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Marini, Annalisa

University of Pennsylvania

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Cultural Beliefs, Values and Economics: A Survey

Annalisa Marini*

Abstract

The present work reviews the relation between culture and economics; in doing so, we often distinguish between the historical component of culture (i.e. inherited values) and its contemporaneous component (i.e. social interactions). First, the paper emphasizes which cultural traits are relevant in economics, reviews situations where culture affects economic outcomes and addresses the relevance of culture across time and space. Then, it explains the theoretical framework of reference for the transmission of both contemporaneous and inherited culture. Finally, it presents econometric techniques available to the researchers and suitable to investigate the impact of culture on economic outcomes, providing suggestions for future research.

*Marini: University of Pennsylvania, 249 Claudia Cohen Hall, S 36th Street Philadelphia, PA19104, marinia@sas.upenn.edu. I am very grateful to Steven Durlauf for his comments and suggestions. The responsibility for the content of the paper is entirely mine. While working at this paper I received financial support from the John Templeton Foundation. The opinion expressed in this publication are mine and do not necessarily reflect the views of the John Templeton Foundation. I have no relevant or material financial interests that relate to the research described in this paper.

1 Introduction

Since the pioneering work that emphasizes the importance of cultural economics by Banfield (1958), other work has been emerging, but a vivid interest in the importance of culture came later, only in the last years.

Although definitions of culture are multiple and it is difficult to provide a single and exhaustive definition of the concept, in order to make clear to the reader the object of the analysis we can say that “economic culture is defined as the beliefs, attitudes, and values that bear on the economic activities of individuals, organizations and other institutions” (Porter, in Harrison and Huntington, 2000, : 14). Indeed, culture is the result of different beliefs, such as religious creeds, social beliefs and norms, habits, and values transmitted over generations that, through social interactions and intergenerational transmission, influence individual decisions and policies of countries and regions. Nowadays, it is recognized that cultural traits represent important determinants for the study of both individual decisions and macroeconomics.

The present work is aimed at reviewing the literature on cultural economics and the ways it can influence economic outcomes. The aim of this survey is twofold. On the one hand, in the first part of the analysis we define various life situations where culture matters for both individual and macroeconomic decisions. On the other hand, we first present an overview of quantitative methods that can be used when assessing the impact of culture on economics, their limits and properties; we point out which econometric tools are more suitable when analyzing the interrelation between culture and economics and provide suggestions for future research.

The paper is innovative because it first reviews theory and econometrics of culture distinguishing between contemporaneous (i.e. social interactions) and historical (i.e. transmission of values) component of culture (Bisin and Verdier, 2001; Bénabou and Tirole, 2006; Tabellini, 2008a, 2010). Besides, it provides methodological suggestions for future research to investigate the

relation between culture and economics. Finally, it is one of the few papers that presents a comprehensive and exhaustive analysis of the role of culture in economics.

The rest of the paper is organized as follows. Section 2 reviews situations where culture influences either individual decisions or macroeconomic outcomes. Section 3 presents the theory of both contemporaneous culture and intergenerational transmission of values. Section 4 defines the econometrics of models of social interactions and cultural transmission and provides suggestions about the methodology to use in cultural economics. The last section concludes.

2 Culture and Economics

Culture is the byproduct of complex, plural and interrelated processes. This explains why culture is a basin of attraction not only for economists, but also for other scientists such as anthropologists, psychologists and sociologists.

Nevertheless, although culture is a broad concept and subject to different definitions by scientists (Greif, 1994; Akerlof and Kranton, 2000; Bénabou and Tirole, 2006), nowadays the literature recognizes it is an important determinant when explaining economic outcomes. Indeed, despite the presence of different views, some in favor of a causality relation from development to culture (Marx, 1859; Inghleart, 1990, 1997), others supporting the theory of a causality relationship from culture to economic development (Banfield, 1958; Putnam et al., 1993; Fukuyama, 1995; Tabellini, 2010), and others (Dasgupta, 2003) stating that the relation between culture and economics has to be interpreted as a correlation, recently the literature is more willing to admit that different cultures may give rise to different economic outcomes.

