1840s and towns inhabited by descendents of settlers from other parts of the United States (mainly Kentucky, Ohio and Indiana). German-Catholics are more attached to the land, which they never sell, have on average more children, and thus tend to grow crops that are more labor intensive to employ their children. Yankees see farming as a business, buy and sell land more often, use extensive crop such as corn and have fewer children. Interestingly, while Yankees are generally more profitable, the German-Catholic model does not appear to lose prevalence after more than a century, because of the higher fertility of German Catholics. Hence, not only does culture have an effect, but this effect seems to persist over time in spite of its lower profitability.

These examples notwithstanding, in the last fifty years most economists have been reluctant to rely on culture as a possible explanatory variable. Much of this reluctance is due to the fact that the notion of culture is so broad and the channels through which it can enter the economic discourse so ubiquitous (and vague) that it is difficult to

¹ Quoted in Landes (1998).

design testable (i.e., refutable) hypotheses. Without testable hypotheses, there is no role for culture in economics.

In recent years, however, serious attempts have been done to overcome this impasse. While working in different fields and confronting different problems, several papers (Alesina and Glaeser (2004), Fernandez and Fogli (2005), Guiso, Sapienza, Zingales (2003) and (2004a, b), Roland (2005), Tabellini (2005)) have used culture to explain economic outcomes. The common denominator in these papers is a narrower definition of culture, which minimizes the risk of endogeneity and facilitates the elaboration of refutable hypotheses. The goal of this paper is to distill the common lesson contained in these papers and show its broad applicability to diverse areas of economics.

The definition of culture these papers explicitly or implicitly use is *those customary beliefs, values, and social constraints that ethnic, religious, and social groups transmit fairly unchanged from generation to generation*. While not very different from the Webster's one ("the customary beliefs, social forms, and material traits of a racial, religious, or social group"), this definition leaves out many aspects that ordinary people would identify as culture (like food and dress habits), but are unlikely to have a relevant impact on economic outcomes. By contrast, it emphasizes some dimensions that are important for its application in economics.

First, it restricts the attention to three possible channels of influence: beliefs, preferences, and constraints, which are essentially economic in nature. This restriction makes the definition compatible with the individual utility maximization framework (and thus with the whole neoclassical apparatus), facilitating the elaboration and testing of hypotheses.

Second, this definition focuses on the dimensions of culture that are inherited, rather than voluntarily accumulated by an individual. As Becker (1996) writes,

"Individuals have less control over their culture than over other social capital. They cannot alter their ethnicity, race or family history, and only with difficulty can they change their country or religion. Because of the difficulty of changing culture and its low depreciation rate, culture is largely a "*given*" to individuals throughout their lifetimes." (p. 16, emphasis added).

This “*given*”, emphasized by the definition, is the most exogenous component of culture and thus the primary candidate to explain economic behavior rather than being explained by it. In saying so, we are not denying the possibility that long standing cultural traditions are the result of a society-wide optimization process (see for example the economic analysis of dowries, (Botticini and Siow (2003)), but simply that they are likely to be out of sync with a changing world.

Third, this definition makes it clear that there is hysteresis in cultural updating. Even if cultural beliefs, preferences, and constraints are the result of group-wide optimization, they do not change at the speed the surrounding environment would demand. Emigrants from southern, low-trust, regions in Italy, for instance, tend to carry with them their mistrust to their new locations (Guiso, Sapienza, and Zingales, henceforth GSZ, 2004b). Similarly, people who are raised religiously exhibit some common beliefs and preferences, even if they reject religion as adults (GSZ, 2003). The strength of this persistence is nicely described by movie director Martin Scorsese in *My Voyage to Italy* (1999):

“...the lesson of survival that was passed over for centuries and was carried over to the New World is a pretty brutal one, and that is: you think twice before you trust anybody outside your family. Think about it: your country, your homeland changes hand again and again over thousands of years. So, who can you trust? The Government? The Police? The Church? No. Only your family, only your own blood.”

Restricting the attention to the inherited, slow-moving components of culture differentiates this approach from the social interaction literature, which focuses on peer group effects, i.e. the fast moving component of culture.² As Manski (1993) points out, it is very difficult to separate empirically the effect of cultural components spread through social interaction from the unobservable characteristics of different groups. By contrast, the main advantage of this narrow definition (and the reason why it was chosen) is that it makes it easier to identify a causal effect from culture to economic outcomes, which is the aspect our paper focuses on.

The first step toward achieving this goal is to show a direct impact of culture on expectations, preferences, and constraints. This can be done by using survey data (like

² See Manski (2000) for an excellent survey.

most of the studies surveyed in this paper) or through experiments (like Henrich et al., (2001) and Bornhorst et al. (2005)).

The second step is to show that those beliefs, preferences, and constraints do have an impact on economic outcomes. In one of the examples we will provide in this paper, for instance, we first show that different religious affiliations are associated with different degree of importance attributed to thrifts in children education. We then document that the level of thriftiness taught to children affects a country's rate of savings.

Ideally, the third step would be to isolate the cultural component of those beliefs and preferences by instrumenting them with their cultural determinants (for example, in the saving case with their religious determinants). This last step is legitimate if culture impacts the economic outcome of interest only through the channel assumed in the regression. Unfortunately, this condition is unlikely to be met in many applications (but see Tabellini (2005)).

The advantage of this three-step procedure is that prevents cultural explanations from becoming simple ex post rationalizations. By tracing the effect of culture through the economic channels it is supposed to affect, this approach reduces the risk of spurious correlations. Its ultimate validity, however, resides in its ability to enhance our understanding of economic behavior. We now turn to the progress achieved so far.

Before we do so, however, we would like to clarify a contentious point. As we will describe in the next section, in the last sixty years mainstream economics has considered any attempt to use cultural factors as explanations of economic behaviors outside of the economic field. We disagree. A field should be defined in terms of its topics of interest not in terms of its methodology. If cultural explanations can contribute to the explanation of savings rate across countries, should we as economists not be interested in studying them because the explanation cannot be derived from individual optimization?

The rest of this paper will proceed as follows. Section 1 provides an historical overview of the debate on the relationship between economics and culture. Sections 2 to 4 review the existing evidence and complement it with new one on the three channels through which culture works. Section 5 concludes.

1. Historical Perspective

1.1 The origin of the debate

Economists have not always dismissed cultural explanations as vacuous. In fact, Adam Smith viewed his “Moral Treaty” as an integral part to his “Wealth of Nations”. And John Stuart Mill regarded cultural constraints as more important than even the pursuits of personal interest. He wrote in the “System of Logic” (1843, p. 484):

“I insist on what is true of all rulers, viz., that the character and the course of their actions is largely influenced (independently of personal calculations) by the habitual sentiments and feelings, the general modes of thinking and acting, which prevails throughout the community of which they are members; as well as by the feelings, habits, and modes of thought which characterize the particular class in that community to which they themselves belong.”

Hence, the Classics had a very clear sense that there was a causality flow going from culture to economic outcomes.

Karl Marx revolutionized this view. In a famous passage in his preface to “A Contribution to the Critique of Political Economy” (1859) Marx writes:

“In the social production of their life, men enter into definite relations that are indispensable and independent of their will, relations of production which correspond to a definite stage of development of their material productive forces. The sum total of these relations of production constitutes the economic structure of society, the real foundation, on which rise legal and political superstructures and to which correspond definite forms of social consciousness. The mode of production of material life conditions the social, political and intellectual life process in general.”

Marx, thus, inverts the direction of causality: not from culture to economic relations but from economic relations to culture. It is the underlying technology of production that determines the type of social structure prevailing and even the dominant culture: the hand-mill produces feudal society and the steam-mill capitalism.³

³ Recent interpreters of Marx (e.g. Kolakowski, 1978) caution against an excessively mechanistic interpretation of his view of the historical process. Evidence in this direction can be found even in Engels, Marx’s co-author and first interpreter, who wrote: “The economic situation is the basis, but the various elements of the superstructure – political forms of the class struggle and its consequences, constitutions established by the victorious class after a successful battle, etc.; forms of law, and even the reflexes of all these actual struggles in the brain of the combatants: political, legal, philosophical theories, religious ideas

Marx's positions were immediately attacked by economists and non economists. One of the most prominent attacks came from Weber (1905). Whereas Marx saw religion has a byproduct of production relations, Weber regards religion as crucial to the development of capitalism. Any new economic order – argues Weber – faces initial resistance. Economic incentives are not sufficient to motivate entrepreneurs to break a part from the pre-existing order and, in the case of capitalism, attempt a single-minded pursuit of wealth. Culture, and in particular religion, can play a crucial role in legitimizing this pursuit and, in so doing, reducing the personal costs new entrepreneurs face. This is the role played by the protestant reformation. It taught to regard the pursuit of wealth not merely as an advantage, but as a duty. This religious anointment gave the bourgeoisie the moral strength to subvert the previous order and impose a new one, based on the organization of free wage-earners for the purpose of economic profit.

An original synthesis between Marx' view of historical evolution and Weber's is provided by Antonio Gramsci. While a Marxist (he was one of the founders of the Italian Communist Part), Gramsci rejects Marx historical determinism, which he sees itself as a product of cultural evolution.⁴ He also recognizes the role played by culture in history. For Gramsci, the working class could conquer power only by imparting its world view and system of values to other classes who might be its political allies. By establishing its own cultural values, workers can gain consensus in other social groups. Hence, it is important that the working class reaches cultural hegemony, i.e. the control of the intellectual life of society by purely cultural means. Instrumental to achieving this hegemony is the presence of “organic” intellectuals, i.e., intellectuals who use the language of culture to represent the needs of the masses and give them homogeneity and consciousness of their social and political role. Corresponding to this view is the idea that power is not merely domain but hegemony, i.e. the ability to influence society morally and intellectually. Hence, Gramsci (1949) establishes a clear link between dominant culture and political outcomes, a link we are going to study empirically in Section 5.

and their further development into systems of dogma -- all these exercise their influence upon the course of the historical struggles and in many cases preponderate in determining their form.” Hence, even orthodox Marxism reserves a role for culture in human history (and thus a fortiori on economic choices).

⁴ “It is clear – Gramsci writes in *Il Materialismo storico* (1949, Vol.2, p.162) – that human history is not explained by the atomistic theory, but that the reverse is the case: the atomistic theory, like all the other scientific hypotheses and opinions, is part of the superstructure”. (translation of authors).

Another key figure in asserting culture as a fundamental institution is Karl Polanyi. Unlike Weber, who sees religion only as the midwife of capitalism, Polanyi (1944) regards culture as fundamental to the establishment of markets, but also as a factor in moderating the excesses of the market. In a famous passage he writes:

“The human economy is embedded and enmeshed in institutions, economic and non-economic. The inclusion of the noneconomic is vital. For religion or government may be as important to the structure and the functioning of the economy as monetary institutions or the availability of tools and machines themselves that lighten the toil of labor” (Polanyi, Arensberg, and Pearson, 1957, p.250).

1.2 Economic Imperialism

Gramsci writes in the interwar period and Polanyi publishes his main work, the *Great Transformation*, in 1944. After World War II, their work had enormous impact in sociology and political science⁵, but found deaf ears among economists.

As economic theory increased its mathematical sophistication and the set of tools at its disposal expanded, no need was felt to introduce other potential explanatory variables that, on top, were hard to measure. Not only did economics lose any interest in its relation with culture, but, as it became more self-confident in its own capabilities, it moved to explain culture as a result of economic forces.

