Cultural evolution and economic growth: a theoretical hypothesis with some empirical evidence

Matteo Marini*

Dipartimento di Economia e Statistica, Università della Calabria, 87036 Rende (Cosenza), Italy

Abstract

This paper begins with a review of the literature on culture and development and finds that a "questionable" controversy divides the field: on one side are supporters of the 'achievement motivation', while on the other side are supporters of the 'trust syndrome', both in search of the ultimate attitude promoting economic development.

This controversy is analysed through the lens of a broader conceptual framework, and a solution is proposed to settle the debate. The theoretical hypothesis asserts that economic culture, as any other aspect of culture, passes through stages of development. In the early stages, economic culture dwells on the problem of wealth distribution and, only later, does it focus on the core question of its growth. Using empirical data extracted from the World Values Survey Archives, we verify that during this latter stage both achievement motivation and trust syndrome are needed to promote economic growth.

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The qualities most useful to ourselves are, first of all, superior reason and understanding, by which we are capable of discerning the remote consequences of all our actions, and of foreseeing the advantage or detriment which is likely to result from

* Tel.: +39 0984 492410; fax: +39 0984 492421.
E-mail address: matteo.marini@unical.it.

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them; and, secondly, self-command, by which we are enabled to abstain from present pleasure or to endure present pain, in order to obtain a greater pleasure or to avoid a greater pain in some future time.

(Adam Smith, *The Theory of Moral Sentiments*)

1. Introduction

In neoclassical economics any problem is structured and solved on the basis of the rational choice paradigm, i.e. the maximization of a utility function whose arguments are subjective preferences, within a set of objective constraints reflecting the level of technology and the availability of material resources.

However, since preferences are difficult to measure at operational level, they are substituted by prices, which are assumed to reflect the subjective utility of actors in the marketplace. The advantage of such an approach is that every explanatory factor included in the model – technology, material resources and prices – can be measured and thus made accessible to scientific scrutiny. The disadvantage is that, during such a measurement, the subjective side of decision making (i.e. preferences) is lost, due to the introduction of artificial tools of measurement such as the concept of “shadow price”. Through the use of shadow prices, the tastes of the many agents running the marketplace come to be homogenized, leaving no room for their actual, subjective preferences.

In the realm of development economics, the omission of preferences is even more pernicious. If we look, for instance, at the investment process (the cornerstone of economic growth) we encounter a set of behaviors that clearly discloses the complexity of the process itself: first one has to save money, then he/she must be prone to technical progress in order to make the right investment. At the same time, he/she must learn how to be part of international markets in order to compete effectively in a global economy and, finally, the internal organization of the firm has to be rearranged in order to make all the previous steps work. None of these behaviors, unfortunately, are widespread practices in traditional societies. These tasks are too difficult to be practiced in certain social contexts and, as a result, rarely become preferences.

Rather, most people in traditional societies are concerned with the fight for survival. In survival economies, the easiest way to succeed is through predatory behavior and related privileges, as it happened in the historical cases of the agrarian *latifundium* system and of trade concessions during the mercantilistic era. In hostile environments such as these, openly violent practices or hidden frauds rather than frugality and innovation are the key skills of the achiever (Helleiner, 1951). In these contexts, monopolistic strategies for rent seeking rather than orientation towards innovation and investments have higher pay-offs. However, since the investment strategy is conducive to the creation of new wealth, while the rent-seeking strategy is just a means of redistributing present wealth, the prevalence of rent-seeking strategies in traditional societies can be obstructive of economic growth.

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1. Along with the objective availability of goods.
In the literature two main explanations on the origins of preferences can be found:

(1) Neoclassical economics postulates an individualistic explanation, according to its methodological individualism: preferences and tastes are strictly personal, and they may be even genetically transmitted. Although scientific evidence exists to support this postulate, the explanation is hardly useful for a theory of economic growth, which deals with social questions like: why are some regions less developed than others? Unless we resort to a racial explanation – which however the current findings in genetics have definitively disproved – the individualistic origin of preferences may be useful at a micro level, but it is of no help at a macro level.

(2) An alternative explanation of taste differentiation is derived from social psychology and anthropology. In these disciplines the origin of preferences is social, and it is linked to the process of primary socialization, i.e. education. Attitudes and preferences are culturally transmitted, and they:

“provide the standards for perceiving, believing, evaluating, communicating, and acting among those who share a language, a historic period, and a geographic location. The shared elements are transmitted from generation to generation with modifications. They include unexamined assumptions and standard operating procedures that reflect ‘what has worked’ at one point in the history of a cultural group.” (Triandis, 1996)

The latter definition is the one used in the present paper, whereas preferences are considered the cultural heritage of a geographic region, transmitted through education from generation to generation.

This cultural approach, firstly proposed by Weber (1904–1905) and then rediscovered by early development economists such as Rostow (1960), Hoselitz (1958, 1963) and Kuznets (1965), during the 1970s was soon overcome by the structural approach and by the school of *dependencia*. However, by the 1990s, the pendulum had shifted again. The economic miracle of the Asian Tigers had not only brought the *dependencia* theory into question, but had shown the world that economic growth was more a matter of human behavior than of endowment of natural resources. Important contributions of the period, such as Putnam’s (1993) and Fukuyama’s (1995) bestsellers, clearly proved that cultural factors play an important if not crucial role in explaining economic growth around the world. The renaissance of the cultural studies is best testified by a myriad of articles published thereafter, that use cultural variables to explain a variety of subjects, such as: institutional performance, political instability, economic growth and enterprise strategies. A state of the art compendium can be found in *Culture Matters* edited by Harrison and Huntington (2000), where some of the most prominent social, economic and political scientists discuss the relevance of the cultural approach in their respective fields.