The impact of culture can be seen as the outcome of two main factors: an historical component, made of habits and values received from parents and earlier generations, and a contemporaneous component, represented by

beliefs generated by social interactions and networking. In the following paragraphs we revise how and when culture influences economics.

2.1 Which Cultural traits?

After recognizing the importance of culture in economics, the recent literature is now oriented to understand which cultural traits are more important to explain differences across both individuals and economies.

2.1.1 The “Trust Syndrome”

Trust is the cultural trait most widely used by economists to distinguish between hierarchical societies, where trust is circumscribed to a small group of people and opportunistic behavior is allowed towards the rest of a society (i.e. personalized trust and amoral familism), and modern democratic societies, where trust is generalized towards a whole society (i.e. generalized trust). Various researchers (Banfield, 1958; Putnam et al., 1993; Fukuyama, 1995; Marini, 2004; Tabellini, 2010) extensively explain the importance of trust for economic efficiency. Indeed, it is well recognized by the literature that the more a society is grounded on generalized trust the higher is the level of efficiency of economic transactions across agents; while the higher is the level of personalized trust the higher is the level of inefficiency of economic transactions (e.g. Durlauf and Fafchamps, 2005; Tabellini, 2010). Also, some authors focus their attention on the importance of trust at the microeconomic level (i.e. Alesina and La Ferrara, 2000, 2002; Marini, 2016).

Yet, when the importance of social capital for an economy is of interest, trust is not the only indicator to consider.¹ Putnam et al. (1993) and Helliwell and Putnam (1995) point out that regions in the North of Italy, endowed of high civic culture, have a better provision of public goods and

¹Although trust is widely used to proxy social capital here and along the cultural economics literature, we would like to remark that trust cannot be used interchangeably with social capital, rather trust has to be considered a component of it.

experienced a higher rate of growth over the second half of the twentieth century than the regions of Mezzogiorno (Southern regions), where trust and civic culture are lower. Narayan and Pritchett (1999), using households data in rural Tanzania, show that associational activity may be beneficial to the economy by decreasing imperfect information and lowering transaction and other costs; they demonstrate that social capital can be considered a form of capital as much as other traditional forms of capital, which can benefit the economy by increasing income. More recently, Beugelsdijk and van Schaik (2005) empirically test the impact of social capital on economic growth across European regions using indicators for trust and association; in their work, using the European Values Study, they build indicators of both passive and active association; their findings suggest that active association is relevant to explain differences in rates of growth across European regions. Finally, Crociata et al. (2015) first analyze the relationship between culture and waste recycling. Their findings indicate that there exists a strong positive relation between cultural activity and the willingness to recycle and that such sensibility to waste recycling is higher in Northern Italy than in Southern Italy; thus, the results support the positive relationship between social capital and civic behavior.

2.1.2 The “Achievement Motivation”

When analyzing the role played by culture in economics, it is important to consider the impact not only of “collective social capital”, as generally done by the literature, but also of “individual virtues” and the importance of confidence in the individual in a society, especially in developed economies (Fukuyama, 1995; Marini, 2004; Tabellini, 2010).

With respect to this, a literature parallel to that assessing the impact of social capital on economic outcomes highlights the importance of individual virtues to motivate differences in individual productivity and economic efficiency. McClelland (1961, 1975) considers the “need for achievement” as

an individual virtue necessary for and positively correlated with economic performance: It is in fact a quality that encourages people to do better and to put effort in order to reach the set goal. Starting with Fukuyama (1995) both the “trust syndrome” and “individual virtues” have been considered crucial to explain economic efficiency. Since then researchers started to consider a broader set of cultural traits to explain differences in both macroeconomic performance and individual behavior. Marini (2004), for instance, reviews the literature and develops a model where both the “achievement motivation” and the “trust syndrome” are taken into account as cultural traits relevant to economic growth. In a later contribution (Marini, 2013) he uses 25 factors taken from Harrison (2006) in order to assess which cultural traits are progress-prone or progress-resistant: His results show that both trust and individual virtues are important to explain differences in economic performance. Some work (Beugelsdijk and Noorderhaven, 2004; Beugelsdijk, 2007) considers the importance of entrepreneurial attitude for economic growth.