This movement, which is mostly associated with the Chicago school, is very Marxian in spirit. But there is no trace of class struggle. To the contrary, the Chicago school pursues a “rational” Marxian agenda, where people beliefs, tastes, and values are individual or societal’s rational choices and any element of conflict can be resolved through the price system.

It is during this period that Lucas (1976) endogenizes beliefs, arguing that individuals’ priors should coincide with the objective distribution of the model. At the same time, Becker and Stigler (1977) endogenize consumers’ preferences, starting from a common utility and assuming different degree of investment. Finally, Iannaccone (1988) and Coleman (1990) begin to interpret religious and social norms as the result of a group-level optimization. This approach spawned a large literature that endogenizes many

⁵ Granovetter (1985)’s notion of emdeddedness was inspired by the Polanyi passage quoted above.

cultural aspects. For example, Glaeser, Laibson, and Sacerdote (2000) extend human capital investment theory to investment in social skills and social interactions by individuals. In this approach, the returns from investing in local networks are higher the lower the probability of moving and the greater the number of remaining years of life span.

In this intellectually coherent body of work, it is very difficult to find any space for genuine cultural explanations. In fact, the only possible role is as a coordinating device, leading societies playing the exact same game to different focal points. This is the role of culture in Greif (1994, 1997, and 2005), who explains the different societal organization of the Genoese and Maghribi traders as the culturally driven response to the same economic problem.

1.3 The non-economists

During this period, the most interesting work on the effect of culture on economic and political outcomes was undertaken by non-economists. Since a summary of the enormous amount of work done by sociologists⁶ is beyond the scope of this article, we will focus here only on the contribution of a few researchers, who were particularly influential among economists.

The first is Banfield (1958). Banfield spent a year in a small town in Southern Italy trying to explain why this town was so underdeveloped. His conclusion, published in “The Moral Basis of a Backward Society”, was the excessive pursuit of narrow self interest by its inhabitants (a condition he labels “amoral familism”). Viewed with the eyes of an economist, his explanation is particularly striking. Starting with Adam Smith, self interest was viewed not only as the cornerstone of the economic discipline, but also as the basis of the success of the market economy, not of its failure.

In fact, the first applications of this idea were in political science. Almond and Verba (1963) relate differences in political institutions to difference in culture, specifically in the “civic culture” of a country. But the most compelling evidence that local culture matters for the quality of political institutions is provided by Putnam (1993).

⁶ See DiMaggio (1994) for an excellent survey

He uses the introduction of administrative regions in Italy as a natural experiment. The unique feature of this experiment is that the exact same institution (regional government) was introduced from the national government of Italy throughout a country with identical formal institutions, but very different cultural background. As Putnam shows, the outcomes are dramatically different. In areas that experienced free city states in the Middle Age, the level of civicness (or what Putnam calls social capital) is high and regional governments functioned much better. By contrast, in areas that lacked that tradition, regional governments performed very poorly.

Differences in social capital or trust, however, do not impact only political institutions. Fukuyama (1995) directly relates trust to economic development. He does not distinguish, however, between the trust that arises from better institutions (which is often a consequence of economic development) and the cultural component of trust.

More recently, Landes (1998) revisits the fundamental question of what drives the success of national economies and concludes in favor of attitudes driven by cultural factors. These cultural factors - thrift, hard work, tenacity, honesty, and tolerance-contrast with the xenophobia, religious intolerance, bureaucratic corruption, and state edicts that stifled enterprise. His judgment is that "if we learn anything from the history of economic development, it is that culture makes all the difference. (Here Max Weber was right on.)" (Landes, 1998, p.516).

1.4 The end of economic imperialism

Economic imperialism was based on economists' confidence on the power of their tools and on an emphasis on the formal elegance of models, rather than on their explanatory power: logical consistency carried a premium over empirical relevance.

During the 1990s three factors changed this scenario. First, the success of game theory produced its own backlash. Being able to rationalize almost any behavior, game theory lost most of its predictive power and generated a quest for empirical work able to discern among equally plausible models. But when this work was finally undertaken, many anomalies emerged, difficult to reconcile with the standard models (Camerer, 2003).

Second, a growing interest in economic growth and the new availability of large data sets on this topic (Summer and Heston, 1991) forced economists to confront reality. And while these data confirmed the insights of economic models, they also highlighted the large unexplained differences in cross-country patterns of development. Why is Africa still so poor and does not show any sign of catching up? Why were some countries (most notably the Asian tigers) able to find the path to a sustained rate of growth, while others still do not? How can we explain the persistent differences in the forms development takes across countries?

Running out of economic explanations, economists started to look for other variables to explain the wealth of nations. The first natural culprits were legal and institutional differences, but slowly researchers started to mention culture as a possibility. A good example of this trend is provided by Hall and Jones (1999), who conclude their cross-country study of productivity by pointing to cultural differences as one of the main driving forces. In the same spirit, the most recent textbook on growth (Weil (2005)) dedicates a whole chapter to culture, as one of the main factors explaining different growth paths.

The third driving force in this surge of interest among economists for cultural explanations was the experience with transition economies. After the fall of the Berlin wall, the desire of socialist economies to move toward a market-based system offered economists with the biggest social experiment in world history. As Roland (2005) summarizes: “the transition experience of the nineties was both a testing ground for the traditional body of economic theory and an invaluable source of information about successful capitalist development. It has been a humbling experience for the so-called Washington consensus and has unveiled many weak spots in the certainties of the economic profession.” Starting from fairly similar conditions, transition economies performed very differently, and these differences were highly correlated with their pre-communist level of political and cultural development.

Faced with new challenges, the first step the economic profession took was to embrace in its standard tool the concept of institutions. North (1990) defines institutions as constraint on behavior imposed by the rules of the games in society. Hence, this

definition includes both formal institutions (such as the constitution, the legal system, etc.) and informal institutions such as culture.

Initially, the greatest interest was in the direction of formal institutions. The great advantage of formal institutions from an economists' point of view is that they can be thought of as the result of a grand mechanism design problem and hence they can be easily incorporated into the standard neoclassical analysis. The problem with this approach, which most of the economic literature ignores, is that it is unclear who has the power to set up this mechanism design problem and why. It is also unclear why these formal institutions persist even after becoming inadequate.

In fact, a useful distinction between formal and informal institutions is in terms of speed of change (Williamson, 2000 and Roland, 2005). Informal institutions, like culture, change slowly but continuously, while formal ones change rarely but abruptly (like in a revolution).

1.5 Toward a new cultural economics?

The explosion of work on institutions in the late 1990s and early 21st century naturally lead economists to go beyond formal institutions, into culture. The opening through which culture entered the economic discourse was the concept of trust. Following the political scientists (Banfield, Putnam, Fukuyama), economists (Knack and Keefer (1996), La Porta et al. (1997)) started to study the economic payoff of trust. The appealing feature of trust is that it can be thought of as “the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action” (Gambetta (2000)), and as such can be easily incorporated into standard economic models.

As a cultural variable, however, trust has severe limitations. First, it is not just a cultural variable. People can develop trust because of the quality of the legal system or as the result of strategic interaction (strategic trust) (Axelrod, 1984). Trust can even be the result of optimal investment in social capital (Glaeser, Laibson, Sacerdote, 2000). Second, it is not the only mechanism through which culture can impact economic

outcomes. This is the reason why subsequent works tried to establish a more direct link between culture and economic outcomes.

One strand, most related to the literature on trust, documents the impact culture can have on people's priors and, through it, on diverse economic choices. GSZ (2004a), for instance, find that the level of social capital affect the use and availability of basic financial instruments (such as a check or the purchase of a share). They also document that at least a third of this effect depends on the social capital of the birthplace, suggesting a strong cultural aspect, assimilated with education. Osili and Paulson (2004) confirm the same results in the United States looking at the investment behavior of immigrants. US immigrants from countries with poorer investment protections are more reluctant to buy shares. Both these results suggest stickiness in individuals' priors. Similarly, Morse and Shive (2003) find that the degree of patriotism of a country influences its portfolio diversification choices.

Another strand of the recent literature, studies the economic impact of culture through people's preferences. Ichino and Maggi (2000), for instance, show that employees of the same bank, faced with the same incentives, exhibit a differential amount of shirking depending on whether they were born in the North or in the South of Italy. Fernández, Fogli, and Olivetti (2004) show that female labor market participation depends on whether the husband was raised by a working mother. Giuliano (2004) shows that living arrangements among Mediterranean families in the US are affected by cultural heritage, more than economic conditions. Similarly, Fernández and Fogli (2005) show how the cultural heritage affects work and fertility choices of American women. This is consistent with Bisin and Verdier (2000, 2001), who model the parental decision to instill values and beliefs in their children in order to maintain their cultural identity.

At the same time, cultural variables have started to appear as explanation for different institutional arrangements. Work by La Porta et al. (1999) and Stulz and Williamson (2003) relate the religious composition of a country to the quality of its government and the forms of creditors' law. Alesina and La Ferrara (2001) and Alesina and Glaeser (2004) relate individuals' priors on social mobility (a variable they claim is ideologically determined) to the extent of redistribution mandated by the political system.

Finally, Licht et al. (2004) relate various country-level cultural dimensions, such as the willingness to be confrontational or the tolerance for uncertainty, to the quality of a country's institutions.

All these papers have in common the use of cultural measures to explain economic or political economy outcomes. All of them, however, do not delve into the mechanism that leads from one to the other. Most of them go directly from a proxy of culture to the economic outcome, without showing the intermediate steps. By contrast, Alesina and La Ferrara (2001) and Alesina and Glaeser (2004) focus on the last step (from the prior to the outcome), omitting the first step (from culture to priors).

To give credibility to the causal link between culture and economic outcomes via beliefs, preferences, and constraints two steps are needed. First, we need to document that different cultures are associated with different beliefs, preferences, and constraints using experimental or survey evidence. Second, we need to show that the cultural components of those beliefs, preferences, and constraints have an effect on the economic outcomes. Of course, both steps are plagued with econometric issues, which we will discuss in the next section, where we present some applications of this approach.

1.6 The causality debate

Before we do that, however, we have to deal with another important econometric issue: reverse causality. As the historical summary have made it (hopefully) clear, the direction of causality is likely to go both ways: from culture to economics and from economics to culture. The intensity of the causality flow in two directions, however, is unlikely to be the same for all cultural aspects. While some cultural aspects (think for instance sexual mores in the West) seem to respond very quickly to changes in the economic environment, others (such as religious beliefs) do not. For this reason, in this survey we chose to restrict our attention to those cultural aspects (religion and ethnic background) that are relatively invariant, so to minimize the risk of reverse causality.

A separately interesting question is why some cultural aspects move so slowly (Roland, 2005). While an answer is outside the scope of this work, we conjecture three

explanations. First, there is a natural tendency of parents to teach their children what they have learned from their own parents, without a full assessment of the optimality of those beliefs. Thus, even if social norms were efficient when they were introduced, they might have become inefficient down the line (Grusec and Kuczynski, 1997). Second, norms have both efficiency and distributional considerations. Hence, all the organizations that play a role promoting culture (from the state and the church, to academia) might have a vested interest in promoting the continuation of inefficient norms that provide them with large rents (think, for instance, to female circumcision, which persists in spite of the large cost in terms of diseases and fertility (Almroth et al., 2005), because of the control it confers to men). Finally, inefficient norms might not be eliminated by natural selection because they an advantage in reproducing (see for example the attachment to land of German Farmers cited in the introduction).