The present contribution originates from the consideration that such a debate, although vital and flourishing, lacks a clear and coherent frame of reference. The broadness of the issue, its immaterial content, and the multidimensionality of the analysis make it difficult comparisons between different authors, and virtually impossible to resolve any controversy. Social scientists find themselves on opposite sides not because the evidence that they find is lacking or inadequate, but because the piece of theory which they refer to is too rigid
and reductive to encompass the many and contradictory facets of social reality. A broader analytical framework is needed to be able to select when and where the many theoretical perspectives are compatible and complementary to one another, and when and where they are conflicting and incompatible. We live in an historical period where old paradigms are in crisis. There is a need for new paradigms which incorporate the best parts of the old ones while assembling them in a different, workable fashion (Stockdale, 1992; Fedderke and Klitgaard, 1998). The present paper is an attempt to search, select and put together these pieces of theory and empirical evidence that may help the composition of a new frame of reference in the subject of economic culture.

The paper is organized as follows: Section 2 consists of a review of the literature, where two schools of thought are compared: the first considers the ‘need for achievement’ as the most important attitude for economic growth, while the second emphasizes the importance of ‘trust’ in economic transactions.

Sections 3 and 4 provide the reader with the theoretical attempt to put together in a coherent fashion the findings of cross-cultural research in socio-psychology and the tenets of economic theory. According to our thesis, economic culture, as any other aspect of culture, passes through stages of development. In the early stages, the prevailing attitudes toward wealth are concerned with the problem of its distribution, while in the following stages priority is given to its growth. During this latter stage, both the achievement motivation and a sense of generalized trust among impersonal actors of the market become the critical values for economic growth to occur.

Finally, in Section 5, the hypothesis is tested on quantitative bases, while in Section 6 conclusion is drawn. The results show that both independence, which belongs to the achievement motivation, and responsibility, which belongs to the trust syndrome, are necessary for an accurate prediction of economic growth. This conclusion is in line with the theoretical hypothesis stated here and in contrast with the terms of the current debate.

2. Individual versus social virtues?

In the earlier studies of culture and development, the individual virtues needed to promote economic development were identified and emphasized. By individual virtues the literature refers to those behaviors that can be practiced by individuals on a desert island, in a situation similar to the one Robinson Crusoe had to face. This metaphor is indeed frequently used in economics textbooks to explain the problem of resource allocation.

Rostow (1960), for instance, talked of six propensities needed to promote economic growth, of which the first five are of an individual nature: (1) developing fundamental science; (2) applying science to economic ends; (3) accepting the possibilities of innovation; (4) seeking material advance; (5) consuming high quantity of goods; and (6) controlling the birth rate.

Another classical author referring to individual virtues, McClelland (1961), summarized the ethic of capitalism described by Max Weber through a special attitude named ‘need for achievement’, and defined as “wanting to do well, with respect to standards of excellence”. His school of thought found that the need for achievement is positively correlated with the need for individual independence, and with early education aimed at imbuing children
with a desire for independence. McClelland found a positive correlation between cultures in which the need for achievement is high, and countries with the highest rates of economic growth. No correlation was found in cultures which put a premium on values concerning social relationships, such as the will for power or the need for affiliation.

At the time, McClelland findings were criticized on methodological grounds, but during the current renaissance of cultural studies they have been confirmed by Inglehart et al. (1996) using an opinion survey carried out in 25 countries around the world.

The second school of thought underlines the importance of sociability for economic growth. This other school, best known through key words such as ‘trust’ or ‘social capital’, has been prevalent in recent years (Zaheer et al., 1998). However, this is hardly a new phenomenon. It goes back to the 1950s, mainly to the fieldwork of anthropologists such as Edward Banfield (1958) and George Foster (1973).

These authors argued against the “myth of good savage” that depicts traditional societies as a sort of paradise lost, where social relationships were supposed to be idyllic (Redfield, 1930). Rather, they observed that traditional societies were neither better nor worse than modern ones, but that the absence of modern technologies led to a ‘limited-good’ syndrome, where each family, at war with the others, tries to maximize its own material advantage (amoral familism). This restricted range of sociability constitutes an obstacle to economic progress, because economies, to work properly, need trust among impersonal agents.

The same thesis has been supported by important best sellers in the 1990s, such as Putnam’s *Making Democracy Work* (1993) and Fukuyama’s *Trust. The social virtues and the creation of prosperity* (1995), which explain the recent economic miracles of the Far East and of the North east of Italy in this vein. In the above case studies, the endowment of social capital, rather than the lack of it, is the object of the study. In other words, the ‘social virtues’ thesis, during the 1990s, has been proved in positive terms while during the 1950s it had been used in negative terms.

However, one cannot avoid being confused when looking at the statistical evidence in recent studies of either the two schools of thought mentioned above. Exponents of the “individualistic” school demonstrate that the impact of social capital Coleman (1990) on economic growth is at least controversial, if not negative in the most industrialized countries (Inglehart et al., 1996). On the other hand Putnam (1993), the main exponent of the “social” school, does not even mention the role of individual virtues as a causal factor of economic growth. One cannot help wondering: why do these two theses continue to be mutually exclusive? How is it that there is an enormous amount of evidence available to test one thesis in isolation, but none has tried to test both individual and social virtues in the same model?