Furthermore, the importance of objective individual freedom of choice in economics has been remarked in some theories (e.g. Pattanaik and Xu, 1990; Sen, 1991), while other authors (e.g. Bénabou and Tirole, 2000, 2006; Bavetta and Navarra, 2012) have recently pointed out the relevance of subjective individual freedom and its psychological implications to explain differences in individual success and productivity: Such theories argue that an autonomous person is more likely to think that effort and work rather than luck may help to succeed and remark that a vision of the world where individual effort pays off incentivizes higher individual productivity than a vision of the world where success is perceived as due to luck. They also emphasize that such differences in beliefs may lead to differences in policy implementation (e.g. welfare and preferences for redistribution and policy-making).

In sum, nowadays two sets of cultural values are considered relevant to explain differences in economic performance by the current literature:

“social capital” and individual virtues (Tabellini, 2010; Marini, 2013).

2.1.3 The Importance of Time and Geographic Dimension

Before proceeding further, it is important to remind that timing is also important when analysing the impact of culture on economics. From an historical perspective, some theories explain that culture matters in a later stage of development. Foster (1973) points out that the limited good syndrome is predominant at an early stage of development and due to scarcity of resources cooperation and trust are very low and limited in scope. As also pointed out in Marini (2004), at this stage of development individuals attitudes are rent seeking, restricted cooperation and fatalism, which hurt economic development. Only at a later stage of development (i.e modernity) culture plays a major role for economic performance. A non-monotonic relationship between culture and economic development has also been remarked by Tabellini (2008b). Finally, it can be argued that because of the general persistence of culture over time, its influence is generally long lasting and slow-moving and difficult to change; such change can only be achieved by either small and constant adjustments over time (Jones, 2006) or by means of a very high shock (Guiso et al., 2014).

The geographic dimension is also important. According to the definition provided by Dasgupta (2003), network externalities may have different economic effects depending on the network configuration: If they spread locally, they have an impact on human capital; if rather they give rise to a global interactions model, they boost externalities under the form of Total Factor Productivity (TFP). Examples referred to the first case are those worked out by the recent works by Topa (2001), Munshi (2003) and Calvo-Armengol and Jackson (2004), which emphasize the importance of social networks formation in labor markets. Instead, the work by Bala and Goyal (1998) is an example of social interactions that generate global externalities that can be associated to technological diffusion (i.e. public goods).

2.2 Culture and Economic Performance

Why do regions apparently similar in their stage of development differ so much in their economic systems? What determines economic performance of countries and regions? Cultural economics support the idea that cultural values inherited from the past affect present decisions and economic performance.

The hypothesis that culture affects economic growth is supported both from cross-country and cross-regional evidence (e.g. Banfield, 1958; Putnam et al., 1993; Granato et al., 1996; Knack and Keefer, 1997; Zak and Knack, 2001; Beugelsdijk and van Schaik, 2005; Algan and Cahuc, 2010; Tabellini, 2010; Marini, 2013). As far as the regional evidence is concerned, a first connection between culture and economic development was found by Banfield (1958), who, studying the behavior of citizens of a little town in Lucania in the post-war era, found in “amoral familism” the cause of socio-economic backwardness of Southern Italian regions.² Tabellini (2010), using an instrumental variable (IV) approach, shows that culture shapes economics and institutions when comparing performance of countries and regions who may share the same stage of development (e.g. European countries) as well as when investigating regional disparities within these same countries.