It is this delayed adjustment process that enables us to use deeper aspect of culture (like the ethnic origin or the religious denomination) as instruments and overcome the reverse causality problem in the econometric analysis.

2. Empirical evidence

Having discussed the intellectual journey that brought to a rebirth of interest in the interaction between culture and economics, we will now illustrate the working of the three channels of influence.

2.1 The effects of culture on priors

In many decisions we take in life (which college to attend, which profession to undertake, which stock to buy, etc.), we do not have the benefit of experience, and thus our choices are based on our priors. But how are our priors determined?

Economics does not have much to say about priors. In fact, in economics it is standard to assume that individuals have common priors, not because economists believe it, but because they must overcome the objection that it would be too easy (and thus vacuous) to explain economic phenomena on the basis of different priors chosen *ad hoc*.

But the choice of different priors could be based on empirical observation. It is possible to test, for instance, whether religious and ethnic backgrounds affect people's priors. One potential difficulty is that it may be difficult to separate culturally based

beliefs from rational expectations. Consider a prior that received great attention in the literature: people's willingness to trust others without prior interaction. Suppose that we observe (as it is indeed the case) that Swedes trust others more. Is this trust culturally driven or is it the rational prior driven by the different level of trustworthiness prevailing in the country the interviewed person is living in? In general, it is hard to tell. In some special cases, however, it is possible to distinguish the two.

GSZ (2004b) use Eurobarometer surveys where individuals from various European countries are asked how much they trust individuals from all the other European countries to identify three components of trust: the average level of trust Swedes have towards others, the average level of trust citizens of other countries have toward Swedes and the specific interaction of the Swedes with each other nationality. This last component measures to what extent the Swedish view about Germans differs from other countries' view of Germans.

GSZ (2004b) find that this idiosyncratic component of trust increases when two countries share the same religion and decreases when they have a long history of wars. It also decreases with the genetic distance between two populations (a measure not only of somatic similarity, but also of similarity in ancient cultural aspects). This dependence of trust (and thus of a prior) on cultural variables weakens for more educated people, suggesting that education can reduce the effect of these inherited cultural aspects.

Another way to show that culture can affect beliefs is to conduct experiment across different cultures. Henrich et al. (2001), for instance, compare the responses to ultimatum games across different tribes.⁷ In this type of games the optimal offer, from an economist point of view, is zero. Nevertheless, almost all people offer more. Interestingly, the average response rate varies from a minimum of 26% for the Machiguenga tribe in Peru to a maximum of 58% for the Lamelara tribe in Indonesia. More interestingly, these differences can be largely explained by the economic structure of a tribe. Tribes whose basic substance activities required higher level of cooperation

⁷ In an ultimatum game the first player proposes how to divide a sum of money with the second party. If the second player rejects this division, neither gets anything. If the second accepts, the first gets their demand and the second gets the rest.

and larger economies of scale also had higher offers on average. On the one hand, these findings vindicate Marx's claim that the structure of production determines the beliefs and more broadly the culture of a society. On the other hand, they suggest that once culture is formed, it persists and impacts economic relations beyond those which formed them.

When experiments are not feasible, one can still document a cultural bias in beliefs by showing that differences in beliefs across different culturally-distinguished groups do not correspond to objective differences in the underlying distribution of outcomes, but only to perceived differences. Alesina and Glaeser (2004) pioneer this method by showing that Americans have a very different perception of social mobility than the Europeans, but this different perception is not matched by the data.

Last but not least, one can identify cultural biases in priors by keeping the environment in which a person lives constant and studying how the characteristics of the trusting person affect her trust toward a third party. This method is far from perfect, since characteristics of the trusting party (i.e., color of the skin) can affect the way she is perceived (and treated) by other people. Hence, some cultural characteristics cannot be used to infer a cultural effect. Nevertheless, others can. For example, in Figure 1A we plot the level of trust of individuals living in the United States. The measure of trust is a dummy equal to 1 if an individual replies "most people can be trusted" to the question "Generally speaking, would you say that or that you have to be very careful in dealing with people?". The bars represent how people from different religions differ from the mean, after the respondent age, education, income, gender, health status and race (whether he is white) is accounted for. The reference point is a generic non-religious person. Catholics and Protestants on average trust 7.5% more, while Jewish 13% less. Unfortunately, we cannot disaggregate other religious groups because this particular survey (the U.S. General Social Survey (GSS)) groups all other religions (including Muslim, Buddhists, and Hinduists) into the category "other religions". This category has a positive sign, but it is not statistically significant.

These results could be due to the fact that some religious groups have been the target of (positive or negative) discrimination in the United States, but it is interesting

that we arrived to similar results in GSZ (2003), where we looked at the effect of religion on trust around the world using the World Values Survey. These results are shown in Figure 1B.⁸ Just being raised religiously raises the level of trust by 2%. If a person regularly attends religious services, the level of trust increases by another 20%. This effect differs across denominations; while Catholic and Protestant have roughly a similar positive effect, Muslim, Hindu, and Buddhist do not. The only difference with the U.S. survey is that Jewish living in other countries appear more trusting than Jewish living in the US, albeit the effect is not statistically significant.

Figure 2 shows the effect of ethnic origin (country of origin of the ancestors as reported by the GSS) on the level of trust. All these effects are computed relative to Americans with British descendents.⁹ Ancestors' country-of-origin dummies are jointly statistically significant; which implies that the level of trust an American has toward others depends upon where her ancestors came from. Ancestors' origin dummies also have a clear pattern: the effect on trust is strong when ancestors come from countries that *today* have a higher average level trust.

In Figure 3 we plot the estimated impact of having ancestors from different areas of the world (which is measured vis-a-vis having British ancestors) against the difference between the level of trust that prevails today in those areas minus the average level of trust in Great Britain. As we can see, there is a strong positive correlation (0.6) between the two. This is consistent with the idea that priors have a cultural component, which is transported to the new world (as the Martin Scorsese quote in the introduction suggests) and continues to impact individual behavior even in the new environment.

Similar results can be obtained if we look at a different type of prior: people's perception of the fairness of the system (see Table 1 in the Appendix) using respondents living in the United States. The dependent variable equals to one if the respondent answered that "most people would try to be fair" to the question: "Do you think most people would try to take advantage of you if they got a chance, or would they try to be

⁸ Regressions include demographic controls (health, male, age, education, social class, income; coefficients not reported), a dummy variable equal to 1 if a person does not believe in God, country fixed effects, and survey-year dummies. See Guiso, Sapienza and Zingales (2003) Table 4, for more details.

⁹ In the regression we control for gender, health status, years of education (linear and square), age (linear and square), and whether the respondent is white.

fair?”. Religious people are more likely than nonbelievers to expect others to be fair. The dummies for the ancestors’ country of origin follow a similar pattern as that of trust but with some interesting differences: noticeably, while Americans with Japanese ancestors trust others more, they do not expect more than other Americans that other people will be fair.

2.2 The effects of priors on economic outcomes

Having shown that culture impacts trust and perception of fairness, we now want to show that these priors have an impact on economic outcomes and that this relation works via the effect that culture has on priors.

There are several ways trust and fairness can affect people’s decisions. As Arrow (1972) said, “virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time.” But trust is particularly relevant when transactions involve some unknown counterpart (e.g. a buyer or seller of goods in another country), the transaction is not spot, and the legal protection is imperfect.¹⁰

International trade is then an obvious place where trust should matter. Guiso, Sapienza and Zingales (2004a) use data on relative trust among European countries to study whether and how important trust is for international bilateral trade among these countries. Looking at trade in goods, financial assets, and direct foreign investment, they find that trust matters for all these transactions: a country that trusts another more tends to exchange more goods and financial assets with it, and to engage more in direct investment. These results hold after controlling for the typical variables the trade literature has focused on (distance, common borders, commonality of language) as well as for variables that have been ignored until recently in the trade literature, such as the differences in legal origin among country pairs. These effects are particularly strong when the cultural component of trust is isolated with instrumental variables regressions

¹⁰ Several papers show that the level of trust of a community affects economic performance (Knack and Keefer, 1996 and Knack and Zak, 2001). These papers reports direct regressions of trust on economic performance but do not dig deeper into the mechanism through which measured trust is positively correlated with growth or GDP per capita.

using as instruments the history of wars between the country pairs, genetic distance, and religious similarity. Most interesting perhaps, these cultural biases are so rooted that they distort even the equity portfolio allocation of professional equity funds investors.

To show the power of this approach and the pervasive impact of culture in many economic choices, we present some results on the impact of culturally biased priors on occupational decisions. The first is the choice whether to become an entrepreneur. When contracts are incomplete, many deals are made just by shaking hands, i.e. relying on trust. An entrepreneur who works in a very unstructured environment is more exposed to these types of deals. Hence, trustworthy individuals will have a comparative advantage in becoming entrepreneurs. Since we know from Glaeser et. al. (2000) that trust is highly correlated with trustworthiness, we use our measure of trust as a measure of trustworthiness and study its impact on the probability of becoming an entrepreneur. We measure the choice of being an entrepreneur with a dummy equal to 1 if the respondent says that he or she is self-employed and zero otherwise.

The first two columns of Table 2 estimate the impact of trust on the probability of becoming an entrepreneur. In both regressions we control for gender, race, age and education. The first column reports the OLS estimates (the probit results are very similar). Trust has a positive effect on the probability of being self employed: trusting others increases the probability of being a self employed by 1.3 percentage points (14 % of the sample mean).

One possible concern with this result is that success might breed trust. Hence, successful entrepreneur might be more trusting, and not the other way around. To get around this problem we use just the component of trust that is predetermined, i.e., the one driven by the religious and ethnic background. We do so by instrumenting trust with four religion dummies (Protestants, Catholics, Jewish and other religions) and the dummies for the ancestors' country of origin.

The IV coefficient is significantly bigger than the OLS one, suggesting that reverse causality is not a major problem. The remarkable difference in the size of the coefficients, however, suggests that either our proxy for trustworthiness is very noisy or that culture might affect the choice of becoming an entrepreneur through other channels.

For instance, one may argue that cultural background affects attitudes towards risk, which in turn affect the choice to become self-employed. In either case, however, these results support the hypothesis that cultural background plays a role in important economic choices.

Priors about the possibility of future success can also impact the accumulation of human capital. Akerlof (1984), for example, argues that a child who perceives the world as discriminating against him has fewer incentives to invest in education and more generally to exert effort to climb the social ladder. Since effort and education affect the probability of success, we expect that individuals who believe others will treat them fairly should be more likely to exert effort and improve their relative position in society.

The second two columns of Table 2 test this hypothesis. To measure social positions we use the socioeconomic index (SEI) reported in the General Social Survey. This is an index created by the GSS that classify professions according to their social status (which is highly correlated with income). Since the GSS reports also the socioeconomic status of the respondent's father, we can use it to control for an individual starting point.

Hence, we regress a person's SEI on his father's SEI, his own education, race, age, and whether he himself was an immigrant, plus his own opinion of fairness. The first column shows the OLS estimates. Fairness has a positive and highly statistically significant impact on an individual social position.