Only one scholar – Francis Fukuyama (1995) – tried to explicitly take into account both kinds of values, individual and social, in an attempt to quantify their respective influence. Fukuyama’s hypothesis states that 80% of the prosperity of a country is due to individual virtues, while 20% is due to social virtues. Nevertheless, these figures are just a guess work, not the results of empirical work.

Intuitively, we also feel that both kinds of virtues are needed. The achievement syndrome is beneficial in the productive stage of the economic cycle, while the trust syndrome is required in the exchange stage: any businessman would support this statement. On the contrary, scholars are divided in supporting one or the other school of thought. Why are the
3. The theoretical model

Among the many difficulties faced by the cultural approach is the multidimensionality of the values system, a realm too vast to be mastered by the human mind. Since our brain is able to deal with only two, at most three-dimensions at a time, a bi-dimensional structure of human values would simplify the conceptual framework. This has been the main concern of applied socio-psychology in recent decades (Hofstede, 1980; Schwartz, 1994; Inglehart, 1997). The results of these independent surveys carried out around the world are encouraging because they converge towards a universal, etic, structure of human values besides the emic configurations existing at regional level.²

The universal structure of human values is reported in Fig. 1.

The two dimensions synthesized by factor analysis are: the vertical one, which deals with the values affecting the hierarchical position of individuals within a social group, and the horizontal one, which deals with the values concerning the distance of individuals from the group of reference considered as a whole.

² For an exhaustive synthesis of the cited surveys see Triandis (1996), whose conclusive remarks on the state of the arts have been followed in the present paper.
According to the vertical axis, values which are in favor of a hierarchical organization of society are countered by values that stress an egalitarian commitment. The harmony and the conservative syndromes take an intermediate position (Fig. 1) since they represent the attempt to mediate the tension arising from the two extremely contrasting values of hierarchy and equality. In the course of this paper, this vertical dimension will be referred to as the equality dimension.

The horizontal axis, on the other hand, contrasts values that stress the identification of individuals within the groups they belong to (be it family, peers, an interest group or a voluntary association) with values that emphasize the autonomy of the individual from the group of reference. In the course of this paper, this horizontal dimension will be referred to as the freedom dimension. In other words, the reduction of human values to these two dimensions implies that the main concerns of mankind lean towards equality and freedom.3

Of course, all the values must be and are present in a single personality as well as in a regional culture. Yet the priority given to each value varies from one region to the other, and characterizes the value system of that culture. According to Rokeach (1968, 1973), a value system is “a hierarchical organization – a rank ordering – of ideals or values in terms of importance”. Through the concept of value system, therefore, cultures become operational for cross-cultural research. For example, cultures that place high value on hierarchy and collectivism are located in the top-left corner of Fig. 1, while egalitarian and libertarian cultures are located in the bottom-right corner.4

Once cross-cultural surveys have provided researchers with a universal structure of human values, it is natural to ask whether there is a historical progression among the possible value systems emerging from Fig. 1. The question is plausible from a socio-psychological perspective (Fiske, 1992; Triandis, 1995), and relevant for development economics. Max Weber earlier, and the school of modernization later, both stressed that economic growth is a historical by-product, which appeared in conjunction with a broader cultural change, experienced earlier in some regions of the world than in others.5

If we go back to Fig. 1, it is easy to note that by moving from the left to the right, values that stress primary needs (i.e. power, social order, family safety) are substituted by values that emphasize secondary needs (i.e. creativity, openness to new ideas, quest for pleasure). If the horizontal axis is also considered as the dimension of historical time, the trend from primary to secondary needs is reminiscent of Maslow’s (1954) theory. According to this theory, an individual’s personality evolves from primary to secondary needs during

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3 The centrality of freedom and equality in the universal structure of values had already been emphasized by Rokeach (1973). Other authors reach the same conclusions as in our Fig. 1, although through different paths. For example, Douglas (1982) and her followers (Thompson et al., 1990) use a “grid and group” typology, whose ideal types (hierarchy, egalitarianism, fatalism, and individualism) are not that far from the ones used in our Fig. 1.

4 For a map of national cultures within the space of the bi-dimensional structure of human values, see Inglehart (1997, p. 82).

5 As Weber (1904–1905) wrote: “[. . . . ] through the development of economic rationalism is partly dependent on rational technique and law, it is at the same time determined by the ability and disposition of men to adopt certain types of practical rational conduct. When these types have been obstructed by spiritual obstacles, the development of rational economic conduct has also met serious inner resistance.”
The evolutionary hypothesis is here taken further, by building a conceptual framework (Fig. 2) in which the findings of socio-psychological research (Fig. 1) are matched with the literature on economic culture.

The grid of Fig. 2 is made up of the same two dimensions emerged by socio-psychological research: equality and freedom. The rows and columns of the grid represent different degrees of equality and freedom. Equality is broken down into three levels: lack of equality (inequality), equity, and egalitarianism. The difference between equity and egalitarianism is that the former implies rewards proportioned to contribution, while the latter implies exactly equal rewards independently of the level of contribution.