The evidence is also rich when we switch to cross-country comparison. Fukuyama (1995) and La et al. (1997), for instance, point out that the level of trust present in a society determines the quality of economic organization, motivating both the presence of large firms in countries where generalized trust is the rule and the prevalence of small firms, often family-based, in societies grounded on personalized trust.³ Some work (Granato

²Banfield (1958) refers to “amoral familism” as the widespread attitude in certain cultures to mistrust most individuals in a community and to trust only small groups of individuals, such as family members and friends.

³Generalized trust is the term used by the cultural economics literature to describe the presence of a culture of trust towards the majority of individuals in a society. This has to be opposed to personalized trust, which, similarly to “amoral familism”, refers to the tendency to mistrust and behave opportunistically towards the majority of individuals

et al., 1996; Marini, 2013) show that both culture and economic indicators explain heterogeneities in growth dynamics, remarking their complementary importance. More recently, Algan and Cahuc (2010) develop a new method to assess the causal effect of trust on economic growth. Using both the General Social Surveys (GSS henceforth) and the World Values Survey (WVS hereafter) data sets, they derive time-varying values of inherited trust for a set of international economies and investigate the impact that variation in inherited trust has on variation in income per capita in the countries of origin: Their findings suggest that a large part of income variation can be explained by variation in inherited trust even after accounting for country fixed effects and other institutional variables.

2.3 Culture, Institution and Policy

As pointed out by Etounga-Manguelle (Etounga-Manguelle, in Harrison and Huntington, 2000: 75), when studying the relationship between culture and institutions “we must be mindful that culture is the mother and institutions are the children.” Indeed, it is also likely that culture has an impact through voting on collective choice, policies and what Hall and Jones (1999) define social infrastructures, that is, “institutions and government policies that determine the economic environment within which individuals accumulate skills and firms accumulate capital and produce output.”

Some work investigates the relation between culture and institutions (e.g. Putnam et al., 1993; Tabellini, 2008a), their interaction, and their joint role in economic development (Alesina and Giuliano, 2015). Recent studies have also investigated the impact of culture on policy-making. Aghion et al. (2011) show that in countries where cooperation in labor relations is high there is a minor state intervention on minimum wage regulation, while the opposite is true for countries where distrust in labor relations prevails. Alesina et al. (2015) develop a model where the choice of labor market institution in a society with the exception of the members of a clan or family.

tutions depends upon cultural values (i.e. family ties) to explain persistent differences in cross-country labor market regulation. Their model shows two equilibria: a laissez-faire equilibrium, compatible with the presence of weak family ties, high mobility of workers and unregulated labor market; the other, with high demand for labor regulation (e.g. minimum wage and firing restriction) and strong family ties. They also show that such equilibria may persist over time due to the differences in family values across country and that the drawback of prioritizing the family towards work is a loss in terms of wages and employment.

2.4 Culture and Finance

Financial contracts are exchanges of money between the borrower and the financier. In order for the contract to take place, the enforceability of the contract may not be the only variable to take into account: it is also important that the financier and the borrower trust each other, because moral hazard and adverse selection are often likely to happen when entering a contractual agreement. Thus, in regions where amoral familism and personalized trust prevail, there is often a development of alternative ways of financing, such as those based on loans from parents, relatives and friends and this gives rise to a scarce development of financial markets. These results are shown in Guiso et al. (2004), who, analyzing financial development in Italian regions and provinces, find that financial markets differ very much within Italy and such differences are due to variability in levels of social capital.

The effect of trust is also present in stock market exchanges. Guiso et al. (2008b) show that individuals that trust less are generally less likely to invest in the stock market, since the risk of being cheated is not just a function of the objective features of the stocks, but it also depends on subjective characteristics of the individual. They also show that this can provide an explanation to the fact that investments in the stock market is

of widespread use in some countries, while in others it is not. Moreover, conditional to the fact that people invest, such investments are likely to be biased in favor of the firms they know, such as the firm they are employees for (even though these are not objectively the best investments on the market) rather than on global knowledge. Thus, the level of trust is an important determinant also for financial investments of individuals, who, unless they possess enough information on the available stocks, make their decisions depend upon trust and on their local knowledge. This evidence is also consistent with the findings by Dominitz and Manski (2011), who address the importance of an individual's subjective expectations on the stock markets as determinant for investment decisions.