Since we do not have the respondent's view when he was a child, but only his current one, there is an obvious endogeneity problem. More successful people can have a more optimistic view. To address this issue, we instrument fairness with its cultural determinants. Rather than weakening (as the reverse causality problem would suggest), the effect becomes stronger when we instrument fairness with the cultural variables: expecting a fair treatment raises the respondent's socioeconomic status by 14 percentage points in the socioeconomic index that corresponds to 31 percent of the sample mean.

As in the previous case, the large difference between the IV and the OLS estimates suggests either that our proxy for fairness is very noisy or that the effect of culture might affect the ability to climb the social ladder also through other channels. In

either case, however, reverse causality (that success makes people think the world is more fair) does not seem to be a problem.

3. The effect of culture on preferences

Culture can affect economic choices and economic equilibrium outcomes also because it affects individual preferences. These preferences are acquired through the socialization process, by which culture is maintained, and transmitted. We distinguish between the effect of culture on economic preferences – i.e., parameters of a person’s utility function - - and political preferences, i.e., opinions on what the social welfare function should be and hence what a government should do. Culture can impact both.

3.1 The effect of culture on economic preferences

The set of preferences that can be affected by culture is potentially very large. Fernández and Fogli (2005) show that cultural heritage affects work and fertility choices of American women. Here, we want to show it affects also one of the most fundamental economic decisions: how much to save.

To identify the effect of religious background on the saving decisions, we look at the self-revealed importance of teaching thriftiness to children.¹¹ As Figure 4 shows, Christians are more likely to teach their children thriftiness than non religious people. Contrary to Max Weber hypothesis, Protestants do not differ from Catholics in this respect.¹² Muslims are less likely to teach thriftiness, albeit the effect is not statistically significant. All the others religion have large effects, but they are not significantly different from zero.

3.2. From individual preferences to economic outcomes

¹¹ We deduce this variable from the following question of the World Value Survey: “Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important?” We coded the variable as 1 if the respondent lists as important “Thrift, saving money and things.”

¹² All the regressions include demographic controls (health, male, age, education, social class, income; coefficients not reported), a dummy variable equal to 1 if a person does not believe in God, country fixed effects, and survey-year dummies. See Guiso, Sapienza and Zingales (2003) Table 4, for more details.

Do these cultural differences have an impact on savings across countries? ¹³ We test this in Table 2. The first regression presents a standard specification based on the life-cycle theory (Giavazzi et al., 2000). The dependent variable, a country's saving rate, is regressed on growth in per capita income, the dependency ratio (i.e., population above 65 and below 15 over total population), government savings, and a dummy for whether the country is an OECD member.¹⁴ Except for the dummy, all the other variables have the sign predicted by the life cycle theory and are statistically significant: more growth leads to higher savings, more dependency less savings, and more Government savings leads to more total savings. Together these variables can explain 58% of the cross-country variability in the rate of savings.

In column II we insert the percentage of interviewed in each country who says that it is important to teach their children thriftiness. This proportion enters positively and significantly. The more people think thriftiness is a value to be taught the more they save. This variable alone increases the R-squared by 5.5 percentage points.

To check that this is not just an ex post rationalization of their behavior we instrument the proportion of respondents with the proportion of people of the different religious denomination in each country. As for the disaggregate regression, religious denominations are significant determinants of the responses, with an F-test of 82.7. When we instrument the average response with the religious composition the impact of savings doubles in size, and it remains statistically significant at the 10% level. The effect is also economically very significant: one standard deviation increase in the share of people who think educating children to thriftiness increases the saving rate by 3.92 percentage points (about 18% of the sample mean).

This effect of preferences is of the same order of magnitude as the joint effect of increasing the growth rate of income by one standard deviation and lowering the dependency ratio by one standard deviation: the first increases savings by 92 basis points the second by 3.18 basis points. One argument of life cycle theory was precisely that one needs not invoke differences in preferences to understand differences in savings rates.

¹³ The World Value Survey has no data on individuals' savings or consumption, thus we cannot test whether the value of thrift affects individual savings decisions directly.

¹⁴ We insert an OECD dummy to mimic Giavazzi et al. (2000). Our results are unchanged if we drop it.

This evidence shows that differences in thriftiness explain as much as one of the most celebrated economic models. Hence, cultural differences cannot be ignored if one wants to explain differences cross-country differences in savings rates.

The remaining three columns of Table 3B confirm the robustness of this result to adjusting Government savings by inflation. Doing so makes us lose 10 observations, but the results remain unchanged.

3.3. *The effect of culture on political preferences*

Culture can also affect behavior and outcomes through its effect on political preferences, i.e., individuals opinions on what governments should do: how much they should intrude in economic life, whether they should promote competition, regulate the market, redistribute income across individuals, run a social security program, and perhaps own businesses directly through the nationalization of important utilities.

Figure 6 shows the impact of religious affiliation on the preferences for redistribution of American citizens. To identify these preferences we use the following question contained in the GSS: *“Some people think the government in Washington ought to reduce the income differences between the rich and the poor, perhaps by raising the taxes of wealthy families or by giving income assistance to the poor. Others think that the government should not concern itself with reducing this income differences between the rich and the poor. Here is a card with a scale from 1 to 7. Think of a score of 1 as meaning that the government ought to reduce the income differences between rich and poor, and a score of 7 meaning that the government should not concern itself with reducing income differences. What score comes closest to what you feel?”* We recoded the answers so that a higher value means that the respondent agrees that the government should involve itself more in redistribution.

Catholics, Christians, and Jewish seem all to have a more negative attitude toward redistribution. This negative bias oscillates between -5 and -6 %. Followers of the other religion, instead, seem to be more slightly in favor of redistribution, albeit the effect is not statistically significant.

Figure 7 repeats the same exercise differentiating by the country of origin of the ancestors. Americans with known African ancestors and generically all African Americans are 20% more in favor of redistribution than the typical American of British origin. This is true even if we control for income, education, gender, age, and health status, and whether the respondent is white. Surprisingly, the second group more in favor of redistribution is the American with Canadian origins, with the Hispanics and the American Indian following close behind. The least in favor of redistribution are the Japanese Americans, who are less in favor of redistribution than the British Americans.

One interpretation of this result is that Americans with British, North European or German ancestors are earlier immigrants. Hence, more generations were raised in the United States and forged by its culture, absorbing –according to Alesina and Gleaser (2004) -- the right-wing belief that the success is mostly determined by individual actions, which makes government intervention highly undesirable. By contrast, those whose ancestors came from Southern European countries and, even more so, from ex communist countries have been raised under the influence of socialism since the mid 19th century and the during the 20th century. Socialism emphasized the unfairness of market outcomes and the importance of the redistributive role of the state. Whatever the exact interpretation, the country-of -origin dummies capture all the dimensions of the received culture.

3.4. From political preferences to economic outcomes

Can these beliefs affect the actual involvement of a government in redistributive policies? Alesina and Gleaser (2004) document a strong positive correlation between the proportion of people who believe poverty is society's fault (or that luck determines income) and that country share of GDP spent in social welfare. Yet, they do not investigate the cultural basis of these beliefs, they attribute them to political indoctrination.

Alesina and La Ferrara (2001) rely, as we do, on the General Social Survey and show that those who believe in equal opportunities are more averse to redistributive policies. They are not concerned, however, with the link between beliefs and outcomes.

Alesina and Angeletos (2005) show theoretically that differences in beliefs about social justice lead to differences in equilibrium redistribution. They also show that different beliefs in what determines individual incomes (luck or effort) across countries affects the size of social spending in a country, but do not enquire whether differences in beliefs are driven by culture.

Interestingly, these beliefs also affect the actual involvement of a government in redistributive policies because of the culture that is imbedded in them. To show this effect, we use the variation in the degrees of redistribution across US states.

Since indirect taxes tend to be regressive, while income taxes progressive, we measure engagement in redistribution by taking the ratio of the share of State government revenues coming from income taxes and the one coming from sale taxes and other indirect taxes.¹⁵ States that redistribute more should exhibit a higher ratio. We then regress this ratio on the state average responses to the GSS question described in the previous section and on a similar one.¹⁶ To obtain our instruments we compute the fraction in each state that belong to the various religion denominations and the fractions whose ancestors come from the 16 set of countries/areas.

Table 4 reports the regression estimates, where we control for the state GDP per capita, the size of the population living in the state, and the percentage of population that is below the poverty rate. Since we have data that vary over time, we insert a set of year dummies to account for time variation and adjust standard errors for clustering at the state level. We report both OLS and IV estimates. The first two columns use the answers to the above-mentioned question to measure preferences about redistribution. The remaining columns rely on the answers to a more specific question about redistribution that was answered only in the 1987 survey.¹⁷

The OLS estimates reveal a positive effect of preferences for redistribution on the actual amount of redistribution, but the effect is not statistically significant. When we

¹⁵ The source of US State budgets is the US Census.

¹⁶ The other question is: <<How much do you agree with the statement: “It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.”>> The variable is coded 1–5, where a higher number represents stronger preferences for redistribution.

¹⁷ The question is: <<How much do you agree with the statement: “It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.”>> The variable is coded 1–5, where a higher number represents stronger preferences for redistribution.

instrument the preferences with our cultural variables (religion and the ancestors' origin) the estimated coefficient becomes much bigger and is statistically significant. Increasing the intensity of preferences for redistribution by one standard deviation raises the ration of direct/indirect taxation by 14% of the sample mean. The result is similar when we use the answers to the second question. The only difference is that in this case also the OLS estimate is statistically significant and that the impact of one standard deviation increase in the intensity of preferences for redistribution raises the proportion of direct taxes a bit more (20% of the sample mean).

4. Culture and constraints

Finally, culture can affect outcomes because changes the set of constraints faced by economic agents. As Robert Fogel once said, it would be efficient to sell the bodies of our dead parents as dog meat. If we choose not to do so, it is because of social norms, which are embedded in our culture. Eating horse meat or dog meat is not only illegal, but considered repugnant in the United States, while it is common practice in many other countries.

There are two distinct ways through which culture can create social norms: by instilling certain values in people (which is akin to modify their preferences) and by introducing a form of social punishment. In Fogel's example, people do not sell their parents' bodies because they find it morally repugnant and/or because they are afraid of being shunned by their community were to do so.

4.1 From culture to internalized norms

In this area the best work has been done by political scientists. As we recalled earlier, it was the seminal work by Banfield (1958) on the culture of a small village in Southern Italy that set this literature in motion. Putnam (1993) extended this work, linking some cultural features of Southern Italy, like lack of trust, to the different history this part of Italy experienced during the course of the centuries. While in the Middle Age Northern cities had the chance to experience some embryonic form of independence and democracy, in the form of city –states, this chance was denied to the South, always dominated by a strong monarchy. Putnam suggested that one possible explanation for the

higher level of social capital in some Italian regions could be due to the diffusion of city–states in this areas..

Until recently, however, this very suggestive hypothesis had not been put to rigorous testing. The North and the South of Italy differ in many respects: geographically (the South is much more mountainous), logistically (communications are more difficult in the South), economically (traditionally the South has been characterized by latifunds cultivated with wheat or used to graze sheep, while the North by smaller plot cultivated with more value added crops). How can we be sure that this difference in attitudes derives from a distant episode in history and not from all these other factors? GSZ (in progress) try to disentangle these alternative hypotheses. To reduce other confounding effects, they exploit the differences in history across towns within the Center-North of Italy to identify the effect of the free-city state experience from the rest. They find that several measures of a town’s social capital are positively related to the length of the city-state experience of that town. Hence, Putnam was right, the historical experience carries consequences centuries later.