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The idea of cultural evolution goes back centuries, to the Italian philosopher Giambattista Vico (1668–1744) (Haddad, 1983). However, lately it has been strongly questioned (Fracchia and Lewontin, 1999). The parallel between the Maslow (1954) theory and cultural evolution was first noted by Inglehart (1977). Moreover, Rostow made another parallel between individual evolution and the stages of economic growth (Rostow, 1960). The interpretation of Fig. 1 in a dynamic, evolutionist fashion, is also supported by Inglehart’s latest findings (1997, p. 93). Inglehart’s scatter-gram superimposed to Fig. 1 shows that the richest countries are located on the right side of the diagram (secondary needs), while the poorest are on the left (primary need).
Similarly, freedom is divided into: lack of freedom (coercion), negative liberty, and positive liberty. The difference between negative and positive liberty derives from Berlin (1958). The former is well synthesized by Hayek (1960, p. 12), as “independence from the arbitrary will of another”, and the latter as “the extent of the choice of alternatives open to us” (Hayek, 1960, p. 16). The latter represents a sort of extension of the former, but beyond a certain threshold the two may come into conflict. These three levels of freedom are also placed in connection with historical time: antiquity, modernity and contemporaneity, on the assumption that mankind has experienced an increasing amount of freedom over time.

The lower part of Fig. 2 contains a curve showing the trend of per capita income throughout history. In the early stages of development (antiquity), the curve is almost flat, because the level of technology is rather primitive, the only fluctuations being those provoked by climatic variations. Then there is the famous take-off of the economy (modernity), where technological progress is applied to a specific sector, and the growth rate skyrockets, followed by a more moderate trend where innovation is spread to the entire economy (contemporaneity).7

The association between the grid and the graph in Fig. 2 represents the core of the theoretical hypothesis advanced in this paper: every stage of economic growth corresponds to a stage of economic culture that expresses society’s prevailing attitudes at the time. In the following sections, the economic culture syndromes described by the relevant literature will be reviewed and located on the grid of Fig. 2.

4. Syndromes of economic culture

According to Foster (1973), the limited good syndrome is the prevalent mindset found in societies at early stages of development. It pervades people’s mentality, and induces them to believe that economic stagnation is the norm. This belief is due to the flatness of the productivity curve at this early stage of development and it generates three main attitudes in people’s minds: (1) rent seeking; (2) restricted communitarianism; and (3) fatalism.

Rent seeking is the reaction to a world of limited and stagnant wealth by people who have a strong desire to become rich. Since the amount of wealth in such a world rarely expands, the need for increasing personal wealth can only be satisfied in a zero sum game, by monopolizing natural resources and markets.

The poorest strata, consequently, develop the opposite attitude, based on egalitarian relationships within their families and neighborhoods: if the only means of climbing the social ladder implies the exploitation of the poor, then their possible response is the radical refusal of any form of enrichment and the consequent sharing of poverty.

Finally, the rise of a third attitude in traditional societies, i.e. fatalism, can be interpreted as a sort of societal glue in such a hostile environment: if the broader society is not to collapse under the pressure of the many factions struggling with each other for rent seeking, the status quo must be rationalized and accepted. Fatalism, with its obedience to fate (i.e. the existing distribution of wealth), constitutes such a rationalization, often supported by religious faith.

7 The S shape of economic growth is not an empirical finding, but a representation of the stages of development theories, whose latest version was given by Rostow (1960). See also Hoselitz (1960). However, it is not difficult to find such a trend in the experience of virtually any country in the world.
As far as our conceptual framework is concerned (Fig. 2), the limited good syndrome is located in the first column of the grid, corresponding to the ancient era. Each of the attitudes composing the syndrome occupies one of the three levels of equality, based on the characteristics depicted above, while they occupy the same level of freedom, i.e. coercion, since they are imposed through force. Unfortunately, none of the three propensities is conducive to economic growth, since they are concerned with the problem of the distribution of existing wealth rather than with the increase of per capita income.

Moving from antiquity to modernity, according to David McClelland (cited in Section 2), the need for achievement becomes the prevalent attitude. Recently Inglehart et al. (1996) have confirmed McClelland’s theory, proving that countries with higher rates of economic growth are also those where children are brought up learning values included in the achievement syndrome, such as: determination, thrift, early independence.

Looking at the universal structure of human values in Fig. 1, we may find similarities between the contents of the ‘mastery’ syndrome and McClelland’s need for achievement. Consequently, in our grid we place the achievement syndrome at the junction between inequality and negative freedom (Fig. 2): the quest for merit is indeed competition, a concept where inequality is recognized to be one of the final outcomes. At the same time, competition is also a free activity, whose outcome cannot be imposed by coercion through arbitrary acts and privileges, but depends exclusively upon merit. Fair competition is a typical feature of modern times and it is conducive to economic growth. This is why the place occupied by the achievement syndrome in the grid corresponds to the economic take-off shown in the lower part of Fig. 2.

The other modern attitude necessary for economic growth, as testified by the fulsome, recent literature, is the ‘trust syndrome’: a sense of generalized trust among the actors of economic transactions is claimed to be at the basis of the new cases of economic growth around the world (Putnam, 1993; Fukuyama, 1995). The claims are also theoretically founded on economics, based on the concept of transaction costs: in a market characterized by lack of trust and opportunism among operators, the transaction costs are so high as to discourage the use of the market itself and, in this way, to hinder economic growth (Coase, 1937; Gambetta, 1988; North, 1990). Generalized trust is then conceived as a sort of lubricant of social relationships (Putnam, 2000), which in turn facilitates market transactions.

Trust is defined as ‘generalized’ because it cannot be restricted to the inner circle of relatives and acquaintances, if there is to be economic growth. Market transactions are anonymous by definition, especially in broad, contemporary markets. Therefore, trust among strangers must be based on antecedent values such as: loyalty, honesty and responsibility. If we look at Fig. 1 we find these values included in the ‘egalitarian commitment’ syndrome. Consequently, in the grid of Fig. 2, trust has been located at the junction between negative freedom and equity: freedom because trust cannot be imposed, founded as it is on a free and risk-laden choice; equity because trust cannot be granted to everybody in exactly equal parts (egalitarianism), but depends on the reputation of the trustee in terms of loyalty, honesty and responsibility.

