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National cultures.

A view from the World Values Survey

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Introduction

In modern times, the study of cultures and their geographical declinations has drawn the attention of economists, social scientists and scholars, by reason of their crucial implications in the fields of politics, sociology and trade. Being the world increasingly interconnected, cultures have acquired great relevance as they shape the way people deal with new global trends. Phenomena such as globalization, systemic financial crises, pollution and climate change, the increase and aging of the world population and the scarcity of natural resources are dominant aspects of our time that may contribute to profound transformations of the established socio-cultural conditions. The shared ideas, customs and social behaviour are the instruments of people to face the challenges of modernity in a unique way, and academics are interested in human reactions to changes in the social and economic world's equilibria. Furthermore, knowing the differences in traits of extraneous cultures is considered of paramount importance in managerial studies nowadays. It helps in understanding the external environment since international relationships, companies' strategies and economic transactions are strongly influenced by countries' social heritage and people's way of thinking. The large impact of national cultures on economy boosted the desire to understand the dynamics underlying populations' attitudes and values. For these reasons, a branch of research has developed that focuses on the study of national cultures and the preferences and traits that differentiate some geographical areas from others. This thesis nests in the field of national culture research conducted on the basis of survey data collected through societal observations. In doing so, it attempts to answer a set of questions. What can be considered culture? When did the analysis of the concept of culture begin? How many definitions have been developed? What are the main theoretical models on the concept of culture? What are national cultures and how can they be measured? Which are the important cultural traits to compare countries? Is it possible to see a clear difference between geographical regions? What are the main factors that influenced these differences? Is it possible to find associations between different cultural traits on a global or national level? Giving answers to these inquiries, the research aims to clarify the matter of study creating a broad framework on the concept of culture and examining empirically its main influential factors. At the same time this dissertation fills a literature gap, extending the research field on national cultures to unobserved countries and attempting to find causal links between cultural traits with respect to an original set of variables.

The structure of the thesis is composed of three chapters, in which the academic literature on the subject, the measurement and analysis methods and the empirical research conducted are respectively presented.

In order to outline the theoretical framework of reference, the dissertation begins with the interpretation of the term culture, whose current meaning has spread starting from the second half of the 19th century. For this purpose, the work by Kroeber and Kluckhohn (1952), who recorded more than 160 definitions classifiable in six different categories (descriptive, historical, normative, psychological, structural or genetic), has been reviewed. This incredible abundance of notions demonstrates how matter has fascinated scholars and is still in the evolutionary phase. A fundamental step is then the illustration of the recurrent concepts in literature (e.g. cultural values, traits, complexes, social capital), which help reading the previous academic articles on the subject. Subsequently, the ideas about the concept of national culture are presented, through the revision of the most significant works for and against the idea that cultures differ on a territorial level. A paragraph is then dedicated to the most significant theoretical models in the field of culture. Here, the works by Hofstede (1980), Schein (1985) and Lewis (2005) are discussed. They represent culture through multidimensional schemes that depict the concept from three different points of view: sociological, organizational and linguistic. The in-depth study continues with the inspection of the relationship between culture and institutions, treated specifically by Alesina and Giuliano (2011) and Scott (2008). The first section concludes with the rundown of 10 empirical research on the subject of national cultures, later taken as a model for the elaboration of the research developed in the last chapter. The empirical contributions are examined in detail, reporting predictive models, studied variables, methods used and results achieved.

In the second chapter, moving from the theoretical framework of chapter 1, the focus is on the research methods used in the study of cultures. Starting from the measurement methods, the data surveys are presented as the most common tool to estimate social values. Their different typologies (i.e. questionnaires, interviews, cross-sectional and longitudinal studies) are described, investigating the advantages and drawbacks of the methodologies. The epidemiological approach and the live experiments are then respectively outlined, followed by brief descriptions of two popular games widely used to capture cultural aspects such as trust and social capital: the ultimatum and the dictator game. In the subsequent section, the most authoritative data sources are reported. The work of the most famous international research centres has been analysed, showing peculiarities and differences in research methods. Finally, a paragraph is entirely dedicated to the longest-running research organization in the world, the World Values Survey (WVS). The methods, publications, data and functioning mechanisms of this thirty-year project are accurately described.

In the third chapter, based on the WVS latest data, an empirical research is developed. It focuses on the study of the most important cultural traits to compare national cultures. After having analysed through regressions the data collected by the World Values Survey, the evidence and results of this

study are reported. The goal is to give empirical contribution to the literature by looking at the consolidated relationships between cultural traits. The method is based on second-hand data collection from the latest publication of the World Values Survey. Starting from thousands of observations, a sample of 10 countries is analysed in order to explain what are the factors that influenced the national preferences in four main social aspects (participation, trust, redistribution and environment). The content is divided into six sections: introduction, data, method, results, discussion and conclusion. The outcomes of the study are discussed in detail, especially the three associations statistically confirmed: the positive relation between social participation and ethnic fragmentation, the negative correlation between environmentalism and age and the positive relationship between the Roman Catholic religion and the social participation.

Chapter 1: Theories and evidences on national culture

1.1 Introduction

The modern concept of culture developed from the mid-1800s thanks to the work of English and German philosophers and linguists. However, attention to the set of collective knowledge and ethical values had already been emerged in antiquity (see, for instance, the Latin term *humanitas*). Although this curiosity for the virtues of citizens was already present in Greek and Roman times, the transition to an objective vision of culture as a set of preferences and customs shared by a group of people took place only in modern times. Only from the 1980s onwards cultural theories have begun to be elaborated. This attention spread as a consequence to the increasing connections among peoples and the intercultural exchanges between individuals. Even more recent are the studies that investigate the interrelations between the typical cultural traits of a population and the social characteristics or experiences of a nationally defined group of people. These works aim to know the causal relationships between cultural values and personal or collective features, that helps discovering how cultural traits originate. Despite the problems related to the measurement of socio-cultural traits and the criticality of inverse causality, in the last decades a prolific literature has been developed on the subject. The major contributors came from economists and social scientists, interested in learning about the relationship between culture and economic mechanisms and institutions. This field of research is particularly interesting from the perspective of international relations, which are based on understanding different mindsets.

In order to outline the theoretical and empirical contexts of the thesis, the first chapter illustrates the typical concepts of this field of study and the main researches on the subject. Thus, this first chapter contains a review of the theoretical and empirical literature on culture and is accordingly divided in two sub-sections, one on theoretical and one on empirical contributions.

1.2 Theoretical papers

In this section, the focus is on the main theoretical contributions about culture. The relevance of the subject will be explained and the mostly studied concepts in literature (culture, national culture, cultural traits, cultural values, institutions and social capital) will be defined. Successively, the attention will be pointed on the presentation of the main theoretical models on culture, and the

differences between them will be examined. Finally, on the basis of the previous literature, the relationship between culture and institutions will be analysed.

1.2.1 Relevance of the topic and cultural traits

Since the second half of the XX century, cultural traits and national cultures have drawn the attention of social psychologists and economists. On this subject a vast literature has been developed in the last decades, and it has been recognized as an academic topic of relevance. Culture is indeed a recurring theme in sociology, human resource management, organizational studies and manifold social sciences. The issue of the first wave of the World Values Survey's data in 1984 strengthened the attention on culture and drove the release of a large number of publications. Moreover, the writings of illustrious authors such as Hofstede, North and Greif contributed to the analysis of the cultural and social state of countries around the world and to the study of phenomena related to beliefs and cultural values. However, many of them take for granted the concepts that underpin their research and do not address previous theoretical development.
In the next paragraph, the most accredited definitions of the concepts examined in literature will be presented and a broad theoretical framework will be developed.

1.2.2 Main concepts and definitions

1.2.2.1 Culture

The notion of 'culture' counts a wide range of definitions. It appeared for the first time in Germany in later eighteenth century used by philosopher Johann Gottfried Herder (1744-1803), the most known representative of a group of writers of universal history, spelled as *Cultur* or *Kultur* (Kroeber and Kluckhohn, 1952). In its first use, the word had the meaning of progress in cultivation. Influenced by ethnographer Gustav Klemm (1802-1867), the term culture came to have its modern meaning since about 1850 thanks to the work of Sir Edward Burnett Tylor (1832-1917), who, in his most famous book *Primitive Culture*, defined culture as "that complex whole which includes knowledge, beliefs, arts, morals, law, customs, and any other capabilities and habits acquired by man as a member of society" (Tylor, 1870). Starting from then, an extraordinary amount of definitions has been counted during the 20th century, arriving till today's definition of culture as "the ideas, customs, and social behaviour of a particular people or society" (Oxford English Dictionary, 2020). These definitions differ as they can be classified as descriptive, historical, normative, psychological, structural or genetic whether they put more emphasis on the enumeration of content, social heritage or tradition,

rules or ideals, adjustment and learning, patterning and organization or the concept of culture as a product (Kroeber and Kluckhohn, 1952).

Sometimes the word 'culture' is applied exclusively to what is observable or 'recordable' (e.g. Lukacs, 1971; Deal and Kennedy, 1982; Crane, 1994; Melville and Readings, 1995), and some other times is used to define what is not visible, but is inside human minds (e.g. Hofstede, 1980; Schein, 1985; Rossi, 1989). Still others view culture as a more primitive phenomenon embodied in values and preferences (see, for example, Akerlof and Kranton, 2000), emphasizing the role of emotions in motivating human behaviour.