But how is this legacy maintained through generations? The most likely mechanism is education. To survive, free city states had to create a culture of pride, independence, and civic sense among its citizens. To the extent culture is transmitted through generation relatively unchanged, we should see a difference in the beliefs and attitudes of these peoples today. Evidence in this direction is provided by Tabellini (2005). He measures culture as the principal component of four values: trust, beliefs in the importance of individual effort, generalized morality, and obedience (which he considers a negative value). These values are inferred from responses to related questions in the World Value Survey. He then regress this measure on a measure of education and of historical political institutions across 69 European regions. He finds that the quality of the historical institutions (such as constraints on the executives) has a positive and statistically significant effect on today’s social values.

Another important mechanism of transmission is religion. Certain values get crystallized into religious precepts and transmitted though generations.¹⁸ Figure 8 shows

¹⁸ This mechanism alone cannot explain the differences across Italian cities, since they are all Catholics.

how religious upbringing changes the attitude of an individual toward cheating on his taxes.¹⁹ People without a religion (atheists) are almost 10% more likely to cheat on their taxes if they have a chance.²⁰ Religious upbringing reduces the average probability by 5%. This effect is not increased by much if a person, in addition to being raised religiously, attends religious service at least twice a year (third bar). But if a person is a regular participant to religious services (and thus likely a stricter observer of its precepts) the willing to cheat on taxes is reduced by almost 20%. This behavior is not specific of tax cheating, but it applies also to a wide range of attitude towards the law (see GSZ, 2003).

Interestingly, this impact is not homogenous across religious denominations, nor across attitudes. Christian Religions (Catholics and Protestants) have an impact on willingness to cheat on taxes that is twice as large as that of Muslims. On the other hand, Islam seems tougher than Christian religions in instilling the principle that bribes should not be accepted. Hence, these effects are very dependent on the type of culture that is transmitted.

What is very difficult to disentangle is whether culture works mostly by instilling norms or by generating a social enforcement mechanism. GSZ (2004a) attempt to do so. After documenting that the use and availability of financial contracts throughout Italy is affected by the social capital of the area they live in, they look at whether this effect is driven by the social capital of the area in which an individual was born or the one where s/he lives. Of course, such an effect can only be identified for people who moved. They find that roughly two third of the effect comes from the social capital of the place they live in and one third from the one of origin. This suggests that either norms imprinted with education fades over time or social enforcement is indeed more important than individual values.

4. 2 *From values to outcomes*

¹⁹ This variable is based on the answers to the following WVS question: ‘‘Please tell me whether ‘Cheating on taxes if you have a chance’ can always be justified, never be justified, or something in between, using this card.’’ Answers are in the range 1–10, with 1=never justifiable and 10=always justifiable.

²⁰ All these effects are estimated after controlling for demographic (health, male, age, education, social class, income; coefficients not reported), country fixed effects, and survey-year dummies. See Guiso, Sapienza and Zingales (2003).

Do these social value and constraint affect economic and political outcomes? In his book Putnam (1993) documents a large number of positive institutional outcomes associated with higher social capital: better local institutions, more efficient health care systems, etc.

Another example in this direction is provided by Licht et al. (2004). They focus on three cultural trade-offs: between embeddedness and autonomy, between hierarchy and egalitarianism, and between mastery and harmony with nature. By using survey responses of elementary and high school teachers in 53 countries (Schwartz, 1999, and 2004), they document that countries more tilted in favor of autonomy, egalitarianism, and mastery exhibit higher rule of law, less corruption, and more democratic accountability.

Interestingly, to control for a possible reverse causality Licht et al. (2004) instrument the position between embeddedness and autonomy with the grammatical use of pronouns. Requiring the explicit use of 'I' or 'you' signals that a person is highlighted as a figure against the speech context. Hence, languages that allow dropping the pronoun emphasize the contextualization of the person and thus reflect a more embedded culture. While this is only a partial fix (it is one instrument for three endogenous variables), it is potentially a very interesting strategy to capture some long term characteristics of a country's culture.

Both these papers, however, fail to show that the effect of culture on institutions have an economic payoff. This is done by Tabellini (2005). He documents that both GDP per capita and growth are higher in those regions that exhibit higher levels of the "good" cultural values (trust, beliefs in individual effort, generalized morality, and low obedience). More importantly, the effect is bigger when he instruments those values with their historical determinants. Thus, "better" cultural values do have a large economic payoff.

5. Conclusions

Until recently, economists used to ignore differences in preferences and beliefs as a potential explanation for economic phenomena and to dismiss vehemently any attempt to explain them with culture. The main reason was that cultural explanations were considered too easy, too vague, and at the end not very useful. Such a reaction was fully

justified at a time when preferences were impossible to measure. In fact, revealed preferences were invented precisely to overcome this problem.

In recent years, however, better techniques and more data have made it possible to identify systematic differences in people preferences. Furthermore, it is not unconceivable that in the near future we might be able to map individual preferences much more precisely with Magnetic Resonance or other devices. Hence, time has come to accept heterogeneity of preferences as an important factor in people's economic choices. Once we accept this heterogeneity, it becomes crucial to explain where it comes from. One important component is clearly genetic, but culture may also play a big role. Hence, we economist should drop our preconception against cultural explanation and develop a methodology to incorporate cultural hypothesis into the economic discourse.

This paper tries to summarize and complement the more recent literature on this topic, trying to convince the reader that cultural hypotheses can be rigorously tested and are economically important. For example, we show that cultural differences in the extent thriftiness is taught to children can explain as much of the cross-country variation in savings as the best economic models on this topic. Time has come, thus, to fully integrate a cultural dimension in our economic analysis.²¹

Doing so will open a new exciting set of questions. First of all, how does culture emerge and how does it persist? Marx was definitely right that production technology plays a role, but culture is not only the byproduct of a class attempt to seize political power. Cultural norms arise also for efficiency and hygienic considerations. One big outstanding question, then, is how do these two forces – power and efficiency-- balance out? Another one is what determines the persistence of the cultural traits. Finally, what is the interaction between culture and formal institutions? Does culture determine formal institutions or is it the other way around? These answers await future research. In the meantime, we hope to have persuaded the readers that importing cultural elements in the economic discourse will not impoverish and hallow out our discipline, but it will make it richer, better able to capture the nuances of the real world, and ultimately more useful.

²¹ Another dimension that needs to be integrated in the economic analysis is genetic differences. But this is outside of the scope of this paper.

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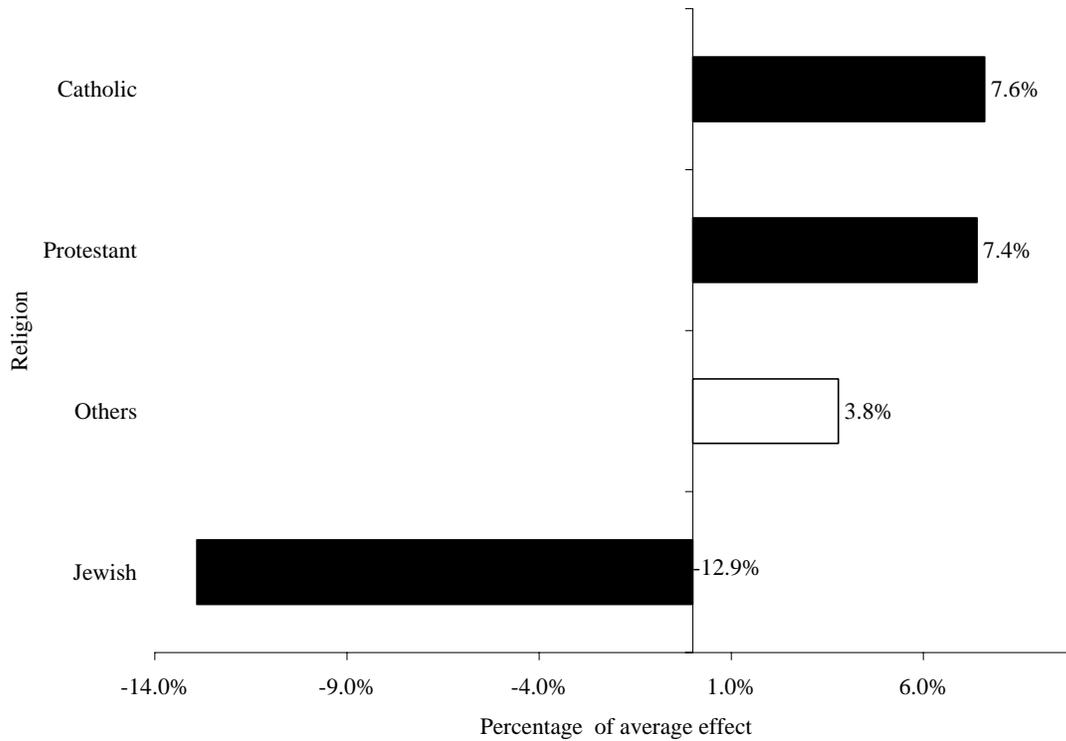
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Figure 1A

Effect of Religion on Trust



The patterns denote:

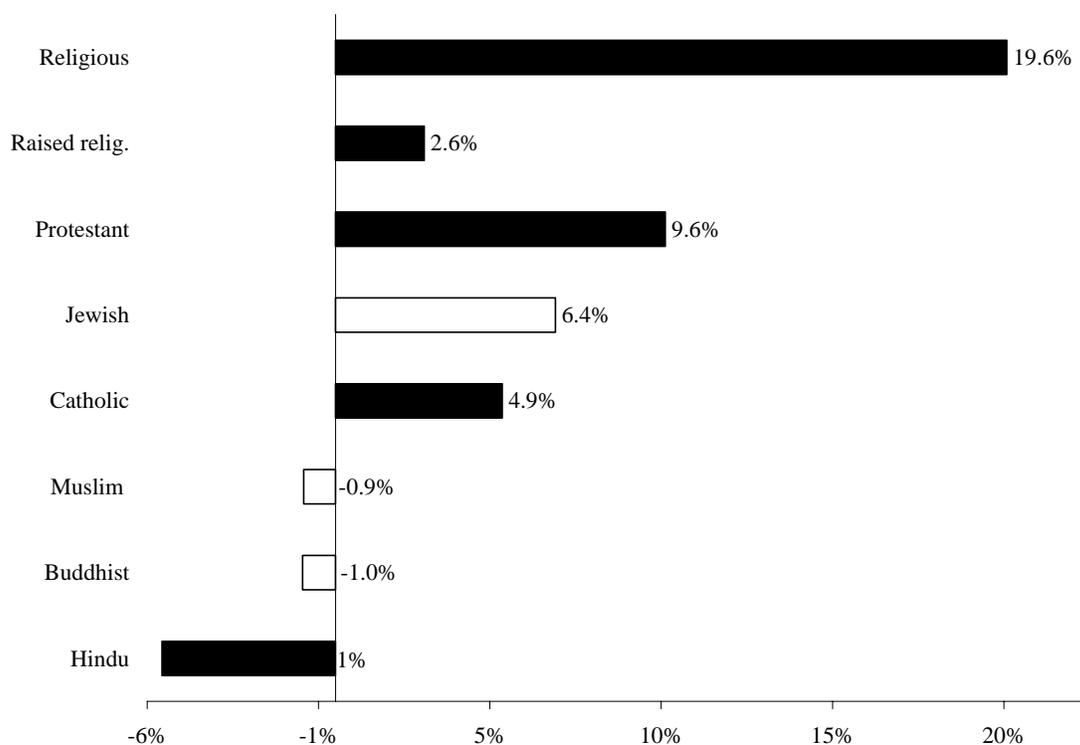
Significant ■ Not significant □

Source: General Social Survey

Note: The bars represent estimated regression coefficients of dummies for religious affiliation (the omitted category is no religion and atheists) divided by the average value of the dependent variable. The dependent variable is ‘trust’, i.e., a dummy variable equal to one if the respondent answered that most people can be trusted. The regression also includes demographic controls (health, gender, age, education, race), and dummy variables for the country of origin of the respondent’s ancestors.