2.5 Culture and Openness

Culture affects commercial agreements across countries and international joint ventures between firms are also more likely to happen across countries that share similar cultures. Generally, cultural stereotypes do play an important role in trade partnerships; bias in trade is also due to commonality of religion and of civil law: countries whose main religion is the same are more likely to trust each other and the same is true for countries with similar legal systems.

The economic effects of culture in economic exchanges are well documented in Guiso et al. (2006), who not only consider economic exchanges but also extend the analysis to foreign direct investments (FDI) and conclude that the correlation between trust and economic exchange seems to be both economically important and pervasive because cultural influences are also present in FDI decisions across countries.

2.6 Culture and Religion

Religion may influence a society (Harrison and Huntington, 2000; Guiso et al., 2006). It is well known that protestant societies are based on the

transmission of values promoting independence, self-realization, self-esteem and individualism; while instead, in Catholic societies values of charity, attention to poor people and sense of obedience prevail. Furthermore, the Protestant Church has a decentralized organization, open to local control; while the Catholic church is based on a hierarchical and centralized organization.

The role of Protestantism and its connections with economic efficiency in a society has been largely treated and explained in the pioneer work by Weber (1930). After Weber (1930) various contributions showed the importance of Protestantism for economic performance and its components (e.g. Becker and Woessmann, 2008, 2009).

Moreover, in some countries the prohibition for women to participate to the labor force for instance reduces the productivity of a whole society. Recently, Harrison (2011) argues that some religious groups, such as Protestantism, Judaism and Confucianism, manage better the challenges imposed by modern changes. He argues that certain groups are very good to adapt their institutions and social policies to changing circumstances and to promote economic growth, while others, such as for instance Catholicism, Islam and some African religions, are progress resistant religions. Thus, while the causal impact of religion on economic growth is still controversial (Barro and McCleary, 2003; Durlauf et al., 2012) and needs further attention, it is reasonable to admit that religion impacts economics.

3 The Theoretical Framework

3.1 Contemporaneous Culture and Social Interactions

Social phenomena are an integral part of social networks and they contribute to their formation (Granovetter, 1985). Social interactions models can be seen as a variation of game theory formulations, since interactions across agents of a population can be well represented by evolutionary game theory

formalizations: the game can be repeated several times and agents are not required to understand the rules of the game before playing so that they can adjust their behavior gradually (see Binmore and Dasgupta, 1986; Binmore, 1987, 1988).

Population games models, focusing more on aggregate behavior and social interactions outcomes rather than on individual-level decision making, are a first attempt to represent agents interactions. The extension of population games to evolutionary dynamics and, for economic models, the introduction of such games in evolutionary game theory by Foster and Young (1990) determined the possibility of finding stochastically stable states to overcome the problems that originally characterized population games. Stochastic evolutionary dynamics are the less restrictive generalization since they allow the revision protocol to vary. A stochastic evolutionary process may be applied to social dynamics and the formation of social networks in a population. Indeed, given a population of individuals, both social interactions and beliefs updating over time allow the creation and consolidation of evolving complex social networks and collective beliefs.

Social interactions models (e.g. Brock and Durlauf, 2001a), which allow individuals to change and update their beliefs according to their experience, are particularly apt to formalize the formation of contemporaneous culture. They capture the influence of the reference network on individual behavior; for instance, they can show the extent to which generalized trust of a reference network influences individual decision to trust others.