One of the scholars who gave the most important contributions to the quantification of the concept of culture was Geert Hofstede. In the second half of the twentieth century he proposed some of the definitions that transformed the existing idea of culture. Hofstede defined culture as "the collective programming of the mind that distinguishes the members of one category of people from another". This definition means that every person has mental programs that operate as "software of the mind" and make actions predictable in similar conditions. This idea of culture is clearly focused on the intangible aspects of culture, as mental programs are not visible. Similarly, other sociologists as Rossi (1989) and Schein (1985) developed theories on culture based on unobservable and implicit conceptions.

Culture has been conceptualized also as "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation" (Guiso, Sapienza, and Zingales, 2006, p. 23). Based on Kroeber and Kluckhohn (1952), this would be classified as historic definition, as it focuses on prior beliefs, values and preferences transmitted to contemporaries. The authors think that culture is "given" and mainly inherited by individuals rather than voluntarily accumulated, part of a process to which each one of us has been subjected since birth. In their opinion, cultural aspects like religion and ethnic background are very difficult to change and can be treated as invariant over an individual's lifetime. These low-moving components are modified over time only over centuries or even millennia. The reasons why culture changes slowly are that:

1. children are mainly educated in the same way as parents;
2. organizations that are in charge of educating and spreading culture (the state, school, religious institutions) often have a vested interests in supporting the continuation of historical beliefs;
3. although some cultural norms are uneconomic, they continue to spread due to the sense of belonging to the group and the static nature of some social groups.

These social dynamics are generated by the presence of cultural beliefs. According to Greif (1994), "cultural beliefs are the ideas and thoughts common to several people that govern interaction between

these people, and between them, their gods, and other groups" (p. 915). Therefore, a cultural belief is any belief considered real by a large group of people. These beliefs differ from knowledge as they are not empirically discovered or analytically tested. In general, cultural beliefs become commonly known through the socialization process. Nonetheless, they are extremely important for society. In general, cultural variations account for intersociety differences in societal organizations (Greif, 1994). From historical analyses it has been discovered that cultural beliefs exert a strong influence on societal organization and lead to different patterns of collective and economic interaction. This in turn affects the development of social constructs and the consequent economic outcomes.

1.2.2.2 Cultural traits

As described above, culture is a complex system. The smallest unit of culture is called a trait. A trait is "a characteristic of human societies that is potentially transmitted by non-genetic means and can be owned by an agent" (Birukou et al., 2009). Each culture includes thousands of traits that can be represented by single objects, actions, or beliefs and influence cultural preferences. According to Hoebel (1956), a trait is "a reputedly irreducible unit of learned behavior pattern or material product thereof". Thus, in his view culture has two components: material and nonmaterial. Material culture refers to anything physical humanmade that make up a culture, while nonmaterial culture, includes the abstract ideas and ways of thinking that constitute culture. Some examples of material culture traits are the wedding ring, clothing, cars, and buildings. Nonmaterial culture traits include gestures (e.g. handshake, saluting the flag), norms (e.g. washing one's hands), and language.

A related concept is that of culture complex. Cultural complexes are large clusters of traits organized about some nuclear points of reference (Hoebel, 1956). Cultural traits do not usually appear independently, yet they are combined with other related traits. The culture complex is in the middle between the trait and the institution. An institution is a series of complexes focusing upon a significant activity. For instance, the family institution includes the engagement-marriage complex, the honeymoon complex, the child-care complex, and several others. Some complexes are part of institutions, others revolving around less important activities (e.g. stamp collecting) are simply independent complexes.

1.2.2.3 Cultural values

While the terms cultural traits and values are often used conversely, each is actually a distinct piece of the bigger picture. Cultural values are the core principles and ideals whereupon a whole community exists, secure and depend on for a balanced connection. They can be thought as norms and ways of behaviour moulding attitudes and responses to events and various phenomena in a cultural

setting. Sociologists deviate, nonetheless, on the most proficient method to conceptualize them. Conflict theory centres around how values vary between groups within a culture, while functionalism focuses on the shared values within a culture. These values usually differ on a national basis. American sociologists agree that the most important values in American society are wealth, equality, individuality, success, power, and freedom, while in Japan people pay attention to the obligations to the group, behaving according to status, harmony, self-criticism and collectivism. Diversely, pivotal European cultural values are leisure, family and friendship, intellectualism, appreciation for aesthetics. Cultural values are socially prominent and generally reflect into material culture traits as products, movies and advertisements.

1.2.2.4 National culture

National culture is the culture associated with a geographical/political region and its inhabitants. It is widely defined in literature as the distinctive set of values, beliefs, behaviours and norms shared by members of a sovereign nation. It comprises the typical practices, assumptions and customs of a certain population acquired through individual and group striving. Since these cultural sets differ in relation to countries, country-specific profiles can be created based on values differences expressed on a number of dimensions (e.g. power-distance, masculinity-femininity, individualism-collectivism, and uncertainty-avoidance)[1]. These models give dimensional scores that are only statistical averages with considerable variance and overlap with other national cultures. Even if they are reliable and rather accurate, these national indexes are to be intended as useful tools in predicting behaviour and providing guidance when interacting and communicating with members of other nationalities but should not be used for prejudicial or stereotyping purposes.

A large share of empirical studies is based on nations as units of analysis in cross-cultural studies. This is a controversial approach. Some political scientists and economists strongly defend this method, while some others are critique. Inglehart and Baker (2000) suggest that: "despite globalization, the nation remains a key unit of shared experience and its educational and cultural institutions shape the values of almost everyone in that society". According to Parker (1997), national culture is a "critical factor affecting economic development, demographic behavior and general business policies". The use of nations as units of cross-cultural analysis has also been supported by leading cross-cultural psychologists, for instance, Smith (2004). A factual evidence of the existence of nationally differentiated cultures is seen in the organizational administration of international companies, where normally management is developed in conjunction with the national culture.

[1] See the theorethical models in paragraph 1.2.3.

Moreover, most of Hofstede's works are based on the existence of national cultures. In his book *Culture's consequences: comparing values, behaviors, institutions and organizations across nations* (2001) he studied differences in national culture among more than 50 modern nations, showing evidence of differences and similarities among the culture patterns of countries that have very old historical roots. Particularly, he developed a framework to explain the mechanism that permits the maintenance of stability in cultural traits. In the centre are societal norms consisting of a value system (i.e. mental software) shared by members of a national group, which originate from various ecological factors (e.g. geography, history, demography, etc.). In turn, societal norms lead to the spread of social institutions uniquely functioning and structured. These include various systems such as family, education, politics and legislation. Institutions, when built up, fortify the cultural standards and the ecological conditions that prompted their foundation. In a generally shut society such a framework will barely change by any means. On the off chance that it modifies, this does not rely on societal norms change. Norms are more likely to change through alterations of ecological conditions (technological, economic, hygienic) than through direct appropriation of outside qualities. One of the best methods for changing mental projects of people is to change conduct first. That norms change needs to go before conduct change is a misconception. According to the model, change cannot be comprehended without historical investigation. History has indicated instances of people groups that through such frameworks have kept up personalities more than hundreds and thousands of years, even notwithstanding such far-reaching shifts as loss of autonomy, deportation and loss of language.

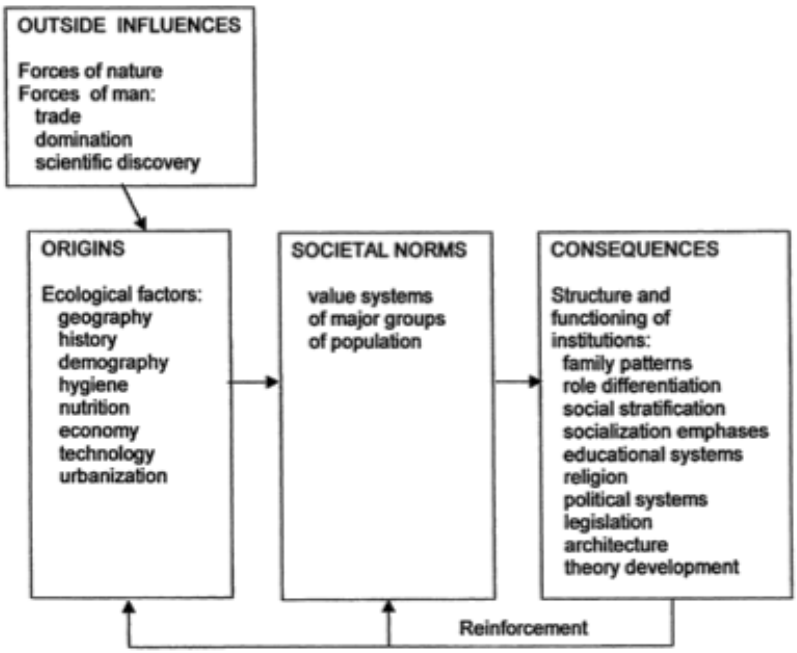

Figure 1 - Hofstede's stabilizing culture patterns.
Hofstede, G. (2001). Culture's Consequences: Comparing Values, Behavior, and Organizations Across Nations, second edition. Sage Publications

Considering political boundaries as determinants for the definition of national cultures is a practice that has been firmly criticized by several researchers. One of all Grosjean (2011), who showed through a gravitational model that the impact of a common history between people groups is considerably more critical than nationality. Indeed, his examinations have indicated that it takes at any rate 400 years of political integration (e.g. empire domination) to effectively affect the cultural traits of individuals. These findings are in accordance with the idea that history is the main determinant of social norms (Hofstede, 2001), yet contradicts the act of completing cross-national investigations to confirm the cultural differences between populations.