Figure 1B

Effect of Religion on Trust



The patterns denote:

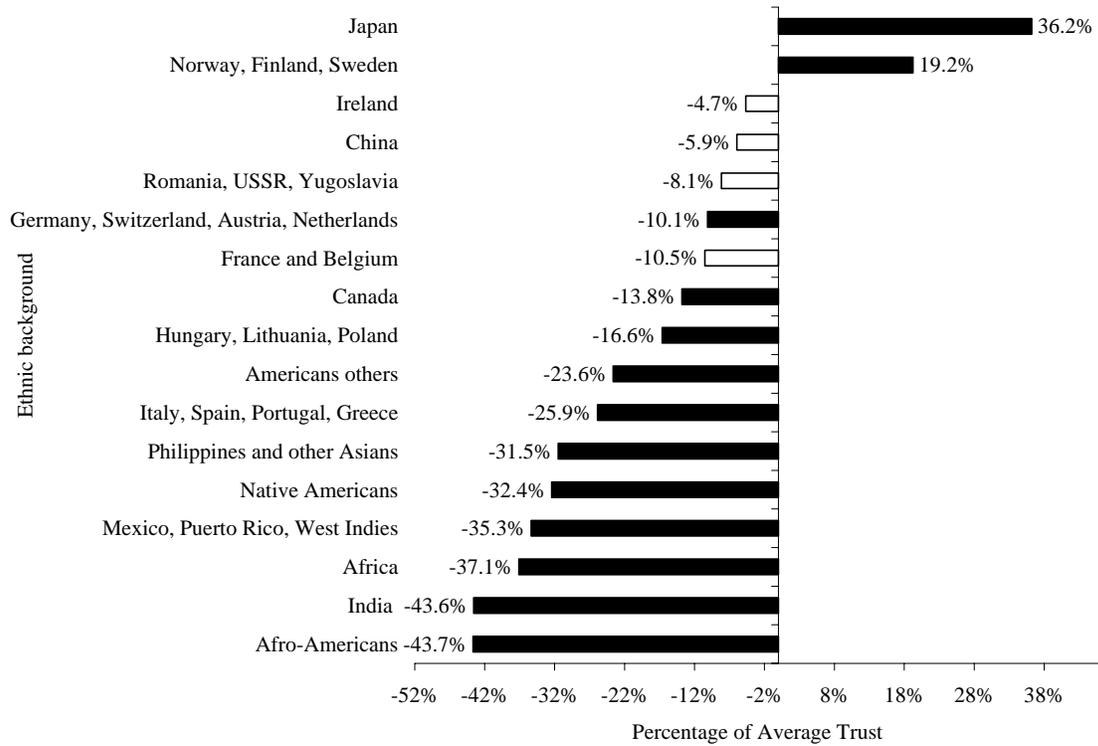
Significant Not significant

Source: European Values Survey and World Values Survey 1981-1984, 1990-1993, 1995-1997 (ICPSR 2790); Guiso, Sapienza and Zingales (2003), tables 2 and 4.

Note: The bars represent estimated regression coefficients of a dummy for each religious affiliation (the omitted category is no religious affiliation) divided by the average value of the dependent variable. The dependent variable is “trust in others”, which equals to 1 if participants report that most people can be trusted. The regression also include demographic controls (health, male, age, education, social class, income; coefficients not reported), a dummy variable equal to 1 if a person does not believe in God, country fixed effects, and survey-year dummies.

Figure 2

Effect of Ethnic Background on Trust



The patterns denote:

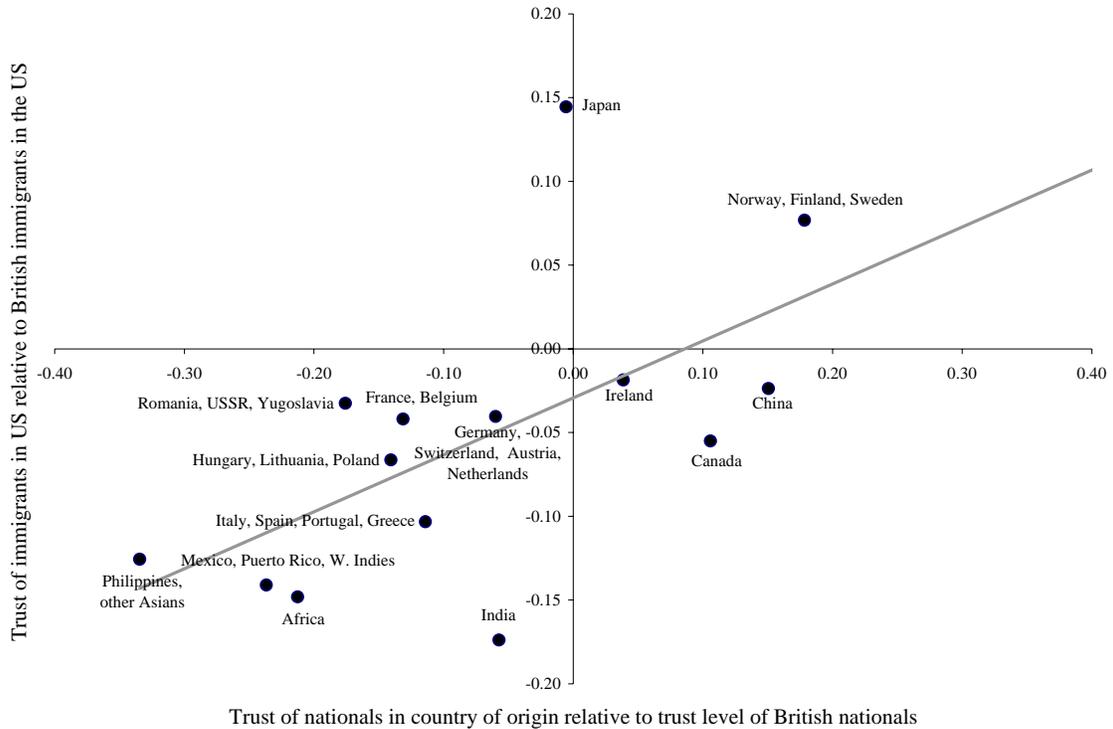
Significant Not significant

Source: General Social Survey.

Note: The bars represent estimated regression coefficients of each ethnic dummy (the omitted group is people with ancestors from the Great Britain) divided by the average value of the dependent variable. The dependent variable is ‘trust’, i.e., a dummy variable equal to one if the respondent answered that most people can be trusted. The regression also includes demographic controls (health, gender, age, education, race), and religious affiliations (the omitted category is no religion and atheists). To identify the origin of the ancestors we use the answer to the question “From what countries or part of the world did your ancestors come?” and grouped together several countries of origin.

Figure 3

Correlation between Trust of Country of Origin and Trust of Immigrants relative to Great Britain

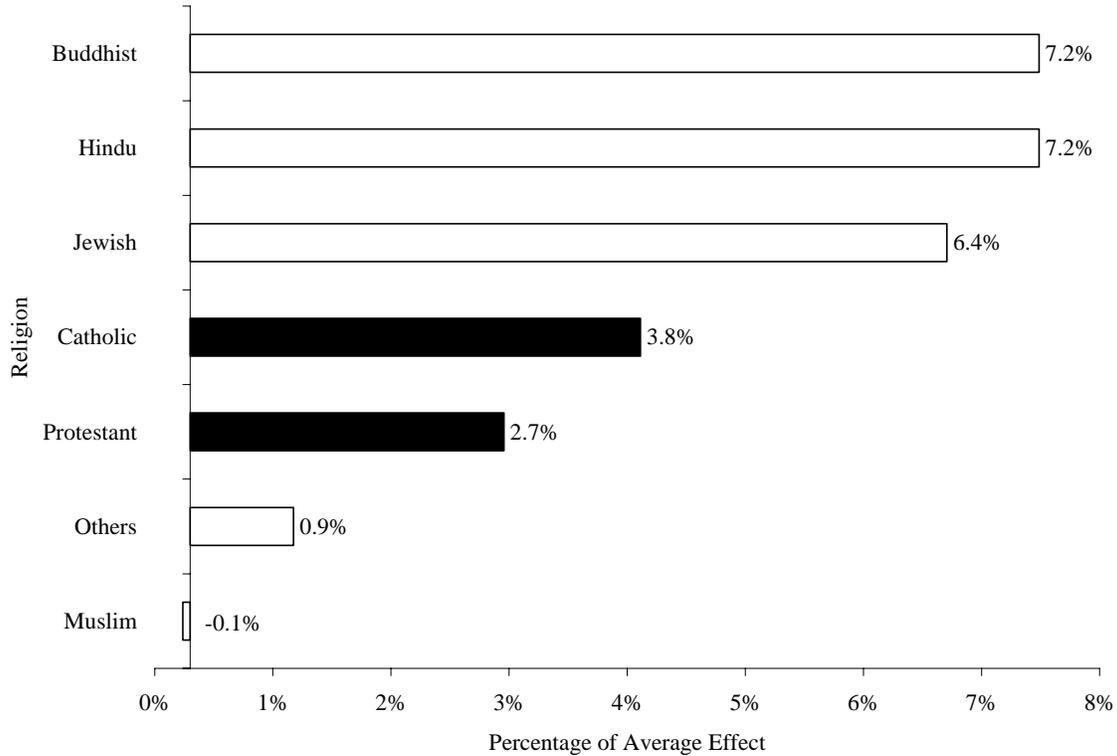


Source: World Values Survey, General Social Survey

Note: On the horizontal axis we report the difference between the average trust of each group of countries in Figure 2 and the average trust of Great Britain, computed using data from the World Value Survey. On the vertical axis we report the estimated coefficient ethnic group dummies, as reported in Figure 2.