3.2 Intergenerational Transmission of Culture

Another way culture may spread is via the intergenerational transmission of values. Cultural traits can be transmitted across generations by means of either direct socialization or oblique socialization: the former type of socialization refers to the direct transmission of culture from parents to children; the latter type of socialization is transmitted to a child when

he/she is influenced by a role model in some of his/her traits acquiring characteristics typical of a society.

The first model of cultural transmission is due to Cavalli-Sforza and Feldman (1981), who use evolutionary biology theory to explain cultural transmission. Bisin and Verdier (2000, 2001) start from this model and integrate it with direct socialization extending this socialization mechanism by allowing imperfect empathy, that is, the fact that parents transmit their values to their children, who evaluate them according to their own preferences. Guiso et al. (2008a) develop an overlapping generation model where children take priors about the trustworthiness of people from their parents and after gaining some experience they update their priors and transmit such updated beliefs to their own children. They show that in order to protect their children parents transmit them too conservative priors that may lead to self-reinforcing mechanisms and explain the fact that some societies may be trapped in a low-trust equilibrium. Tabellini (2008b) develops a model adapted from Dixit (2004) where individuals, after observing their distance (either social or geographic), play a one-shot prisoner's dilemma game in which cooperation is a by-product of values and norms of good conduct. Bisin and Verdier (2011) partly review these models.

4 Cultural Econometrics

4.1 Econometrics of Contemporaneous Culture: Social Interactions

Social interactions models and models of cultural transmission have precise implications for econometric specification. Indeed, these models differ from other economic models in that they formalize concepts like herding behavior, neighborhood effects, interpersonal interactions and social networks, which are endogenously determined.

If we define an individual choice characterized by:

$$\omega_i = k + cX_i + dY_{g(i)} + J_g m_{ig}^e + \varepsilon_i \quad (1)$$

where k is a constant specifying costs and benefits of making the choice, X_i are individual characteristics, $Y_{g(i)}$ are average characteristics of the society that may refer to either average characteristics of the region the individual lives in (e.g. GDP) or to the average characteristics of individuals (e.g. average wage, average education), the so called role models, m_g^e are beliefs of each individual on the average choice of individuals of a same population, J is the parameter that measures the strength of social interactions and ε_i is the error term. The social interactions literature generally assumes rationality of individuals, who are assumed to be able to predict the objective value of the social interactions term ($m_g^e = m_g$), to close the model.

The first concern to think about when dealing with social interactions models is identification: this problem is due to what Manski called the reflection problem (Manski, 1993), which comes from the necessity to distinguish between the direct effect of contextual effects and the effect generated by the social interactions term. While in linear-in-mean models the structural parameters cannot be identified, in the nonlinear case the collinearity problem does not arise due to the nonlinearity of the estimator: in these models a change in individual characteristics never changes proportionally with the change incurred in the characteristics of the group. This is one of the main advantages of using nonlinear probability models for the analysis of social interactions and the formation and transmission of collective beliefs. For a complete and detailed evidence on identification in discrete choice models, the reader should refer to the existing literature (Brock and Durlauf, 2001a,c; Durlauf, 2004; Blume et al., 2011).

The second concern emerging in the study of social interactions is a consequence of the fact that some explanatory variables in social interactions models result from the creation of social networks and for this reason are

affected by selection problems, which cause problems of nonorthogonality between the error term and the regressors. Various methods have been proposed in the literature to solve the selection problem. Some involve the use of nonparametric or semiparametric techniques or a selection correction à la Heckman (Heckman, 1979; Newey et al., 1990; Ioannides and Zabel, 2008). Finally, in particular when the researcher is modeling a nonrandom assignment model, that is, a model where individuals self-select in a group, the use of sequential nonlinear models (e.g. sequential logit models, as in Marini, 2016) is appropriate to solve the selection model: These models may also control for unobserved heterogeneity (see e.g. Cameron and Heckman, 1998; Train, 2003; Buis, 2011, for details).