Other authors have given cautious views: national borders may not be a sufficient motive to depict cultural boundaries in light of the fact that numerous nations have large subcultures (House and Javidan, 2004). Lenartowicz and Roth (2001) expressed similar concepts. Tung (2008) called attention to that intranational varieties can regularly be as critical as cross-national differences. Boyacigiller, Kleinberg, Phillips, and Sackman (2007) alluded to different cases in which nations were dismantled. This implies countries are to some degree discretionary political creations that are not really shaped along stable cultural values. For instance, looking at a Yugoslav or Soviet culture might not have made any sense, even when Yugoslavia and the Soviet Union formed a single political body.

1.2.2.5 Institutions

A commonly recognized definition of institutions is that they are "the humanly devised constraints that shape human interaction and define and limit the choices of individuals" (North, 1990). They are encompassing formal constraints (rules, laws, constitutions) and informal obliges (standards of conduct, convention, and self-imposed codes of behaviour) that sort out social, political and economic relations. In North's theory, institutions are intended as "the rules of the game". Formal rules are created by the polity, whereas informal norms are "part of the heritage that we call culture."

Institutions are some of the time mistook for organisations. One can think of the differences between them along these lines: if institutions can be defined as the "rules of the game", organisations are how people structure themselves to play. Organisations are shaped by institutions, and in turn shape institutional change. Organisations are the material articulations of institutions encircled by gatherings of people limited by a common purpose (North, 1990).

Numerous other sociologists have also provided their own personal conception of institutions. As indicated by Hogdson (2006), an institution is a type of social structure that involves potentially codifiable and normative rules of interpretation and behavior (i.e., frameworks of prevalent social standards that affect social interactions). Greif (2006) defines an institution as "a system of social

factors that conjointly generates a regularity of behavior"—by "social factors," he means "man-made, nonphysical factors that are exogenous to each person they influence," including "rules, beliefs, norms, and organizations." Acemoglu, Johnson, and Robinson (2006) define institutions as mechanisms through which social decisions are resolved and executed; they recognize economic institutions and political institutions.

One of the best-known models on institutions is developed by Scott. According to Scott (2008), "institutions comprise regulative, normative and cultural-cognitive elements that, together, with associated activities and resources, provide stability and meaning to social life". He proposes a broad definition of institutions that can encompass a variety of arguments and then attempt to identify key analytic elements that give rise to the most important differences observed and debates encountered. He argues that three analytical elements comprise institutions, which consist of cultural-cognitive, regulative, and normative elements. Some of these might dominate an organisation but usually will work in combination. Institutions exhibit stabilizing and meaning-making properties because of processes set in motion by regulative, normative and cultural cognitive elements which provide the guidance for behaviour. Therefore, with associated resources, they provide stability and meaning to social life. Institutions impose restrictions by defining legal, moral and cultural boundaries distinguishing between acceptable and unacceptable behaviour. However, interaction of people creates, maintains and changes these rules and create a subjective reality. It is important to look at institutions as a process, as they are not stable. This is why rules and norms have to be backed by sanctioning power, cultural beliefs or schemas to be viable.

The three pillars of institutions are:

1. Regulative pillar: it involves the design of incentives and sanctions in order to develop surveillance mechanisms on individual and organizational actions. This means establishing rules that constrain and regularise behaviour together with inspecting conformity and sanctioning or rewarding to influence future behaviour. This mechanism can be formal (e.g. coercion) or informal (e.g. shaming). Regulatory systems exhibit high values of obligation (bound to behaviour), precision (unambiguous) and delegation (third parties granted authority to apply rules and resolve disputes). When power is constrained by rules authority becomes the power mechanism. The institutional logic of this pillar is an instrumental one: it is based on the rational choice of laws and rules to advance interests.
2. Normative pillar: it is the development of normative rules that introduce perspective, evaluative and obligatory dimension into social life. They are based on values (i.e. "preferred and desirable and standards to which current behaviour can be measured") and norms (i.e. how things should be done, legitimate ways to pursue values) that actors should internalize.

Normative systems define goals or objectives and how to pursue them. Some are for all members of a collective group while other for just some. They represent prescriptions of how actors are supposed to behave. They impose constrains on social behaviour but also empower and enable social action because of rights and duties they uphold. The main important logic is the appropriateness. An empirical example are the standard setting bodies in professional organisations.

3. Cultural cognitive pillar: it comprises the shared conceptions that constitute the nature of social reality and creates the frames through which meaning is made. It is associated with the internal representation of the environment and the central role is played by the socially mediated construction of a common framework of meaning. Internal interpretive processes are shaped by external cultural frameworks which have a constitutive function. These cultural systems operate at multiple levels and are nested in broader cultural frameworks that penetrate and shape individual beliefs. These conceptions can frequently vary and become contested, but there is a logic of compliance because things are taken for granted.

It can be seen that in all the definitions, albeit with different nuances, the attention is focused on the ability of institutions in responding to the need to govern individual and social actions. The widespread opinion is that institutions can be interpreted as rules guiding living behaviour. Key broadly accepted features of institutions include the following:

- They are reproduced through routine actions, i.e. they live through enactment
- They provide guidelines for human actions and help create constraints and incentives to shape and individuals' behaviour through sanctioning mechanisms applied in cases of noncompliance or disregard of a rule.
- They provide a certain and predictable structure for political, economic, and social interaction
- They tend to persist over time but can change incrementally and in rare instances, suddenly
- They can be written or unwritten and refer to both formal rules such as laws and regulations, and to informal norms such as taken for granted assumptions, practices, customs or traditions often embedded in culture
- They are often internalised and unconscious, in that social actors may not even recognize that they are following institutionalized ways of interacting

1.2.2.6 Social capital

The concept of social capital has been elaborated and studied by many scholars in the past decades. Robert Putnam has devoted much of his studies to the theorizing of social capital. As indicated by Putnam (2000), social capital alludes to "connections among individuals, or social networks and the

norms of reciprocity and trustworthiness that arise from them." According to him and his followers, social capital is a key pillar for to build and maintain democracy. Social capital is a cultural variable that comprises "those persistent and shared beliefs and values that help a group overcome the free rider problem in the pursuit of socially valuable activities"[2]. It tends to be viewed as determinant of the success or failure of institutions. Another meaning of social capital includes its relationship with systems. Coleman (1988), for instance, examines closure in social networks, focusing on the capacity of small groups to monitor and pressure each other to behave. As per his view, the investigation of social capital is that of network-based procedures that produce advantageous results through standards and trust. As indicated by the closure argument, social capital is made by a system of strongly interconnected elements. Durlauf and Fafchamps (2005) outline a more extensive perspective on social capital recognizing three fundamental basic ideas: (1) social capital produces positive externalities for group members; (2) these externalities are accomplished through shared trust, norms, and values, and their resulting impacts on desires and conduct; (3) shared trust, norms, and values emerge from casual types of organizations based on social networks and associations.

1.2.3 Theoretical models of reference

The theoretical models developed by professors Geert Hofstede and Edgar H. Schein are two of the most known works on the concept of culture. They are considered as references for future studies and have been the first ones to give a clear definition of what is culture. A recent well-known theoretical model on national culture is the one realized by linguistic Richard D. Lewis. He created a guide to national cultures analysing the different traits in more than 100 countries around the world. The three scholars exposed different definitions and theories, as they come from different academic areas. The first provides a sociologic point of view on culture, the second one is more focused on the organizational development field, while the third one starts from the language to offer a concrete classification of national cultures based on visible cultural traits. However, they used a similar approach as all of them conceptualized culture as a structure composed of several dimensions.

1.2.3.1 Hofstede's model

In his well-known book *Culture's consequences* (1980), Hofstede promoted a model based on data collected around 1967 and 1973 submitting the same survey to IBM employees working in company's subsidiaries in 66 different countries, together with a series of follow-up studies on the same

[2] See Fukuyama (1995), Putnam (2000) and Guiso et al. (2011).

population. From a statistical analysis of this sample, he theorized that national cultures are based on four bi-polar dimensions to which answers can vary according to the country.
These dimensions are:

- Power distance: "the extent to which the less powerful members of organizations and institutions (like the family) expect and accept that power is distributed unequally". This is related to the different solutions to the basic problem of human inequality.
- Uncertainty avoidance: "the intolerance for uncertainty and ambiguity", i.e. the level of stress in a society in the face of an unknown future.
- Individualism vs. Collectivism: "the extent to which individuals are integrated into groups". This pillar is linked to the integration of individuals into primary groups.
- Masculinity vs. Femininity represented by "the dualism between assertiveness and competitiveness and modesty and caring" and associated to the division of emotional roles between men and women.

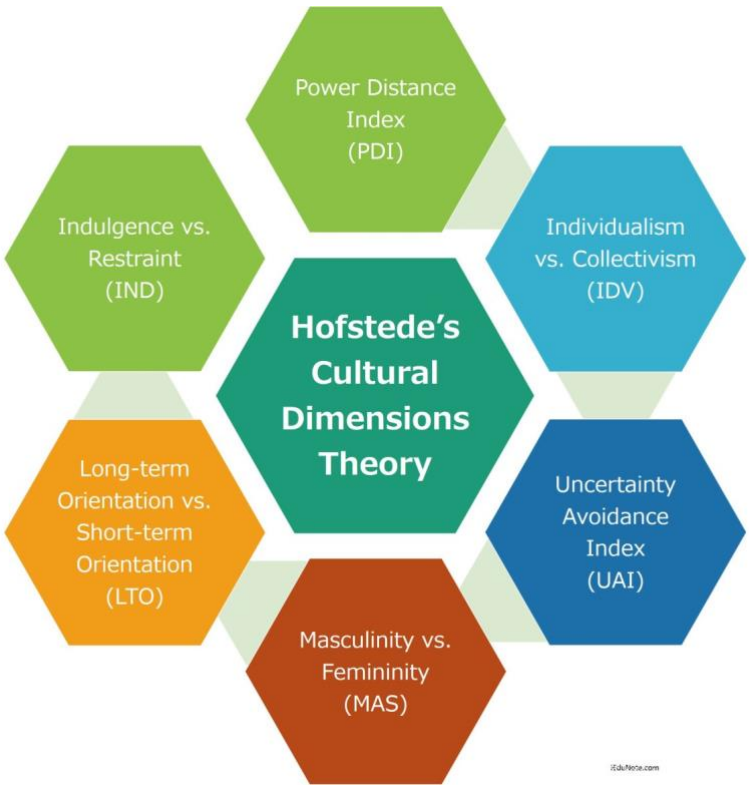

Figure 2 - Hofstede's 6 dimensions of culture. Hofstede, G. (1980). Culture's consequences: International differences in work-related values. Beverly Hills, CA: Sage.