Figure 4

Religion and Teaching of Thriftiness



The patterns denote:

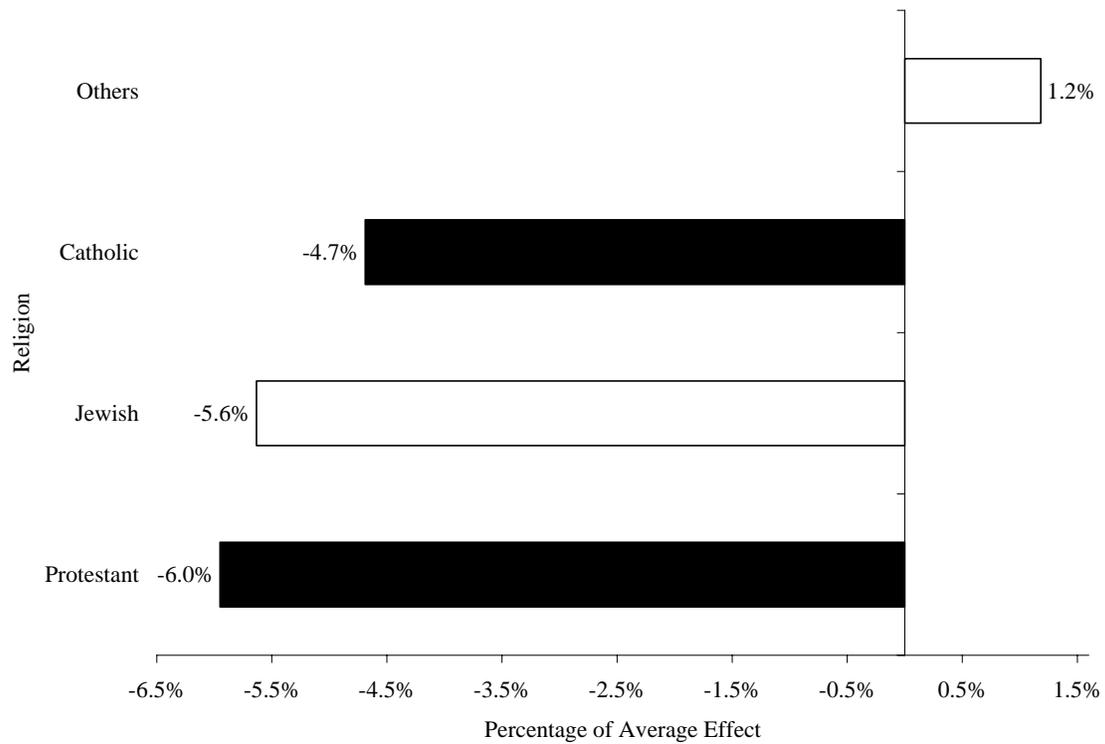
Significant **■** Not significant □

Source: World Values Survey 1981-1984, 1990-1993, and 1995-1997 (ICPSR 2790); Guiso, Sapienza and Zingales (2003), table 4

Note: The bars represent estimated regression coefficients of each ethnic dummy (the omitted category is no religious affiliation) divided by the average value of the dependent variable. The dependent variable is a dummy variable equal to 1 if the respondent lists as important “Thrift, saving money and things” among the qualities that children can be encouraged to learn at home. The regressions also include demographic controls (health, male, age, education, social class, income), a dummy variable equal to 1 if a person does not believe in God, country fixed effects, and survey-year dummies.

Figure 5

Religion and Preferences for Redistribution



The patterns denote:

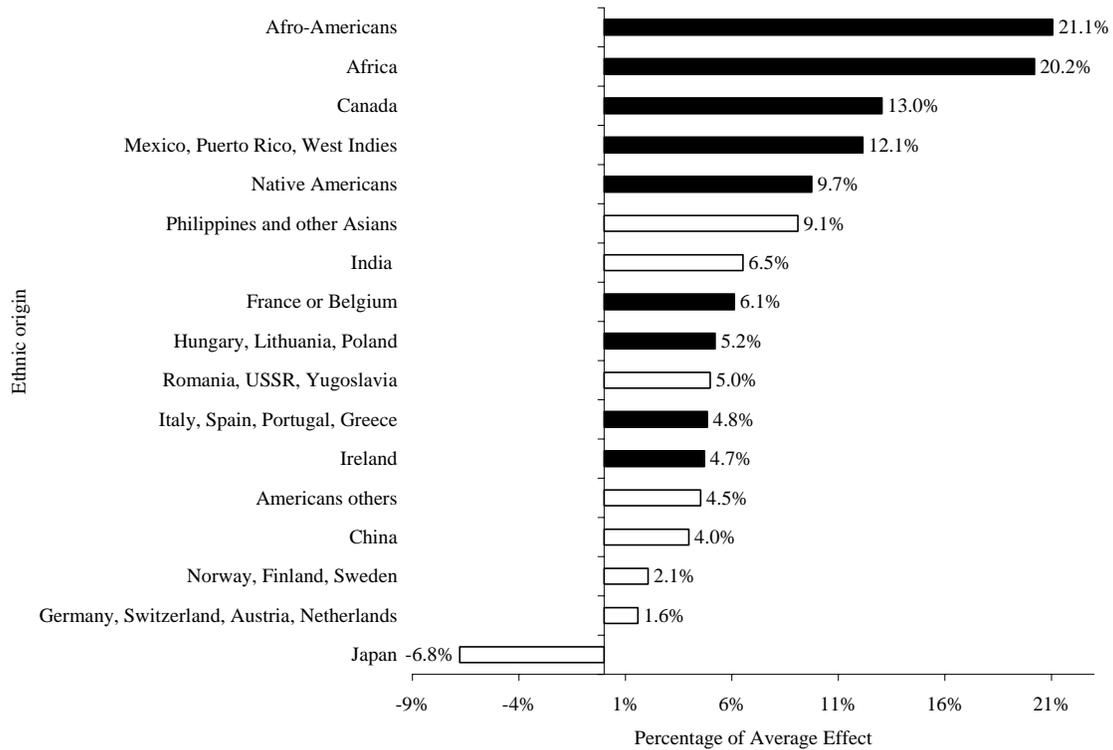
Significant Not significant

Source: General Social Survey.

Note: The bars represent estimated regression coefficients of a dummy for each type of religion divided by the average value of the dependent variable. The dependent variable is the answer to the following question; “Some people think that the government in Washington ought to reduce the income differences between the rich and the poor, perhaps by raising the taxes of wealthy families or by giving income assistance to the poor. Others think that the government should not concern itself with reducing this income difference between the rich and the poor. [...] What score between 1 and 7 comes closest to the way you feel?” A higher number means stronger preferences for redistribution. The regression also includes demographic controls (health, gender, age, education, and race).

Figure 6

Ethnic Origin and Preferences for Redistribution



The patterns denote:

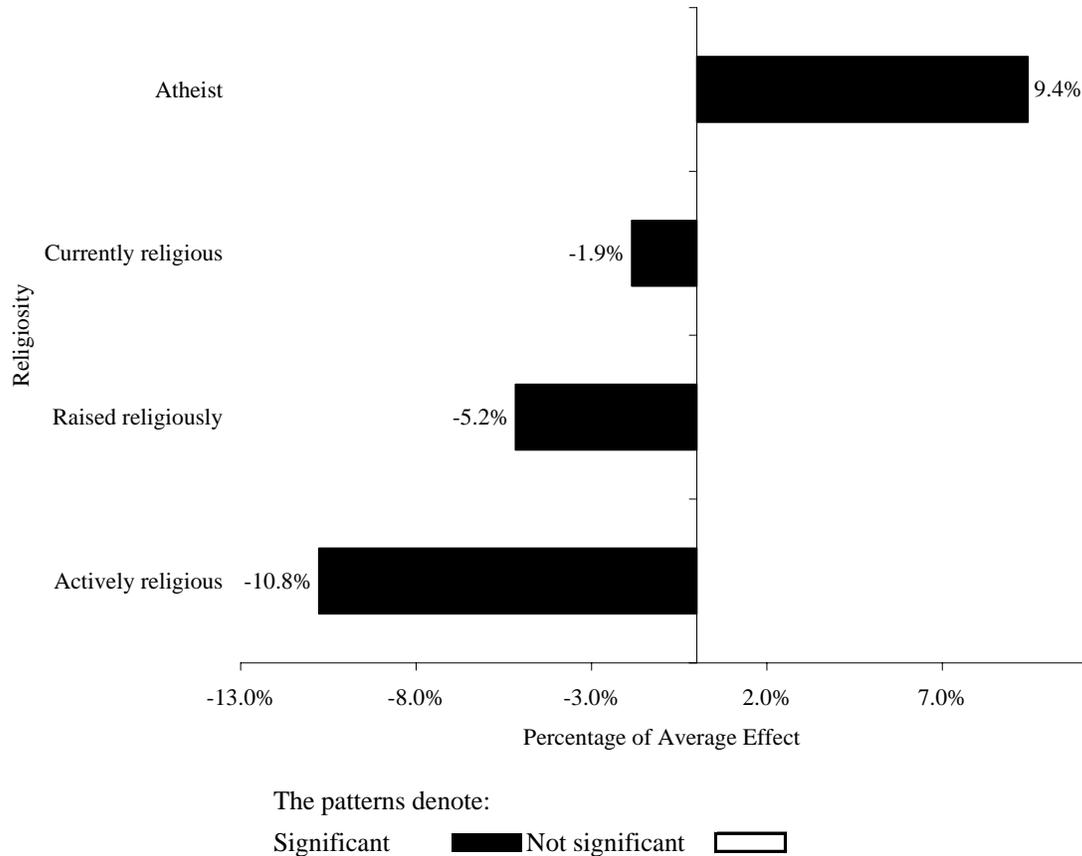
Significant ■ Not significant □

Source: General Social Survey.

Note: The bars represent estimated coefficients of an ethnic dummy (the omitted group is people with ancestors from Great Britain) divided by the average value of the dependent variable. To identify the origin of the ancestors we use the answer to the question “From what countries or part of the world did your ancestors come?” and grouped together several countries of origin. The dependent variable is the answer to the following question; “Some people think that the government in Washington ought to reduce the income differences between the rich and the poor, perhaps by raising the taxes of wealthy families or by giving income assistance to the poor. Others think that the government should not concern itself with reducing this income difference between the rich and the poor. [...] What score between 1 and 7 comes closest to the way you feel?” A higher number means stronger preferences for redistribution. The regression includes also demographic controls (health, gender, age, education, and race), religious affiliations (the omitted category is no religion and atheists) and dummy variables that indicate the origin of the ancestors of the respondent.

Figure 7

Religion and Willingness to Cheat on Taxes



Source: World Values Survey 1981-1984, 1990-1993, and 1995-1997 (ICPSR 2790).

Note: The bars represent estimated regression coefficients of a dummy for each type of religion divided by the average value of the dependent variable. The dependent variable is the answer to the following question: ‘Please tell me for the following statements whether you think it can always be justified, never be justified, or something in between, using this card.’ The statement is ‘Cheating on taxes if you have a chance’. Answers are in the range 1–10, with 1=never justifiable and 10=always justifiable. The regression also includes demographic controls (health, male, age, education, social class, income), country fixed effects, and survey-year dummies. See Guiso, Sapienza and Zingales (2003). ‘Atheist’ is a person who says in the survey he does not believe in God. ‘Raised religiously’=1 if the respondent answered ‘yes’ to the question ‘Were you brought up religiously at home?’; ‘Currently religious’ =1 if the respondent attends religious services (apart from weddings, funerals and christenings) at least once a year; ‘Actively religious’=1 if the respondent attend religious services (apart from weddings, funerals and christenings) at least once a week.

Table 1A

Probability of becoming and entrepreneur

	OLS	IV
Trust	0.0128** (0.0050)	0.1845*** (0.0575)
Respondent is male	0.0713*** (0.0048)	0.0673*** (0.0051)
Respondent is white	0.0450*** (0.0070)	0.0080 (0.0143)
Age of the respondent	0.0056*** (0.0008)	0.0036*** (0.0011)
Age of the respondent – squared	-0.0000*** (0.0000)	-0.0000** (0.0000)
Education	-0.0108*** (0.0040)	-0.0158*** (0.0045)
Education squared	0.0005*** (0.0002)	0.0004*** (0.0002)
Observations	17684	17684

Source: General Social Survey.