However, despite the presence of econometric problems these models present very interesting properties too. Indeed, a sizeable J , the parameter that measures the strength of social interactions, is a necessary condition for the presence of self-reinforcing equilibria (Brock and Durlauf, 2001c, 2007; Zanella, 2007). The rationale behind these mechanisms is as follows. The outcomes of a choice (e.g. high -H- and low -L- types) depend on both private utility and social utility. As a matter of fact, individual beliefs may be formalized as follows:

$$\omega_i = h_i + J_g m_g^e + \varepsilon_i \quad (2)$$

where h_i , which equals $k + cX_i + dY_g$, is the private deterministic utility, ε_i is the stochastic component of private utility and Jm_g^e represents the social utility.

According to this equation, if J is above a certain threshold, $J > \bar{J}$ we only know that multiple equilibria arise (see Brock and Durlauf, 2001c), however it is with the interplay between social utility and both deterministic and random private utility that we know which equilibrium could be reached. Assuming that individuals adapt to the average behavior of other individuals in a society (because adapting is less costly than deviating), it is

likely that individuals in regions with low (high) level of trustworthiness will choose to join a low (high) level equilibrium rather than choosing a high (low) equilibrium. These outcomes are self-reinforcing and may generate social traps, which are the social equivalent of poverty traps in economics.

Thus, resilience and phase transitions are relevant for social interactions. Resilience refers to the fact that once the transition of a highly connected network is established, it creates a very strong state of affairs that is capable to resist even in presence of deterioration. Phase transition indicates that small changes in private utility can be related to large equilibrium changes in average behavior. Intuitively, a model exhibits phase transitions if a very small change in a parameter can imply a very large change of the properties of the model. To clarify, we can think at the change in equilibrium values of trustworthiness if suddenly all the individuals living in a society where amoral familism prevails decide that they have higher private gains if they become trustworthy people: the changes in equilibrium outcomes are supposed to be much higher than the small change put in practice by all virtuous people. This characteristic makes these models close to physical models reproducing the change of state of a substance.

These two properties indicate that values and beliefs may persist over time if they are well rooted in a society, unless a (positive) shock (that may be either induced by policy makers or the result of endogenous changes) implies a change for the whole population.

Finally, social interactions models are observational learning models (Manski, 2000): expectations generated by these models have policy implications different from preference interactions, because while preferences are not influenced by updated information, observational learning models are influenced by policies that are aimed at changing information and collective beliefs. A person may not trust others because he/she thinks that everybody in a society conform to personalized trust and amoral familism. Thus, a policy aimed at increasing (expectations about) the level of trustworthiness in a group may have a high impact on their behavior; instead, if

a person decides not to trust anyone because he/she prefers to conform to norms of amoral familism, then policies will not be able to influence his/her behavior.⁴ Also, given the interplay between J and h , policy makers may lead a group out of a social trap by, for instance, improving (average) individual characteristics (e.g. education, income etc.) of the group that could directly contribute to increase expectations about the social interactions term (the reader may think that, for instance, individuals with higher levels of education have more access to information and are more likely to trust others and at aggregate level this would raise expectations about the average level of trustworthiness of the reference group).

Thus, according to the theory explained so far, persistence and hysteresis are generated from self-reinforcing mechanisms and together with bounded rationality (that is, taking into account that individuals take decisions using limited information) may explain the presence of multiple equilibria and social traps.

Finally, given the spatial spread of social interactions and their likelihood to generate externalities, the utilization of spatial models of social interactions allowing for dependence (either geographical or social) has to be promoted.

4.2 Econometrics of Cultural Transmission

A practice commonly used by researchers to measure cultural traits is to aggregate at regional or country level the answers provided by survey questionnaires using either mean values or percentages of people who gave a positive answer to the questions. Recently, researchers have been using either principal component analysis or factor analysis to build cultural indicators (e.g. Tabellini, 2010).