It can be noted, in passing, that unlike the terms of the current debate, the grid in Fig. 2 does not treat achievement and trust syndromes as if they were in contrast with one another, but it rather considers them as complementary: both, in fact, are located in the same evolutionary stage, being linked to the industrial revolution (achievement) and to
market enlargement (trust), two distinctive and complementary features of modernity. The claim that achievement and trust are complementary rather than contrasting, finds further support in McClelland himself, who at the end of his work states:8

“Since the value analysis of children’s stories has uncovered a second factor independent of and perhaps as important as the achievement syndrome, a word about its origins seems in order. […] What it suggests is that ‘other-directedness’ is an essential feature of rapid economic development even in its early stages, rather than a special feature of advanced urban culture […]. Since n Achievement and other-directedness are both related to economic development and unrelated to each other, they should, taken together, have a very marked effect on the rate of economic development.”

In another passage of the same book, the author clarifies what he means by ‘other-directedness’, making a more explicit reference to ‘market morality’: 9

“All economists agree that the growth of the market is at the very center of modern economic society. In fact one can measure the maturity of an economy by the absence of “imperfections” in the market mechanisms, “by the degree of openness, freedom, and absence of other obstacles to the smooth allocation of resources among competing uses” (Hoselitz, 1958). […] In other words how advanced an economy is depends on how near the market is to the ideal in economic allocation of resources, and how near the market is to this ideal type depends on social institutions and values restricting its use as a ‘rational’ mechanism in one way or another. […] These restrictions, in turn, are the result of traditional values or norms governing their behavior to particular groups of ‘others’ (relatives, strangers, friends, superiors, inferiors). The most generalized solution, then, to the problem of particularistic commitments is to transfer the individual’s loyalties to the ‘generalized other’. […] Reliance on public opinion is the social mechanism which tends to supply and enforce market morality, and market morality is essential to removing market imperfections that slow economic progress.”

Finally, when society reaches the threshold where basic needs have been met, secondary needs such as spiritual goals, once a privilege of a restricted caste of intellectuals, can be pursued by the vast majority of the population. According to the Maslow metaphor, a society evolves like an individual lifecycle, firstly satisfying primary needs, and then becoming aware of secondary, non-material needs, like the arts, aesthetics, and philosophy. Inglehart (1977) found evidence for this cultural shift in Western, industrialized countries, from the seventies on. The universal structure of human values (Fig. 1) also supports this hypothesis, putting ‘affective’ and ‘intellectual’ autonomy on the right end side of the picture. Economic theories based on stages of development, i.e. evolutionary theories, accepts the metaphor and – according to Rostow (1960) – after the ‘take off’ stage, the ‘mass consumption’ stage takes place. In this latter stage, growth rates are not as steep as before, probably because people are not as motivated as in the past, when primary needs were still unmet and work ethic was a priority. According to the findings in Fig. 1, and to the stages of development theory, the post-materialistic syndrome – a term introduced by Inglehart (1977) – has then

8 David McClelland, The Achieving Society, see references, pp. 197, 192 and 201 abridged.
been placed at the positive end of the freedom dimension in the grid of Fig. 2, at the intersection with the intermediate level of equality.

The main feature of the theoretical model presented here is that, by linking cultural evolution to economic growth, it is able to escape the longstanding controversy between the materialistic and the idealistic approach. On one hand, the parallelism between the evolution of culture and Maslow’s (1954) theory of needs implies that economic growth is the primary engine of cultural evolution, because primary needs can be satisfied if and only if economic growth occurs. On the other hand, the latter cannot happen without a shift in economic culture, from predation or egalitarian redistribution, to the effort to create new, additional wealth.

5. Testing the hypothesis

Cultural analysis has always been difficult to perform because of the immaterial nature of such variables. The lack of data on beliefs, attitudes and values gathered through standard methodologies, and the insufficient number of countries surveyed, have frustrated any attempt to build quantitative models linking cultural factors to economic growth. Only recently data archives on cultural values have been standardized for virtually every country in the world. One of these sources is the World Values Survey conducted and directed by Ronald Inglehart (1999) at the University of Michigan.

A first attempt to test our evolutionary model of economic culture is made by measuring the four syndromes of economic culture depicted above and by correlating such measures with rates of economic growth in 25 countries. We expect the limited good syndrome to be negatively correlated with rates of economic growth; the achievement and the trust syndromes positively correlated; and the post-materialistic syndrome uncorrelated.

To verify these expectations we will use the answers given to a specific item of the World Values Survey, where respondents were asked to choose, from among a list of 11, five qualities that they teach their children at home. The 11 values are the following, clustered by syndromes of economic:

- **Limited good syndrome** (LG): obedience, religious faith, tolerance and good manners.
- **Achievement syndrome** (AC): independence, thrift, determination and hard work.
- **Generalized trust syndrome** (GT): responsibility.
- **Post-materialistic syndrome** (PM): imagination and unselfishness.

The correlation coefficients between the national percentage of respondents choosing each value and the national rate of economic growth (1960–1989) have been calculated. The results are shown in Table 1.