Note: The dependent variable is a dummy variable equal to one if the respondent is a self-employed. The sample is restricted to respondent who report to be employed. ‘Trust’ is a dummy variable equal to one if the respondent answered that most people can be trusted to the question: “*Generally speaking, would you say that most people can be trusted or that you can't be too careful in life?*” The regressions also include demographic controls (gender, age, education, and race). In column (2) the instruments are the religious denominations and the country of origin of the ancestors. Robust standard errors in parentheses account for clustering at country level. *** indicate the coefficient is different from zero at the 1% level, ** at the 5% level, and * at the 10 % level.

Table 1B

Respondent's socioeconomic index

	OLS	IV
Fair	1.0326*** (0.2632)	15.2642*** (4.3833)
Respondent's father socioeconomic index	0.0725*** (0.0080)	0.0611*** (0.0104)
Education	-1.8207*** (0.1840)	-2.5710*** (0.2829)
Education squared	0.2124*** (0.0073)	0.2296*** (0.0099)
Age of the respondent	0.3266*** (0.0413)	0.2490*** (0.0616)
Age of the respondent – squared	-0.0023*** (0.0004)	-0.0020*** (0.0006)
Respondent is male	1.5341*** (0.2489)	1.5001*** (0.3186)
Respondent is white	2.5262*** (0.3600)	0.4627 (0.7543)
Respondent was born in the US	-1.1382** (0.5173)	-0.9054 (0.6198)
Observations	14456	11128
R-squared	0.402	0.262

Source: General Social Survey.

Note: The dependent variable is the respondent socio-economic status based on the 1989 GSS study of occupational prestige and on a procedure that Otis Dudley Duncan developed (with a range from 17.1 to 97.2). The sample includes observations from 1988 till 2002 GSS for which the respondent socioeconomic status has been collected. “Fair” is a dummy variable equal to one if the respondent answered that “most people would try to be fair” to the question: “Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?” The regressions include the socio-economic status of the father of the respondent, some demographic controls (gender, age, education, race, and whether the respondent was born in the US), and year-fixed effects. In the second column the instruments are the religious denominations and the country of origin of the ancestors. Robust standard errors in parentheses account for clustering at country level. *** indicate the coefficient is different from zero at the 1% level, ** at the 5% level, and * at the 10 % level.

Table 2

Effects of culture on savings

	<i>National savings over GDP</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	IV	OLS	OLS	IV
Important to encourage children to learn thrift and savings?		13.7014** (5.1744)	28.5369* (16.0549)		12.0542** (5.6229)	25.6603* (12.8767)
Real growth rate of per capita GDP	1.4550*** (0.4188)	0.9814** (0.4334)	0.4686 (0.7008)	1.8743*** (0.4369)	1.4163*** (0.4690)	0.8994 (0.6643)
Dependency ratio	-0.6096*** (0.1621)	-0.5741*** (0.1534)	-0.5357*** (0.1708)	-0.4793** (0.1819)	-0.5142*** (0.1746)	-0.5537*** (0.1908)
Dummy if the country is not an OECD	0.5561 (2.0991)	0.5457 (1.9788)	0.5345 (2.1449)	-1.2635 (2.0348)	-0.7189 (1.9614)	-0.1043 (2.1724)
Government savings	0.4199** (0.2012)	0.4377** (0.1898)	0.4569** (0.2067)			
Inflation adjusted government savings				0.5192** (0.1997)	0.4718** (0.1922)	0.4183* (0.2116)
Observations	53	53	53	43	43	43
R-squared	0.581	0.636	0.572	0.619	0.661	0.607

Source: World Bank. See Giavazzi, Jappelli, Pagano (2000) and World Values Survey 1981-1984, 1990-1993, and 1995-1997 (ICPSR 2790) and The World Christian Database (1990).

Note: The dependent variable is National Savings over GDP. "Important to encourage children to learn thrift and savings?" is based on the answer to the question: "Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important?" We coded the variable as 1 if the respondent lists as important "Thrift, saving money and things" and we took the country's average response. All the regressions include real growth rate of per capita GDP, a dependency ratio (the sum of the country's population over 65 and population under 15 over total population), a dummy if the country is not an OECD, and a measure of government savings (the measure of government savings is adjusted for inflation in column (4) to (6). In column (3) and (6) the instruments are the percentage of people belonging to various religious denominations in each country. The denominations are Catholics, Protestants, Orthodox, Jewish, Muslims, Hindus, Buddhists and other affiliations. P-values for the F-test that the coefficient is equal to zero are reported in brackets. *** indicate the coefficient is different from zero at the 1% level, ** at the 5% level, and * at the 10% level.

Table 3

Effects of culture on income redistribution

	<i>Direct over indirect revenues</i>			
	(1)	(2)	(3)	(4)
	OLS	IV	OLS	IV
Should the government reduce income differentials? (1-7)	0.0233 (0.0341)	0.1574* (0.0856)		
It is the government responsibility to reduce differences in income? (1-5)			0.4757* (0.2449)	0.5932* (0.2940)
Population living in the state	0.5001 (0.3106)	0.5627* (0.3176)	0.5706 (1.1329)	0.5166 (1.1390)
Percentage of population below the poverty rate	-0.0253*** (0.0042)	-0.0276*** (0.0045)	-0.0276* (0.0141)	-0.0297** (0.0144)
Gdp Procapita in the State	0.0085*** (0.0023)	0.0065** (0.0027)	0.0058 (0.0099)	0.0047 (0.0100)
Year fixed effects	YES	YES	NO	NO
Observations	500	500	40	40
R-squared	0.105	0.076	0.194	0.189

Source: U.S. Bureau of the Census, Current Population Survey, Annual Social and Economic Supplements

Note: The dependent variable is the ratio of total State income taxes and the sum of all the state indirect taxes (sales taxes, taxes on motor vehicles, and other indirect taxes). “Should the government reduce income differentials” is based on the state average answer to the following question; “Some people think that the government in Washington ought to reduce the income differences between the rich and the poor, perhaps by raising the taxes of wealthy families or by giving income assistance to the poor. Others think that the government should not concern itself with reducing this income difference between the rich and the poor. [...] What score between 1 and 7 comes closest to the way you feel?” A higher number means stronger preferences for redistribution. We calculated the state average in the years 1980, 1983, 1984, 1986, 1987, 1988, 1989, 1990, 1991, 1993, 1994, 1996, and 1998, years for which the percentage of population in the state below the poverty rate is available. The variable “Is it the government responsibility to reduce differences in income?” is based to the state average answer to the following question “It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.” The question was asked in 1987. The variable is coded 1–5, where a higher number represents stronger preferences for redistribution.. In columns (2) and (4) the instruments are the percentage of people belonging to various religious denominations in the states and average percentage of people in the state who has ancestors from each of the origin. *** indicate the coefficient is different from zero at the 1% level, ** at the 5% level, and * at the 10 % level.

Appendix Table 1

Effects of culture on priors

	(1)	(2)	(3)	(4)
	Trust	Trust	Fair	Fair
Protestant	0.0295** (0.0125)	0.0254* (0.0147)	0.0254*** (0.0098)	0.0306*** (0.0114)
Catholic	0.0303** (0.0135)	0.0414*** (0.0158)	0.0318*** (0.0105)	0.0493*** (0.0123)
Jewish	-0.0515* (0.0266)	-0.0497 (0.0344)	-0.0354* (0.0206)	-0.0112 (0.0265)
Other religions	0.0151 (0.0230)	0.0163 (0.0269)	0.0325* (0.0187)	0.0394* (0.0219)
Health	0.0611*** (0.0043)	0.0573*** (0.0049)	0.0334*** (0.0033)	0.0321*** (0.0038)
Respondent is male	0.0236*** (0.0068)	0.0205*** (0.0078)	-0.0156*** (0.0053)	-0.0142** (0.0061)
Age of the respondent	0.0129*** (0.0011)	0.0125*** (0.0013)	0.0057*** (0.0009)	0.0060*** (0.0010)
Age of the respondent - squared	-0.0001*** (0.0000)	-0.0001*** (0.0000)	-0.0000*** (0.0000)	-0.0000*** (0.0000)
Education	0.0171*** (0.0049)	0.0144** (0.0060)	0.0097** (0.0039)	0.0047 (0.0048)
Education squared	0.0005*** (0.0002)	0.0005** (0.0002)	0.0000 (0.0002)	0.0002 (0.0002)
Respondent is white	0.2191*** (0.0092)	0.1294*** (0.0216)	0.1340*** (0.0072)	0.0630*** (0.0169)
Ancestors from:				
Africa		-0.1481*** (0.0266)		-0.1110*** (0.0207)
Italy, Spain, Portugal, Greece		-0.1032*** (0.0180)		-0.0645*** (0.0141)
Romania, USSR, Yugoslavia		-0.0325 (0.0314)		-0.0472** (0.0236)
Hungary, Lithuania, Poland		-0.0663*** (0.0197)		-0.0399*** (0.0155)
Norway, Finland, Sweden		0.0768*** (0.0191)		0.0344** (0.0150)
German, Switzerland, Austria, Nederland		-0.0404*** (0.0124)		-0.0069 (0.0097)
France and Belgium		-0.0419 (0.0267)		-0.0502** (0.0206)
Canada		-0.0550** (0.0279)		-0.0198 (0.0218)
China		-0.0237 (0.0668)		0.0138 (0.0526)
Ireland		-0.0186 (0.0145)		-0.0107 (0.0114)

Ancestors from: (cont.)	Trust	Trust	Fair	Fair
Japan		0.1445*		-0.0127
		(0.0780)		(0.0595)
Mexico, Puerto Rico, West Indies		-0.1410***		-0.0963***
		(0.0227)		(0.0177)
India		-0.1738**		-0.0963*
		(0.0678)		(0.0542)
Philippines or other Asians		-0.1256**		-0.0801*
		(0.0550)		(0.0419)
Native Americans		-0.1293***		-0.0749***
		(0.0225)		(0.0173)
Afro-Americans		-0.1742***		-0.0954***
		(0.0368)		(0.0290)
Americans others		-0.0943***		-0.0401
		(0.0358)		(0.0298)
Observations	19253	14840	31491	24271

Source: General Social Survey.

Note: The dependent variable is indicated at the top of each column. “Trust” is a dummy variable equal to one if the respondent answered that most people can be trusted to the question: “*Generally speaking, would you say that most people can be trusted or that you can't be too careful in life?*” “Fair” is a dummy variable equal to one if the respondent answered that “most people would try to be fair” to the question: “*Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?*” Regressions include demographic controls (health, gender, age, education, race), religious affiliations (the omitted category is no religion and atheists) and dummy variables that indicate the origin of the ancestors of the respondent. To identify the origin of the ancestors we use the answer to the question “*From what countries or part of the world did your ancestors come?*” and grouped together several countries of origin. The omitted group is people with ancestors from the United Kingdom. Robust standard errors in parentheses account for clustering at country level.*** indicate the coefficient is different from zero at the 1% level, ** at the 5% level, and * at the 10 % level.