In the second edition of his book *Culture's Consequences: Comparing Values, Behavior, and Organizations Across Nations* (2001), Hofstede added a fifth dimension. It is the polarity between long-term and short-term orientation. This dimension is related to the choice of focus for people's efforts: the future or the present.
Successively, in *Dimensionalizing Cultures: The Hofstede Model in Context* (2011), the scholar added a sixth dimension. It is the polarity between indulgence and restraint. It represents "the extent to which people try to control their desires and impulses, based on the way they were raised". Relatively weak control is called indulgence and relatively strong control is called restraint. Cultures can be classified as indulgent or restrained. An indulgent society allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. A restrained society suppresses gratification of needs and regulates it by means of strict social norms.

Hofstede's work has been harshly criticized since its very first publication. The biggest criticism came from Brendan McSweeney (2002), who contested the methodology and the findings of the Dutch professor. Particularly, according to McSweeney, the sample on which the research was conducted was not heterogenous enough to conclude the existence of a national culture. Hofstede conducted the research administrating surveys to only IBM employees in 66 countries. He used in total 117,000 questionnaires from two waves (1968-9 and 1971-3). However, in only six countries the number of respondents were more than 1000. Moreover, the limited provenience of the respondents caused doubts on the representativeness and homogeneity of the sample studied. The author conclusion is that Hofstede used the sample and manipulated the results in order to sustain his model and hypothesis on national cultures. However, Hofstede has responded several times to the criticisms against his work with further empirical evidences[3].

1.2.3.2 Schein's model

Schein elaborated a model of culture in organizations. In his book *Organizational culture and leadership* (1985) he suggested the idea that culture is built on three levels. Every level is "the degree to which the cultural phenomenon is visible to the observer", and they are classified on a scale that measures how rooted these structures are in people's mind.

The first level is represented by the artifacts. They are the most superficial cultural aspects of organizations. At this stage people can only analyse the observable traits of culture. The language, the physical environment, the products and behaviours are cultural artifacts of an organization. The peculiarity of these structures is that even if they are visible by strangers, they are not easily understandable. It is easy to give a wrong meaning to what is seen, and interpretations are often erroneous if they don't come from a deeper analysis and knowledge of the organization.

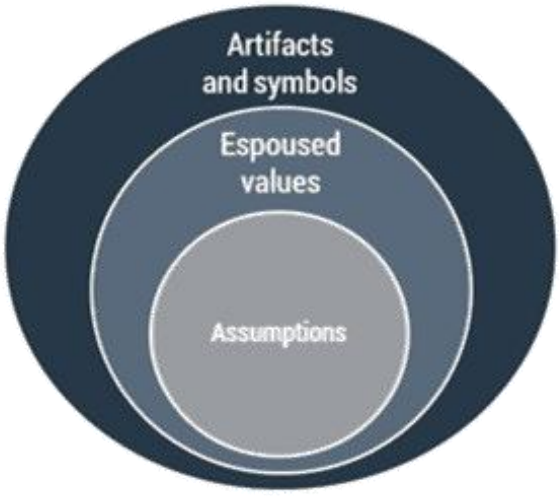

Figure 3 - Schein's model.
Schein, E. (1985). Organizational culture and leadership. San Francisco, CA: Jossey-Bass.

Espoused beliefs and values are the intermediate level in culture structure. They represent the ideals and the shared assumption according to which people behave. They help understanding the artifacts and the visible cultural traits and can be interpreted as the reasons that organizational members ought to respect. These values and beliefs are considered true if they undergo a social validation process, thanks to which these rules are confirmed as fundamental

[3] See for example: Minkov and Hofstede (2012), paragraphs 1.3.1 and 1.3.2.

for the life of the organization. However, some incongruencies can be seen between the values and the behaviours or the artifacts. In this case, beliefs reflect desired aspirations and not the ideals that are part of the organization.

Finally, the basic underlying assumptions are the most rooted cultural dimension. They underlie the organizational members' behaviour and are taken for granted and pre-conscious. They are "theories-in-use": implicit assumptions that actually guide behaviour. These natural cognitive rules help the organization working and functioning and represent full-fledged defence mechanisms. These assumptions are the less visible to strangers, and people get to know them only after spending time in contact with the specific community or organization.

1.2.3.3 Lewis's model

Richard D. Lewis (2005), starting from a linguistic analysis in the different countries of the world, has come to determine a model that brings together cultures with similar material and non-material cultural traits. He has categorized the world cultures according to three main measures and according to his view, cultures can be classified as linear-active, multi-active or reactive.

Linear-active cultures give importance to scheduling. People from countries like Sweden, Germany, Switzerland generally do one thing at a time, plan their activities, organize their life and enjoy organization.

Multi-actives consider reality more important than plans, are loquacious, do many things at a time and prioritize actions not according to a time schedule but to the importance for their selves (e.g. Italian, Spanish, Africans).

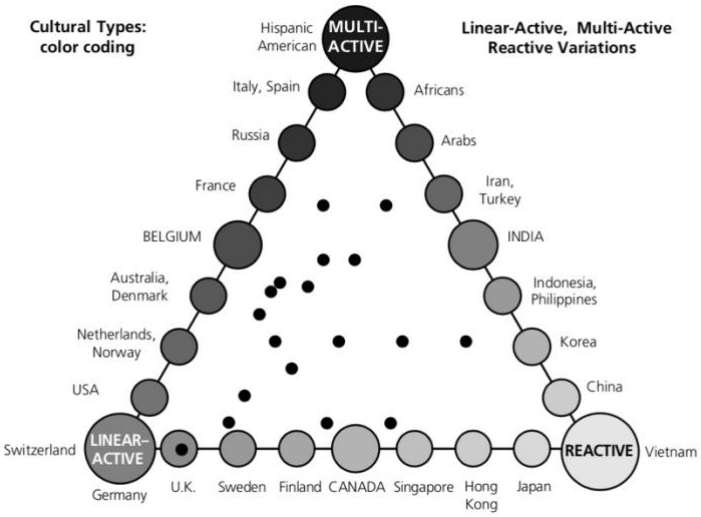

Figure 4 - Lewis's model.
Lewis, R. D. (2005). When cultures collide: Leading across cultures. Third edition. London: N. Brealey Pub.

Finally, reactive cultures are based on respect and listening. People from Asian countries like Japan, China, Korea are likely more other-oriented. They react to partners actions or opinions and listen carefully before giving feedbacks.

1.2.4 The relationship between national cultures and institutions

The interaction between culture and institutions has been studied by several researchers. A large literature has examined the relationship between these two entities. The common result is that a two-side influence exists between them and that culture and institutions are complementary (Alesina and Giuliano, 2013). They coevolve leading to unique balances in society. They can create multiple combinations of some types of cultures and some types of formal institutions. This interaction occurs naturally and is characterized by mutual feedback effect, since a country (or a region or an ethnic group) where people share certain cultural values, will consequently opt for the establishment of some particular institutions. In turn, these institutions involve the survival and transmission over time of the underlying values. An evidence is provided by Tabellini (2008), who elaborated a model of the interplay between culture and legal institutions. According to him, good institutions foster generalized morality, reducing legal caseloads and court crowding. Poor institutions do the opposite, decreasing morality and making people more litigious, cluttering the legal system. Following this logic, various sets of self-reinforcing institutions and cultural norms are created in different societies. This coevolutionary structure has been applied to several cultural traits: cooperation, trust, family ties, individualism, and fairness.

1.3 Empirical contributions: historical evidences of institution-culture relationship

The effects of institutions on culture rely on experimental evidence and on historical natural experiments where institutions vary in locations with common geographical, cultural, and other socioeconomic characteristics. The vast majority of empirical papers refers to culture as both preferences and beliefs. The aim of these studies is to better understand the mechanisms driving the interaction and the channels of causality between culture and institutions, cultural traits and economic outcomes, and between cultural beliefs and behaviour. In order to overcome the problem of the reverse causality, authors decided to consider culture as given or an exogenous variable. Indeed, many aspects and components of culture as ethnicity or religion era not easily changed during lifetime (Guiso, Sapienza and Zingales, 2006). Cultural traits are most of the time inherited and are not altered or adjusted in the short term. This reduces the risks of the reverse causality problem in regressions that research the impact of culture on social aspects (e.g. economic outcomes).

In the next paragraph, an overview of 10 significant researches is provided. A table is constructed and for each paper, information on author, sample used, variables selected, and testing methods are presented. This provides clear information on previous studies and on the relationship between

samples, covariates and methods that every author considered in his/her research. Moreover, a digression is conducted on the conclusions and results of the studies.