A short glance at the table bears out the claims of the literature reviewed in the previous section: almost all the values of the limited good syndrome are negatively correlated to economic growth; almost all the values of the achievement syndrome and of the trust syndrome are positively correlated; finally, the values of the post-materialistic syndrome have no correlation with economic growth. The theoretical expectations have been confirmed by the empirical data.
Table 1

Correlation coefficients between values to be transmitted to the next generation and economic growth (1960–1989) in 25 countries

<table>
<thead>
<tr>
<th>Values to be transmitted grouped by syndromes of economic culture</th>
<th>Correlation coefficients between value chosen by respondents and economic growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited good syndrome</td>
<td></td>
</tr>
<tr>
<td>Obedience</td>
<td>−0.68</td>
</tr>
<tr>
<td>Religious faith</td>
<td>−0.53</td>
</tr>
<tr>
<td>Tolerance</td>
<td>−0.43</td>
</tr>
<tr>
<td>Good manners</td>
<td>−0.10</td>
</tr>
<tr>
<td>Achievement syndrome</td>
<td></td>
</tr>
<tr>
<td>Independence</td>
<td>+0.47</td>
</tr>
<tr>
<td>Thrift</td>
<td>+0.60</td>
</tr>
<tr>
<td>Determination</td>
<td>+0.38</td>
</tr>
<tr>
<td>Hard work</td>
<td>+0.08</td>
</tr>
<tr>
<td>Generalized trust syndrome</td>
<td></td>
</tr>
<tr>
<td>Responsibility</td>
<td>+0.53</td>
</tr>
<tr>
<td>Post-materialistic syndrome</td>
<td></td>
</tr>
<tr>
<td>Imagination</td>
<td>0.00</td>
</tr>
<tr>
<td>Unselfishness</td>
<td>−0.08</td>
</tr>
</tbody>
</table>


A more accurate analysis is carried out through multiple regressions. As already mentioned, in 1996 Ronald Inglehart and associates published a seminal work in which a cultural index was incorporated into an endogenous model of economic growth. The experiment was successful, since the explanatory power of the classic econometric model was augmented from 55% to 70% in the passage from a purely economic model to an economic-cultural model (Inglehart et al., 1996).

In the present section, Inglehart’s model of economic growth will be repeated with a different cultural index, modified according to the theoretical hypothesis stated in the present paper: not only will the achievement motivation be included in the cultural index – as done by Inglehart and his associates – but the trust syndrome as well. In addition, the achievement syndrome will be defined and measured differently from the method used by Inglehart and associates.\(^{10}\)

Let us define Inglehart’s cultural index (CI\(_1\)) as follows:

\[
CI_1 = AC - LG = (T + D) - (O + F)
\]  

\(^{10}\) Of course this can be considered only a preliminary test in the study of the relationship between culture and development, because the World Values Survey is not specifically aimed at gathering values and attitudes of economic culture. Other specific research projects need to be implemented to fully test the theoretical framework proposed here.
where $CI_1$ is Inglehart’s cultural index; $AC$ is achievement syndrome; $LG$ is limited good syndrome; $T$ is percentage of respondents choosing ‘thrift’; $D$ is percentage of respondents choosing ‘determination’; $O$ is percentage of respondents choosing ‘obedience’; and $F$ is percentage of respondents choosing ‘religious faith’.

The relevant choices made by Inglehart and associates in the construction of $CI_1$ have been the following: (i) the achievement syndrome is contrasted with the limited good syndrome (through the minus sign) and (ii) ‘thrift’ ($T$) and ‘determination’ ($D$) are the values representative of the achievement syndrome, while ‘obedience’ ($O$) and ‘religious faith’ ($F$) are the values representative of the limited good syndrome.  

In line with the evolutionary hypothesis presented in this paper, the modified cultural index ($CI_2$) adopted is the following:

$$CI_2 = AC + GT - LG = I + R - O$$

where $CI_2$ is modified cultural index; $AC$ is achievement syndrome; $GT$ is generalized trust syndrome; $LG$ is limited good syndrome; $I$ is percentage of respondents choosing ‘independence’; $R$ is percentage of respondents choosing ‘responsibility’; and $O$ is percentage of respondents choosing ‘obedience’.

There are three main differences between Inglehart’s index and ours: (i) the inclusion of the trust syndrome through the value of responsibility; (ii) the substitution of the values representing the achievement motivation (independence rather than thrift and determination); and (iii) the exclusion of religion from the values representing the limited good syndrome.

Let us give a short explanation for these changes.

In order to keep an already complex model concise, only one value for any of the three cultural syndromes (limited good, achievement and generalized trust) has been selected. Beginning from the generalized trust syndrome, it is evident that the choice of responsibility has no alternatives, being the only value of such a syndrome included in the list of Table 1.

Moving to the achievement motivation, ‘determination’ and ‘thrift’ have been substituted for ‘independence’, for theoretical and empirical reasons. From a theoretical point of view, independence is one of the values explicitly included by Schumpeter (1934) among the four motivations of the entrepreneur, a pivotal character in the process of economic growth. Independence is also the most important value of the theoretical framework proposed in this paper, under the labels of ‘intellectual and affective autonomy’ (Fig. 1), considered in Section 3 as a sort of evolutionary engine of history. From an empirical point of view, moreover, independence scores higher than determination, if put in correlation with economic growth among the values transmitted by parents to children (Table 1).

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11 Actually Inglehart and associates do not use the term “limited good syndrome”, but the literature they refer to, in order to depict the mentality of traditional societies, is exactly the same we used (Banfield, 1958). Banfield, in turn, refers to George Foster, who was the first to propose the image of the “limited good”.

12 The post-materialistic syndrome was excluded for the same reasons as by Inglehart and associates (1996): post-materialistic syndrome is positively correlated to the level of per capita income, which is already included in the model (see Table 2).