With regards to econometric problems, the most important is reverse

⁴Social interactions models assume self-consistency, that is, individual expectations and the objective probability generated by the model are equal ($m^e = m$), so policy makers may equivalently increase the objective level of trustworthiness in a group.

causality; indeed, culture is a slow moving variable that changes in the long run, and it is likely to co-evolve with economic performance and other dependent variables that vary in the medium or long term. In order to overcome the problem researchers may either lag cultural values one period with respect to the dependent variable (Marini, 2013) or use instrumental variables (IV) estimators (e.g. Tabellini, 2010) to control for endogeneity of cultural indicators. However, sometimes the appropriateness of instrumental variables may be a problem due to the difficulty to find good instruments (Brock and Durlauf, 2001b; Durlauf et al., 2005). Besides, the utilization of fixed effects estimators may not be appropriate when dealing with cultural indicators, because fixed effects estimators are not suitable (Durlauf et al., 2005; Cameron and Trivedi, 2010) when variables show persistence over time since they would not be very informative.

Also, culture is often used to explain persistent variables that are likely to follow an AR(1) process (e.g. economic growth). From an econometric perspective, this requires the use of dynamic panel data to be estimated by means of GMM approaches (Arellano and Bond, 1991; Arellano and Bover, 1995; Blundell and Bond, 1998). However, such tools require a few number of time observations, which is difficult to obtain from surveys. Indeed, we need at least three or four time periods for the analysis, given that instruments should be lagged at least two periods with respect to the dependent variable, four when we use differences. This is a problem because international data sets (e.g. the WVS) used to build cultural indicators may not have sufficient time series observations. Thus, in many cases this makes impossible the estimation via either Difference-GMM or System-GMM. This problem may be overcome for data coming from surveys with longer time series (e.g. General Social Survey). The validity of instruments is a further problem to take into account also in dynamic panels.

Only very recently the use of spatial econometric methods has been applied to growth models in order to take into account the presence of both spatial dependence and externalities (Anselin, 1988, 2003; Ertur and Koch,

2007; Le and Fischer, 2008; Le and Pace, 2009). The idea that the network dimension is important to explain the spread of social capital has been explicitly and implicitly remarked by the literature. As suggested in Dasgupta (2003), the impact of social capital varies depending on the nature of social networks. Durlauf (2004) points out that social and geographical proximity matter to explain similarity in policies. Tabellini (2008b) argues that both time and spatial dimension of cultural values is crucial to determine economic efficiency. Since culture is likely to generate externalities, as pointed out in Marini (2011) linking the spatial econometric literature to cultural economics is desirable and should be considered one of the new frontiers of the empirics of cultural economics.

Finally, the use of structural models should be incentivized in future research to analyse the co-evolution of culture and economics: the identification of all the structural parameters of the model may render policy evaluation and design more effective. Bayesian estimation (e.g. Koop, 2003) can also make the model more informative by accommodating the presence of cultural priors and, given the data, may help to validate the theoretical models.

Before concluding this section, it is important to remark that sometimes vignettes (King and Wand, 2007) can be used to compare answers to survey cultural questions and beliefs across countries.

5 Conclusions

The paper surveyed the literature on cultural economics.

In the first part of the analysis we reviewed situations where culture matters for economics and we remarked the relevance of both spatial and time dimensions for the spread of culture.

In the second part of the paper we went through both theory and econometrics of cultural economics distinguishing between contemporaneous and intergenerational cultural transmission.

Along the survey we provided suggestions for future research. Given that culture is likely to generate externalities, the use of spatial econometric methods should be incentivized to allow for spatial dependence and the presence of externalities generated by culture. Also, Bayesian inference could accommodate the presence of cultural priors in a model and help to validate theoretical models. Finally, the use of structural models could lead to effective policy evaluation and decisions by performing counterfactual scenarios or policies.

Synchronizing individual and macroeconomic policies is ideal to let regions escape from poverty traps and to boost economic development (Durlauf, 2012). This may be achieved using *ad hoc* instruments specific to the country or regions that could help maintaining cultural heterogeneities and at the same time leading the economy out of poverty and social traps.

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