1.3.1 Papers overview: sample, variables and methods

Table 1 – Empirical contributions overview

Author & year	Sample	Variables	Method
Alesina and La Ferrara (2000)	Data from the General Social Survey (years 1974-1994). Interviews to approximately 1500 American individuals every year with information on socio-political indicators, as well as on demographic and income characteristics of the respondents. The study takes Metropolitan Sampling Areas (MSA) and Primary Metropolitan Sampling Areas (PMSA) as "community" dimension.	Estimating equation (from now on, GSS) for the years 19 where *i:* individuals and *c:* community. Y^*_{ic}: expected utility from participation in a group X_{ic}: vector of individual characteristics H_c: vector of community variables (including heterogeneity) S_c: dummy for the state of residence T: year dummy $\in_{ic}$: error term $\beta, \gamma, \delta, \lambda$: parameters Dependent variable Participation in associational activities and respondents' membership in organizations such as religious and political groups, unions, school or sport associations etc. Independent variables - Gini coefficient (income inequality index) on family income in	Linear regression with a set of individual characteristics that may influence either the individual's reservation utility if not participating, or the preference for participation.

		MSA/PMSA where respondent lives. Actual Gini coefficients were computed for the years 1970, 1980, 1990. - Racial fragmentation index in MSA/PMSA where respondents live. - Ethnic fragmentation index in MSA/PMSA where respondents live.	
Guiso, Sapienza and Zingales (2009)	Set of surveys conducted by Eurobarometer and sponsored by the European Commission in the years 1970-1996. The surveys' sample counts about 1,000 individuals per country (age: 16 or older). The set of countries sampled varies over time with the enlargement of the European Union from five in 1970 to seventeen in 1995.	Estimating equation $Trust_{ij} = \kappa_i + \lambda_j + \beta X_{ij} + \varepsilon_{ij}$ where *i*: country of origin and *j*: country of destination $Trust_{ij}$: trust of country *i* for country *j* κ_i: country-of-origin fixed effect λ_j: country-of-destination fixed effect X_{ij}: match-specific variables ε_{ij}: error term Dependent variable Trust level toward the citizens of each of the countries in the European Union Independent variables - Proxies for information: geographical distance between two countries (log of distance in km of the main cities); language commonality; presence in newspapers; legal system similarity. - Proxies for culture: religious similarity, ethnic differences	Linear regressions

		(genetic distance), somatic distance, war history between countries.	
Minkov and Hofstede (2012)	Data from 42,272 observations in the fifth wave of the World Values Survey (2005-2008). 299 total regions from 28 countries (East and Southeast Asian, sub-Saharan, Latin American, Anglo countries) were analysed.	Dependent variable Distance in values between country regions Independent variables Basic cultural values: - 6 personal values - 10 values for children - 10 "Schwartz" values (identified as such by the WVS)	Hierarchical cluster analysis grouping the in-country regions on the basis of basic cultural values Two methods: - Euclidian distance method: measures spatial distances, not sensitive to correlations between variables; - Pearson method: sensitive to correlations, identifies correlation-based patterns; it does not reveal spatial distances between cases but pattern similarities.
Alesina and Giuliano (2011)	General Social Survey data available from 1972 to 2004. 193,956 total observations on individuals in the US. Each year's sample is an independent cross-section of individuals living in the US, ages 18 and up.	Estimating equation $$U_{it} = \sum_{t=p}^{T} u(c_{it}(\dots Q_t))$$ adaptation from Meltzer and Richards (1981). where *i*: individual, *t*: time, *p*: present period, *T*: final period.	All regressions are estimated using OLS for simplicity (similar results are obtained with ordered logic)

		U_{it}: utility function of individual i at time t c_{it}: individual's consumption Q_t: measure of income inequality Dependent variable Preference for redistribution Independent variables - Individual characteristics (age, gender, ethnicity, educational level, income, religion) - Expected future income and social mobility (difference from own educational level and parents')	
Guiso, Sapienza, and Zingales (2004)	Data on social capital: - Italian electoral turnout in referenda (1946-1989) (ISTAT); - Blood donation per inhabitant in the province in 1995 (AVIS). Data on financial instruments: four waves of Bank of Italy's Survey of Household Income and Wealth (SHIW, 1989-1995). Sample of 32,665 households (with repeat observation) and 23,330 households excluding repeat observation.	Estimating equation $$S_i = l(X^J, D^J, \varphi_i)$$ S_i: amount of money principal i invests in stocks X^J: quality of legal enforcement in area J D^J: proxy of the level of social capital in area J φ_i: individual characteristics (risk aversion) of principal i Dependent variable Trust Independent variable Social capital	Linear regression analysis between social capital and use of checks, cash investment, stock investment, formal and informal credit market.

Grosjean (2011)	Data from the first release of the World Bank's and the EBRD's Life in Transition survey (LITS) in 2006, which surveyed almost 29,000 individuals across 29 European countries. The sample for the study is limited to 21 countries from central, eastern, and south-eastern Europe. There are 50 Primary Sampling Units (PSU) in each of 21 countries retained for analysis.	Dependent variable Distance and difference in social trust: absolute value of the difference between pairs of locations in average responses to the widely used social trust question: "generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" Independent variables Common characteristics of localities (e.g. shared history, common institutions, spacial proximity and contiguity).	Gravity approach: "culture gravity model" developed to examine the distance between cultural traits (social trust) regressed on physical or historical proximity of localities.
Whitt and Wilson (2007)	Experiment data collected in September 2003 and January 2004 from 681 subjects in 30 sessions. Participants examined were Bosnjak, Croats, and Serbs in post-war Bosnia-Herzegovina.	Dependent variable Average allocations Independent variable Ethnicity of allocators and recipients	Experiment: dictator games part of an extensive study conducted in Bosnia. Participants were asked to allocate money between themselves and an anonymous recipient. Data were analysed with multivariate regressions.
Giuliano and Spilimbergo (2014)	Datasets General Social Survey (GSS) conducted by the National Opinion Research Center at the University of Chicago. Nationally representative sample for the U.S. of about	Estimating equation $Beliefs_{irt}=\alpha_0+\alpha_1 macroshock_{r16,imp.years}+\alpha_2 X_i + \beta_\alpha + \delta_r+\eta_t+\gamma_{r16}+\gamma_{r16} * age+\varepsilon_{irt}$ $Beliefs_{irt}$: response by individual *i*, interviewed at time *t*, in region *r*	All regressions are estimated using OLS for ease of interpretation, but similar results are obtained with ordered logit or probit

	1500-2000 respondents each year (1972-2010). WVS data carried out five times (1981–2007). The coverage varies depending on the wave, from 22 countries in 1980 to 81 countries in the fourth wave. The fifth wave was carried out in 57 countries. The minimum sample size is generally 1,200 observations per country. National Longitudinal Survey of the High School Class of 1972 (NLS72). Nationally representative sample of the high school population for the class of 1972. Data collected in: 1972, 1973, 1974, 1976, 1979, and 1986. The survey counts 23,684 observations.	$macroshock_{r16,\ imp.years}$: dummy indicating whether the individual experienced a recession during the impressionable years X_i: vector of individual characteristics, including gender and race, as well as measures of income, education, marital status, and labour market status β_α: age dummy δ_r: dummy for region of residence η_t: time fixed effect γ_{r16}: dummy for region of residence at 16 years old $\gamma_{r16} * age$: interactions of region-at-16 dummies with linear age trends ε_{irt}: error term Dependent variable Redistribution preference Independent variable Experience of recession during the impressionable years	(depending on the specification)
Bardhan (2000)	Data based on the results of a survey conducted in the South Indian state of Tamil Nadu. Data collected from 48 villages spread over six districts in Tamil Nadu, with a selected unit (called	Dependent variable Cooperation within the community on matters of irrigation Independent variables	Linear regressions

	ayacut) of irrigation system in each village. Within each system the villages were randomly chosen. A stratified sample of 10 farmers (stratified by land-size classes) was chosen from each village (total: 480 observations).	PWDDECID: government-made decisions on water allocation ELITERUL: villages where at least four out of 10 sampled farmers believe that the water rules were crafted by them	
Tabellini (2010)	The sample consists of 69 regions in 8 European countries: France, Germany, the UK, Italy, the Netherlands, Belgium, Spain and Portugal. The starting point for defining a region is the Eurostat NUTS1 level (with population ranging from 3 to 7 millions) database on regional per capita output. Culture measures are retrieved from 20,902 observations in two waves (2nd and 3rd) of WVS in 1990-91 and 1995-97.	Estimating equation $Y = \alpha + \delta C + \beta Y_o + \gamma X + e$ *Y*: regional per capita output *C*: indicator of culture Y_o: indicator of past economic development (urbanization in 1850) *X*: other regressors, namely education of the currently adult population (measured by school enrolment in 1960) and country dummies δ: coefficient of interest *e*: unobserved error term Dependent variable Per capita output Independent variables Culture, Past economic development	Linear, growth and OLS regressions

1.3.2 Results

Generalized trust

- Alesina and La Ferrara (2000)

Social capital is considered a difficult cultural trait to measure. Based on Putnam (1993), Alesina and La Ferrara (2000) consider social interactions like participation in associational activities and various forms of organizations as conducive aspects to social capital. Examining the relationship between participation and individual and community characteristics through regressions, the scholars found a significant negative correlation between membership in groups and heterogeneity in communities. The propensity to participate is influenced to a large extent by individual characteristics, but it also depends on the composition and degree of heterogeneity of the community. In U. S. cities where income inequality and racial and ethnic fragmentation are strong, participation is significantly lower. The groups that are more affected by this propensity are those in which members have direct interaction. Also, those individuals who negatively view racial mixing are less prone to participate in groups the more racially heterogeneous their community is. This leads to the conclusion that the lower levels of generalized trust is experienced, the more mixed and heterogenous is the community where individuals live.