13 According to Schumpeter (1934), the list of motivations that drive entrepreneurs is the following: (1) the need for power; (2) the need for independence; (3) the will to win a competition for its own sake; and (4) the joy of creating something.
Determination is an ambiguous term to express the specific content of the achievement syndrome. It does not explain what we are going to achieve: for instance it could be determination towards a rent strategy rather than towards profit maximization, thus having a negative impact on economic growth in the long run. In fact determination is an instrumental value rather than a terminal one, which by its own nature cannot specify the object of its action. On the other hand, ‘thrift’ is a value too specific to the economic discourse to be used in the present context: it would be the only economic motivation among other non-economic motivations considered in the present paper. The inclusion of economic motivations in CI, as done by Inglehart, may be due to the assumption that only those cultures that put a premium on values having economic content can be conducive to economic success. But Max Weber himself criticized such a naturalistic view of economics which, in his own words, has little to do with modern capitalism.

Finally, some explanation for the exclusion of ‘religion faith’ from the cultural index is required. Religion is such a multifaceted concept that it cannot be considered to have the same meaning in every culture. While it is generally associated with traditional values and, by the same token, negatively correlated with economic growth on empirical grounds (Table 1), in other cases this correlation does not apply, as recognized by Inglehart himself with regard to the United States, a country both rich and religious. Weber’s lesson, moreover, is the clearest exemplum of the ambiguous role of religion, for it was a religious phenomenon (the Protestant Reformation) to play the role of unconscious vehicle for the cultural shift that led to economic growth in Europe. It is preferable, therefore, to calculate the percentage of parents teaching obedience rather than those teaching religious faith, in order to provide the measurement for the limited good syndrome in the cultural index (Table 1).

Once the cultural index has been modified to make it more suitable to our theoretical framework, we include it in the same economic-cultural model proposed by Inglehart and associates. The adoption of Inglehart’s model is suggested not only by the fact that so far it represents the best attempt to incorporate cultural values into an econometric model, but also by the size of the sample used by the World Values Survey. The data introduced in the model are drawn by representative national samples of 25 countries in the world, amounting to 58% of the world population.

The result looks encouraging (Table 2), because the explanatory power of the model has been significantly improved, the adjusted-$R^2$ passing from 0.70 (Model 2) to 0.72 (Model 3). Although the increment may appear too little from a quantitative point of view, it becomes statistically significant if the partial $R^2$ coefficient is taken into consideration (last row in Table 2). By partial $R^2$ we mean the reduction of the total unexplained residual variance of

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14 As for the different meaning of terminal and instrumental values, see Rokeach (1973, p. 7).
15 See the following excerpt: “The impulse to acquisition, pursuit of gain, of money, of the greatest possible amount of money, has in itself nothing to do with capitalism. This impulse exists and has existed among waiters, physicians, coochmen, artists, prostitutes, dishonest officials, soldiers, nobles, crusaders, gamblers, and beggars. [...] Unlimited greed for gain is not in the least identical with capitalism, and is still less its spirit. Capitalism may even be identical with the restraint, or at least a rational tempering, of this irrational impulse.” (Weber, 1904–1905, p. 17). Economic motivations do play a role in economic growth (i.e. propensity to savings, to investment, to risk, and the like) but at a different stage of the decision making process, not yet considered in the theoretical model presented here.
the model, induced by the addition of a new explanatory variable, the cultural index in our case.

In algebraic terms:

$$I_{1.423} = \frac{I_{1.234} - I_{1.23}}{1 - I_{1.23}}$$  \hspace{1cm} (3)$$

where $I_{1.423}$ is partial $R^2$ induced by the new variable (the 4th in a previously 3 variables model); $I_{1.234}$ is total, unadjusted $R^2$ of the 4 variables model; $I_{1.23}$ is total, unadjusted $R^2$ of the 3 variables model.

Shifting from the standard economic model (Model 1) to the economic-cultural model (Model 2), partial $R^2$ amounts to 0.29. This means that 29% of the variance unexplained by the standard economic model has been captured by the introduction of the cultural index ($CI_1$), namely by the achievement syndrome. However, if the cultural index is modified according to the theoretical framework proposed in this paper ($CI_2$), the partial $R^2$ increases significantly from 0.29 to 0.33 (see Table 2). In other words, by concentrating our attention on the increase of $R^2$ due to the cultural index alone, the contribution of the trust syndrome becomes more significant from a statistical point of view.

Moreover, the trust syndrome’s significance is clearly relevant from an economic standpoint: if we consider the estimated parameters of the regressions (Table 2), we learn that for any one percent increase in population teaching their children achievement motivation, the increment in GDP is equal to 1.88%, an astonishing outcome per se. However, if parents teach their children responsibility as well, the economic impact will be greater, with a GDP’s increase of 2.07%, and a net gain of 0.19% with regard to the previous 1.88%. For any per cent point of increase in population teaching their children responsibility, the entire nation’s GDP could increase by 0.19% per year. In other words, in order to have one percent point of increase in GDP per year, it would be sufficient that 5% more parents in the national population, every year, would teach their children the value of social responsibility.
Let us notice, also, that the whole cultural index’s impact on economic growth has almost the same size than the impact of human capital, expressed as the incidence of population attaining a primary school education (Table 2). This means that the effect of human capital, unanimously considered as the most productive factor of economic growth, may be doubled if civic education, along with technical expertise, is taken into account.