- Guiso, Sapienza, and Zingales (2009)

In this study, Guiso, Sapienza and Zingales (2009) show that, from regressions linking trust levels and cultural similarities and distance, different cultural heritages affect trust among European countries in systematic ways. Even after controlling for a country's institutional characteristics and for differences in the information sets, historical and cultural variables affect the propensity of the citizens of one country to trust the citizens of another country. In turn, consequences of trust differences manifest themselves in many social fields. They can be seen for instance in economy, particularly in trade flows, FDIs, portfolio investments.

National culture meaningfulness

- Minkov and Hofstede (2012)

This study refutes some of the arguments against the concept of national culture. When basic cultural values are compared, in-country regions tend to cluster along national lines rather than be scattered and intermixed with the regions of other countries in the same cultural or geographic area. This is true even in the case of recently emerged nations, such as Malaysia and Indonesia, which share an

official language. It is also true of the African nations, despite the fact that they were created without any regard for cultural similarities or differences. Although the regions analysed have an overwhelming tendency to form fairly distinct national clusters, the latter are not equally tight: the regions of some nations (for instance, Rwanda) form a tighter cluster with closer linkages than the regions of other nations.

Attitudes toward work and the perception of poverty

- Alesina and Giuliano (2011)

The research shows that preferences for redistribution are determined by personal characteristics such as age, gender, race and socioeconomic status, but they are also a product of history, culture, political ideology and a perception of fairness. In particular, women, youth and afro-americans appear to have stronger preferences for redistribution. Individuals who believe that people try to take advantage of them, rather than being fair, have a strong desire for redistribution; similarly, believing that luck is more important than work as a driver of success is strongly associated with a taste for redistribution.

Cultures and formal institutions

- Guiso, Sapienza, and Zingales (2004)

Trust is strongly related to how people invest and participate in financial markets, as financial contracts could be reduced to a principal who entrusts some money to an agent and the expected return depends on the probability that the agent will abscond. Therefore, in a portfolio choice, assets differ not only in their intrinsic riskiness, but also in the level of trust they require. Where social capital is very low, households invest more in the least trust-intensive form of investment (cash) than in the most-intensive form of investment (stocks) and vice versa.

Impact of exogenous institutional changes on culture

- Grosjean (2011)

History plays a crucial role in determining cultural traits and preferences. People belonging to locations that shared the same former empire show similar level of social trust. In the cultural gravity model, distance between locations is negatively related to the common past history. Generally, cross-country comparisons consider only contiguity dummies, i.e. if people belong to the same country. However, this is proved to be less important than history and physical proximity, as some borders were determined quite recently. There is no significant relation between the belonging to a recent union of states (e.g. EU) and cultural integration. Data show that it takes 400 years of political

integration to have a significant effect on social trust outcomes. The results illustrate that the longer a pair was under the same empire, the more similar the reported social trust of the locations' citizens today. This is in line with the historical definitions of culture (Kroeber and Kluckhohn, 1952), that emphasize the tradition and social heritage aspects of cultural traits. It confirms that cultural change is slow, and that culture is mainly inherited and very difficult to change (Guiso, Sapienza, and Zingales, 2006).

Impact of exogenous shocks on culture

- Whitt and Wilson (2007)

Whitt and Wilson (2007) investigate the effect that an outstanding shock as that of a war has on cultural traits, particularly in generosity and individualism or collectivism (Hofstede, 1980). It is noticeable that looking at how people treat their in-group and their out-group, a norm of fairness persists, despite preferential in-group treatment and a distinct out-group effect. A strong evidence for a norm of fairness across ethnicity is provided in the aftermath of Bosnia's civil war. This has important implications for understanding the manner in which people resume their normal life. Rather than a world of cemented ethnic cleavages, these findings indicate that a norm of reciprocity can emerge (or be sustained) even following a bloody civil war.

- Giuliano and Spilimbergo (2014)

The paper provides evidence that individuals who grew up during a recession tend to support greater government redistribution, believe that luck is more relevant than effort in determining economic success in life, and vote more for left-wing parties. The findings are supported using evidence from three different datasets and are robust to the inclusion of a rich set of controls and various specifications. Results also show that macroeconomic shocks have an impact on actual behaviour, such as voting: the effect of having individuals living through a recession when young could explain in some years up to 15% of the probability of voting for a Democratic presidential candidate in some U.S. regions.

Effects of institutions on culture

- Bardhan (2000)

Bardhan looks at the relationship between self-crafted and government-enforced rules and law observance. The two most relevant explanatory variables in his study are PWDDECID and ELITERUL, on the grounds that in both cases their values anticipated the value of the dependent

variable. In all the towns where the government chose water designation, frequent rule infringements were reported. In almost 50% of the central law systems the degree of rule breaking is medium or high, while the comparing rate in civil-managed systems is only about 12%. Government inclusion urges farmers to violate standards and allows and has an adverse effect on cooperation. When the rules are crafted by the village elite, they in general disregard the water-allocation rules less frequently. Moreover, when average farmers believe that they themselves have crafted the water rules, rather than the elite or the government, they are more likely to be more positive about the water-allotment framework and about guideline compliance by other farmers. Regarding policy-making the research's valuable lesson is that that, particularly in decision making and rule crafting, the authority needs to be reverted to local farmers, rather than imposing governmental laws.

Culture, institutions and economic outcomes

- Tabellini (2010)

The paper investigates the interconnection among institutions and generalized morality to clarify differences in development throughout regions in eight European countries in which varying degrees of generalized morality came about because of different historical experiences. Current morality is related to the level of social capital aggregated in the eighteenth century, and to the level of democratization and freedom the areas picked up from monarchy. This study provides two main insights. The first finding is that in cross country comparisons, distant history has all the earmarks of being a significant determinant of current economic trends. This finding is frequently deciphered as proof that early institutions have formed current establishments ensuring property rights. The second finding is that the component of culture explained by the historical variables is a significant determinant of territorial economic course. Under the identifying assumptions, this historically determined component of culture is exogenous. Looking at regional areas in today's nations, the author shows that differing levels of generalized morality are persistent, explain well-functioning current institutions, and are good for economic development. Hence, institutions in the past led to the development of a culture of generalized morality, which thusly helped cultivate well-working institutions.

1.4 Conclusion

The chapter outlined the main theoretical and empirical contributions to the study of culture in the economic and social sphere. The theoretical framework drawn in the first section of the chapter intended to illustrate the recurrent concepts in the literature. The historical background of the term culture was first described, enlightening the process that starting from the late 18th century led to the present day's notion of culture. Various definitions have been reported and commented, and the ideas of some of the most authoritative social scientists have been presented. The ambiguous nature of the concept of culture has been demonstrated. As shown by Kroeber and Kluckhohn (1952), up to 1952 more than 164 definitions had historically been coined by scholars, classifiable into six different categories, and many others have been developed since then. However, despite the peculiar focuses, in modern times the definitions have aligned around the common principles of collectiveness and sociality. The differences between the conceptions of traits, values and cultural complexes were subsequently explained. Ample space was also given to the idea of national culture through the illustration of its underlying theories. The mechanism developed by Hofstede (2001) for the maintenance of national cultural traits, and the consequent criticism of the territorial delimitation of national cultures were presented. Examining the works by North (1990), Greif (1994) and Scott (2008), the institutional theory and the three fundamental pillars of institutions were then interpreted. Finally, the social capital dimension was defined, a variable frequently analysed in research work on national cultural traits. Moreover, three multidimensional models of culture (Hoftede, 1981; Schein, 1985; Lewis, 2005) were examined, covering academic fields from the sociology to the organizational development and linguistics.

Concerning the empirical research, some general conclusions can be drawn from the emerged results. First of all, several investigations have shown that in the context of social trust, the greater the diversity in terms of social characteristics (e.g. ethnicity, income), cultural traits and social heritage between people, the lower the level of social capital and consequently trust. The negative relationship between social capital and trust has been proved also in the functioning of formal institutions. For instance, in financial markets it has been manifested the tendency to make safer operations when the quality of legislation - a social capital indicator - is lower (Guiso, Sapienza and Zingales, 2004). Even in the legislative system, participation and compliance with the law depend on social cooperation and the effective functioning of networks (Bardhan, 2000). Secondly, studies on the very concept of national culture have produced contradictory results. On the one hand Minkov and Hofstede (2012) argue that people from different regions show a tendency to recognize themselves in the cultural values developed within national borders. On the other hand, the gravitational model developed by

Grosjean (2011) demonstrates the decisive role of history in influencing the cultural traits shared in some territories. The French economist criticizes the practice of dividing cultures according to the political boundaries and supports the invariant nature of cultural traits over centuries. This demonstrates that the idea of national culture is still under discussion. Another relevant insight is the correlation between exogenous shocks and cultural values. Experiments[4] and survey data[5] have widely validated that in general, the preferences for a fairer redistribution of wealth are positively correlated with the experience of traumatic events (e.g. war or economic recession) and with belonging to social minorities (e.g. women, African American people).

Having clear this theoretical and empirical picture, it is possible to frame the context of the next sections. In the second chapter, a detailed overview of the measuring methods of cultural values and the principal data sources used in the literature will be provided.

[4] See Whitt and Wilson (2007).

[5] See Giuliano and Spilimbergo (2014) and Alesina and Giuliano (2011).

Chapter 2: National culture data overview

2.1 Methods to measure national cultural traits

Culture and national cultural traits can be measured in several ways: through surveys, observing the culture effect on immigrants or their descendants with stable economic and institutional conditions (epidemiological approach), or by conducting experiments (e.g. ultimatum and dictator game)[6]. In the next paragraphs these methodologies will be examined, then the attention will be turned on the World Values Survey, the primary data source for studies on the culture-institutions relationship and national culture preferences.

2.1.1 Survey data

The most natural and common tool for measuring culture is aggregating individual surveys' answers to measure values and beliefs at the country level. These traits are then usually correlated with variables such as economic indexes or significant events in order to find parallels in cultural preferences and societal conditions. This method is the most broadly used despite it is very susceptible to the reverse causality effect, that is, differences in beliefs may be solely a consequence of different economic and institutional environments. Hence, the use of instrumental variables is required in order to identify causality. Overall, the choice of variables to provide a reliable measure of cultural differences has been difficult to achieve. Scholars have tried to solve this issue in a few different ways, with diverse results: Gorodnichenko et al. (2013), Guiso et al. (2009), and Alesina et al. (2013) utilized some instrumental variables, yet the preference of some proxies and match-up variables to the exclusion of others was an arduous operation and required meticulous analysis. Tabellini (2010) and Duranton et al. (2009) have instead adopted a different strategy, constructing regional-cultural variables, using country fixed effects to capture omitted cross-national differences. Another possible drawback, particularly relevant in retrospective studies, is the recall bias. Respondents may provide inaccurate or uncompleted answers due to a problematic recall of past events, especially when questions concern strong personal feelings. Nonetheless, surveys are particularly common because of the easiness of analysis and the possibility of having large samples of individuals interviewed

[6] Many recent papers have investigated also the historical determinants of culture (e.g. Grosjean, 2011; Guiso, Sapienza, and Zingales, 2006). Greif's 1994 paper on the difference between Genoese traders and Maghrebi traders and Botticini and Eckstein's (2005) study on Jewish history are probably the best-known works in economics that track the link between culture and institutional development and set up investigating historical case studies as a method to measure culture.

without great effort. Moreover, second-hand data are most of the time freely accessible and allow researchers to integrate them and have a comprehensive knowledge on the matter of their studies.

2.1.1.1 Typologies of survey

Surveys are generally classified according to two dimensions: the instrumentation used and the timeframe in which data are collected. Hence, the main survey typologies are the questionnaires or the interviews, according to the data collection mechanism used, and the cross-sectional or longitudinal surveys, depending on the repetition of the observation.

A typical instrument used in research survey is the questionnaire. It is originally a paper-and-pencil consultation administered to a sample of respondents. Questions are usually multiple-choice, i.e. closed-ended statements followed by answer options, but some questionnaires ask open-ended questions to analyse a freely designed response. This kind of surveys has been changed throughout the years and today, these polls count different techniques, based on how they are regulated. The common methods are the self-administered, the group-administered, and the household drop-off. Among the three, the self-administered review, also known as the mail survey method, has been the most frequently utilized by analysts in recent years. However, since the response rates to mail reviews had decreased, questionnaires are currently completed online in the form of web surveys. The advantages of this technique are that it is ideal for asking multi-selection inquiries and it is also viable for market researches; the main disadvantages are the restricted comprehension of the respondent's answers and the financial budget necessary for the reproduction of the questionnaire.

Interviews allow for a more personal and insightful examination. They are designed with the presence of two individuals - the researcher as the interviewer, and the respondent as the interviewee. Unlike questionnaires, this technique provides the researchers the possibility of asking follow-up questions to progressively analyse the responses given. Several survey methods can be used for interviews: the personal or face-to-face interview, the phone interview, and more recently, the online interview. Although this method is more time-consuming and it could be problematic to retrieve target respondents contacts (e.g. phone numbers or mail addresses), it is convenient when the aim is to correctly understand the answers.

Regarding the span of time needed to complete the survey, two categories of observational studies exist.

Cross-sectional studies (also known as transverse studies or prevalence studies) are data analyses conducted at a specific point in time. In economics, this type of observational studies typically involves the use of cross-sectional regressions, in order to identify the relationship between an independent and a dependent variable, as in a comparative study. It differs from time series analysis,

in which the behaviour of one or more economic aggregates is traced through time. Researchers benefit from collecting data from a population with cross-sectional surveys as they allow large studies to be made at little or no expense and many different variables to be compared at the same time. However, cross-sectional studies are not very versatile, as studies using data originally collected for other purposes are often unable to include data on confounding factors. Moreover, data collected do not normally provide definite information about cause-and-effect relationships, since they only give a snapshot of the sample analysed in a single moment in time without considering past or future information.

Longitudinal surveys differ considerably from the cross-section surveys. The reason for this is that, unlike cross-sectional studies, in which different individuals with the same characteristics are observed at a specific point of time, in longitudinal studies the same subjects are tracked repeatedly through several observations over a long or short period of time. Various longitudinal survey designs such as cohort studies, panel studies and trend studies can be adopted depending on the research purpose and the structure of the sample. A positive aspect of this method is that, detecting developments in the qualities of the target group, the differences observed in respondents are less likely to be the consequence of cultural differences across generations; thus, longitudinal studies make more accurate change observations that can be applied in various fields. Albeit observational longitudinal studies are considered less effective than experiments, they are more likely to suggest causal relationships than cross-sectional studies, by virtue of being able to exclude time-invariant unobserved individual differences and also of observing the temporal order of events in the data gathered. Some of the disadvantages of longitudinal study are that they are very expensive in terms of time and money and thus require a substantial budget.

2.1.1.2 Data sources

Multiple datasets collect responses to questionnaires on cultural traits. The World Values Survey[7] is the most commonly used tool for cross-country comparisons. Other surveys such as the General Social Survey, Eurobarometer, the Life in Transition Survey (LITS) and the International Social Survey Programme (ISSP) collect direct measures of values and beliefs focusing on specific regions of the world. In this section they are briefly presented.

[7] An in-depth description of the World Values Survey is provided in paragraph 2.3.

General Social Survey (GSS)

The General Social Survey is the dataset of reference in the United States. This survey is conducted by the National Opinion Research Center (NORC) at the University of Chicago, on a nationally representative sample of thousands of respondents. It was conducted almost each year from 1972 to 1993. Since 1994, the GSS continued biennially, with 3000 observations until 2004, 4500 observations in 2006, and 2000 observations in 2008 and 2010. It provides repeated cross-section observations on political and economic beliefs and various individual characteristics and contains information on a variety of socio-political indicators, as well as on demographic and income status of the respondents. Participants are randomly selected from the adult household population of the United States. The survey is conducted face-to-face with a 90 minutes in-person interview administered by NORC and sampling weights are used to adjust for differences in sampling frame across years.

According to its statute, the three fundamental functions of the General Social Survey are:

- Gathering information to screen and clarify tendencies and shifts in demography, behaviour and beliefs examining people's opinion on social matters;
- Comparing the United States to other countries to develop cross-national models of culture;
- Support academics', students' and governors' work with new and significant sociological data freely available over the internet.

The GSS structure comprises five main sections or modules[8].

1. The replicating core: questions routinely asked consisting of around 33% demographic questions and 66% attitudes and behavioural questions, typically structured in a very detailed way.
2. Topical modules: segment intended to encourage innovation in research presenting questions on new subjects not yet researched or existing topics analysed with more in-depth models.
3. Cross-national modules: collaborative research module carried out using surveys of other countries (e.g. Germany, Great Britain, Australia, Poland, Japan) to develop the International Social Survey Programme (ISSP) and examine significant social and political schemes in a relative viewpoint.

[8] Davis and Smith (1994).

4. Experiments: tests made as part of the replicating core, topical modules, and supplements. Sometimes the experiments include extra inquiries not present on the GSS, but more often they are control assessments with a different wording of the GSS's questions.
5. Re-interviews and follow-up studies: GSS respondents may be re-interviewed for an appraisal of the methods used, checking the reliability, discernment, wording and setting of the survey.

Among the papers analysed in the first chapter, the General Social Survey was successfully used as the main data source by Alesina and La Ferrara (2000) for their study on generalized trust and the relationship between group membership and community heterogeneity in the United States. Alesina and Giuliano (2011) also based their empirical research on the GSS in the investigation on the preferences for redistribution. Finally, the GSS is one of the datasets on which Giuliano and Spilimbergo (2014) based their OLS regressions to demonstrate that large macroeconomic shocks experienced during the critical years of early adulthood shape preferences for redistribution.

Eurobarometer

Eurobarometer is a survey programme conducted by the TNS Opinion network on behalf of the European Commission investigating on a series of topics relating to the EU and its member states. They ask for the opinion of Europeans on numerous topics as integration policies, institutions, social conditions, health, economy, citizenship, security, technology and the environment. Providing significant and accurate data at European level, Eurobarometer's data have been used in hundreds of publications including Guiso, Sapienza and Zingales (2009) in their study on the level of trust towards citizens of other countries in the European Union.

The structure and coverage of the programme has evolved over time. In 1962 the Press and Information Service of the European Community requested the "Attitudes towards Europe" survey, the first international inquiry (conducted in the six member countries) on views towards the unification of Europe. In 1970-71, the Commission directed other surveys in the six Community's nations to assess national preferences, and opinions on European institutional bodies (e.g. the European Economic Community). Successively, starting in 1973, polls were submitted every six months to an increasing number of member states, in line with the enlargement of the Community. In 1974 the survey programme was renamed Eurobarometer and included three more countries: Denmark, Ireland and the United Kingdom. Today, Eurobarometer incorporates all the 27 member states, but it counts some exceptions: additional samples were drawn for Great Britain and Northern Ireland, in Germany (East and West) after the re-unification in 1989 and in Cyprus, Norway has been unofficially included in few old waves, Finland started to be surveyed before the definite entry in

1993, and some surveys were performed in Switzerland on limited topics. A special series, the Candidate Countries Eurobarometer (CCEB), was carried out between 2001 and 2004 on applicant countries for the Eastern enlargement of the Union but today they are included in the standard surveys. The Eurobarometer surveys are divided in different subcategories. The most cited ones are the Standard Eurobarometer, the Special Eurobarometer and the Flash Eurobarometer. The Standard Eurobarometer is distributed twice yearly and is intended to monitor the social and political views among the European people. It also acquires insights on the support to the unification process and on familiarity with the European Union bodies and their policies, with the exception of the European Parliament, which launched its own survey programme "Parlemeter" in 2011. The standard programme is usually supplemented by questions on general socio-political opinions, on personal realization and on national and European sentiment, and each survey consists of around 1000 face-to-face interviews per country. At times, Eurobarometer surveys examined unique topics, releasing an additional module named Special Eurobarometer. It is a set of exceptional reports on specific themes (e.g. social and working conditions, science and innovation, immigration, energy, environment, health related issues) completed for different administrations of the European Commission or other EU Institutions and incorporated in the Standard Eurobarometer's waves. Starting form 1990, extra surveys on these issues are completed for each wave. Finally, the Flash Eurobarometer are phone inquiries directed on the base of the European Commission's requests. These surveys transfer the outcomes rapidly to the Commission and allow it to concentrate on specific and ad hoc topics and target groups.