Finally, it is intriguing to calculate the specific contributions of the two cultural syndromes to the whole cultural index proposed in this paper. Since CI1 represents the achievement syndrome, the specific contribution of the latter amounts to 0.29, exactly the figure of its partial $R^2$ in Model 2. On the other hand, the specific contribution of the trust syndrome can be derived by the difference between CI2’s partial $R^2$ and CI1’s partial $R^2$ (0.04 = 0.33 − 0.29), since the difference between the two cultural indexes (CI2 and CI1) consists only of the addition of ‘responsibility’ as value representative of the trust syndrome. If these specific contributions (0.29 and 0.04) are confronted with their total amount of 0.33, the achievement syndrome covers approximately 88%, leaving 12% to the trust syndrome. This is not too far from the distribution of probabilities envisioned by Fukuyama (1995), between individual virtues (achievement motivation) and social virtues (trust syndrome) that contribute to economic prosperity (see Section 2).

6. Conclusion

From a theoretical point of view, the introduction of the trust syndrome in the cultural index is relevant because it enriches it. Alternatively, the cultural index would be only made up by the difference between “the independent” and “the obedient”, thus a mono-dimensional index typical of the earlier versions of the modernization theory (see the horizontal axis of Figs. 1 and 2). The presence of responsibility toward the ‘generalized others’ in the proposed cultural index breaks with this mono-dimensional perspective, introducing the other dimension of modernity into the picture, that is equality in the form of equity. The coupling of freedom with responsibility, moreover, has an important precedent in the work of Hayek (1960), particularly in a chapter of his *The Constitution of Liberty* entitled “Responsibility and Freedom”. In his own words: “Liberty and responsibility are inseparable. […] A free society probably demands more than any other that people be guided in their actions by a sense of responsibility which extends beyond the duties exacted by the law and that general opinion approve of the individuals’ being held responsible for both the success and the failure of their endeavors. When men are allowed to act as they set fit, they must also be held responsible for the results of their efforts” (Hayek, 1960, pp. 71, 76). The experiment described in this paper therefore brings empirical support to Hayek’s philosophical intuition, as well as Fukuyama’s.

What do these results mean for economic theory? What are the implications of broadening the boundaries of the discipline to include the non-economic factors of economic growth? Two considerations can be made as closing remarks.

Firstly, if achievement motivation sounds of little value to economists, given their assumptions about human motivation (i.e. profit maximization), the inclusion of a moral quality such as responsibility certainly is not. There is no trace of any moral constraint in the assumption of profit maximization. Since Mandeville (1714) and his *Fable of the Bees*,
economics has always been considered the amoral science *par excellence*, the only one able to transform private vices into public virtues thanks to the “invisible hand” of the market. The experiment illustrated in these pages shows that such an interpretation of economics based on a semantic misunderstanding is erroneous. All depends on the meaning attached to the word ‘ethics’: if ethics means a continuous drive toward egalitarianism or asceticism, there is no doubt that it would be fatal to economic growth (Helleiner, 1951). But if ethics means the drive toward equity, that is, the recognition of the rights of others through the practice of loyalty, honesty and responsibility, then these values are crucial in providing the market with the necessary lubricant for its ideal functioning.16

Secondly, the real cultural obstacle to economic growth is the image of limited good, insofar as its representative value, obedience, is found to be the most negative factor of economic growth (Pearson’s correlation = −0.68). The persisting belief that resources are limited and not expandable—even in times of technological progress — is fatal to economic growth because it leaves no choice to social actors other than practicing extreme behaviors: they may merely accept the present distribution of income (obedience), or they may try to improve their own situation at the expense of others (lack of responsibility, loyalty and honesty). In a limited good perception, even the result of the present experiment, i.e. the importance of independence and responsibility as explanatory factors of economic growth, may appear as an ideological mystification aimed at masking the material struggle for survival. The ‘limited good’ worldview triggers a “prisoner dilemma” situation. In fact, beliefs are “self-fulfilling prophecies”, as first pointed out by Thomas, (cited in Merton, 1972) that may favor or hinder economic development no more no less than material constraints. When a less developed region of the world becomes more and more integrated in the globalization process, the taking of opportunities depends to a large extent on the cultural tools of that region. If these tools are deeply affected by the limited good syndrome, the conditioned reflex is a battle of all against all for the amoral acquisition of the limited good. The result of such a conditioned reflex is twofold: firstly, transaction costs of the market increase dramatically; secondly, the recruitment of the new elite is based on obedience to the previous elite rather than on merit. As a consequence, the achievement motivation in the overall society declines.

If this picture of the most traditional societies is true, it is important to show, by rational procedures as the one attempted in the present paper, that while opportunistic behavior (i.e. absence of responsibility) may pay for some individuals in the short run, it certainly hinder economic growth, since the latter is a long term and societal process. The encouraging findings obtained in the present experiment are not fortuitous, but rather the fruits of a conceptual framework that pushes the problems of distribution of income into the background, and brings to the forefront the role of individual autonomy as engine of economic and cultural evolution. Without strong motivation towards independence it is difficult to break any kind of dependence, either economic or political.

However, individual autonomy, if it does not want to turn into its opposite – that is, arbitrariness on the part of individuals and anomie for society as a whole – it cannot but

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16 It is perhaps worth recalling here what has been already stressed by many other scholars, i.e. the moral education of classical economists. It is not a coincidence that the epigraph that opens this paper is extracted by Adam Smith’s book entitled *The Theory of Moral Sentiments*. 
be moderated by morality. Therefore, from this point on, an entirely new chapter of development economics needs to be written concerning the relationship between economics and ethics.

References