Life in Transition Survey (LITS)

The Life in Transition Survey (LITS) is a survey series directed by the European Bank for Reconstruction and Development (EBRD) in collaboration with the World Bank. It collects information on respondents' living conditions and on their beliefs concerning economic, political and social themes and it counts three releases in 2006, 2010 and 2016. The Life in Transition Survey I interviewed nearly 29,000 people from 29 nations to evaluate the public opinion on the effect of economic and political policies. The sample is limited to mainly former communist regions that experienced a seriously post-socialist crisis in central Europe and central Asia, the Western Balkans and the southern and eastern Mediterranean, and the inquiries centre around preferences for different economic systems. The LITS II, published in late 2010, polled around 39,000 families coming from 34 countries located predominantly in the same regions of the first wave. The latest survey, the LITS III, surveyed households originally from "transition" nations in central and eastern Europe in 2015-2016. It is the largest round ever realized, as 51,000 family units were interviewed in 2,550 urban and

rural localities, and respondents of both genders were consulted in each household. Also, two western European comparator countries (Germany and Italy) were included for the first time. This third publication showed increasing degrees of living conditions across the former communist zones, diminishing concerns about corruption and a persistent gender inequality in the work environment. Since some of the countries investigated by the LITS shared the same former empires, Grosjean (2011) examined for his study 21 countries from the LITS I's sample in order to develop a "culture gravity model" and prove that historical heritage is crucial in developing cultural traits and can be even more significant than national borders.

International Social Survey Programme (ISSP)

The International Social Survey Programme (ISSP) is an organization founded in 1984 by four national think tanks: the GESIS in Germany, the National Opinion Research Center at the University of Chicago, the Social and Community Planning Research (SCPR) based in London and the Australian Research School of Social Sciences (RSSS). Since its foundation, the policy institutes extended to almost 60 nations conducting surveys covering useful topics for social sciences research with over one million total respondents participating in the survey sessions. The ISSP is formed by a democratically elected General assembly and several bodies that establish the basic principles and guidelines and take decisions on the inclusion of new topics. The methodological work in the ISSP is coordinated by a Methodology Committee, consisting of seven members elected at the General Meeting. This coordinates the work of six groups addressing specific areas of cross-cultural methods, all concerned with issues of equivalence: demography, non-response, weighting, mode effects, questionnaire design and translation. The ISSP researchers present questions as supplements to national surveys which are meaningful and relevant to all countries and can be expressed in an equal manner in different languages. The results of the surveys provide every year a cross-national, cross-cultural and cross-time comparison to individual national studies.

2.1.2 Epidemiological approach

A different methodology of estimating the effects of culture, holding organizations steady, is to analyse the migrants' behaviour in a goal nation. This logic is typically used in epidemiological studies, which in order to recognize the environmental effect on genes, compare outcomes for immigrants with the ones for natives[9]. For this reason, the method is also known as the

[9] See, for instance, Marmot et al. (1975).

epidemiological approach. This kind of analysis should catch vertical transmission of cultural traits and is based on running regressions where the left-hand-side variable is the result among first- or second-generation immigrants and the independent variables are some measures of cultural traits in the country of origin. By observing individuals from various nations in common institutional conditions, the evidence from these studies shows that some cultural traits travel with people when they move to a society with different institutions and preferences. Persistence of cultural traits among second-generation immigrants has been found for female labour-force participation (Alesina and Giuliano, 2010; Fernandez and Fogli, 2010), for the habit of living at home with parents (Giuliano, 2007), and for redistribution preferences (Luttmer and Singhal, 2011). These studies prove that when immigrants move to a place with peculiar institutions, their cultural values change moderately, and rarely within two generations.

Nonetheless, the epidemiological method presents some controversies. A large portion of the literature has been using second-age immigrants, who represent a more suitable sample than original migrants as unsettling issues are gradually reduced. However, although the issue of moving is moderated in second generations, it could still raise concerns. A nontrivial aspect underlined by most papers is also the self-selection bias: various groups moved for different reasons and at various occasions, henceforth individuals are considered as "self-selected" and may cause a biased sample, changing the results of the study. Furthermore, it is essential to recognize that immigrants may have suffered many cultural shocks (language difficulties, worse employment opportunities, greater vulnerability) which can deviate their traditional conduct. Also, culture is socially developed: to be replicated, the behaviour may require the necessary motivations coming from a larger social body (e.g. local community, educational system or social network). Thus, immigrants unlikely are a representative sample of their home-country's population. Their values, inclinations, and unseen differences in their economic circumstances may vary radically from the country average. Finally, the exposure of immigrants (or their descendants) to a distant culture from the one present in their nation of origin presumably reduces the latter's impact on their behaviour. These factors mentioned raise doubts about this methodology introducing a tendency towards finding culture to be irrelevant, as comparisons of behaviour or outcomes across various immigrant groups are very demanding tests of the significance of culture.

2.1.3 Experimental evidence

The third instrument to estimate the role of culture is experimental evidence. Experiments establish an extra asset to measure cultural values such as trust, in addition to the subjective measures that can

be retrieved by survey data. Moreover, they constitute an obvious methodological choice to investigate cultural differences as they can be transposed to various geographical locations and conducted with locally recruited samples. From numerous experiment sessions it has been demonstrated that when playing trust, public good, ultimatum or dictator games, individuals from various cultures respond differently.

Some drawbacks of this method are the problems with the experimental design in multinational experiments, i.e. how to control differences in languages, currencies and experimenters (Roth, Prasnikar, Okuno-Fujiwara, and Zamir, 1991). Furthermore, the prevalence of small sample sizes and the practice of conducting experiments with college students makes the control for individual characteristics difficult to the point that they may potentially differ significantly among groups. Thus, a critical issue with experiments is external legitimacy, i.e. how much evidence from games played by small groups can be generalized and deduce from them general conclusions about nations, ethnic groups, etc. Another doubt presented by scholars regards the degree of representativeness of the way of playing the games of cultural differences between different societies. Conducing a meta-analysis of 37 papers, which incorporates 75 outcomes from ultimatum game experiments, Oosterbeek, Sloof, and van de Kuilen (2004) found that differences in game results are not reflected in variations in attitudes. The authors use the World Values Survey's data to formulate a national preference score concerning the respect for authority, trust, and competition. Regressing the outcomes (e.g. the share offered and the rejection rate) on variables such as the sum proposed, the Gini coefficient and the GDP per capita they demonstrated that attitudes do not provide meaningful explanation for the variation. Although it is possible that the attitudes selected are not significant measures of cultural traits for these outcomes or that the players from the sample did not have the average attitudes of their countries, this finding suggests that the cultural interpretation of experimental results based on small samples may be irrelevant.

2.1.3.1 Ultimatum game

The ultimatum game is perhaps the most straightforward interaction game between individuals. The game is played by two players, a proposer and a responder. The proposer is given the opportunity to divide a certain sum between him/herself and the responder. The latter has two options: (1) accepting the proposal, in which case the division is implemented; or (2) refusing it, in which case the total amount is withdrawn and neither player gets anything. The equilibrium of the game occurs when the rational and self-interested proposer, who know that the responder is equally rational and self-interested and has no regard for fairness as commonly understood, proposes a sum next to nothing (a token) to the counterpart, who accepts the proposal (from which he/she can gain something) rather

than reject it, in which case the gain is zero. However, it has been demonstrated that this outcome rarely emerges in tests: token offers are hardly made, and even less often are they accepted. An extensive literature on game theory and experimental economics has developed and attempted to comprehend these findings. The main conclusion (summarized by Camerer and Thaler, 1995) is that a large number of proposers and respondents appear not to understand the dynamics of the game, i.e. they have a bounded rationality. Moreover, there is plentiful evidence that factors other than limited discernment do influence results. Cultural differences are recognized as determinant in players' choices of strategies in games by many authors. For instance, gender, familiarity with each other, and social background effectively affect proposals and responses (Frank, Gilovich, and Regan, 1993; Eckel and Grossman 1994; Roth et al. 1991; Hoffman, McCabe, and Smith 1996). Henrich et al. (2001) compare responses to ultimatum games across various tribes. They show that the average offer fluctuates systematically, from 26% to a maximum of 58%, based on the prevailing occupation of the tribe. Tribes whose essential activities require economies of scale, and thus higher level of cooperation, offer more. Similarly, ultimatum-game experiments in narrow societies have also uncovered preferences for equality over individual and group disparity in payoffs (Henrich et al., 2006). Chuah, Hoffmann, Jones, and Williams (2007) use the ultimatum game to investigate whether UK and Malaysian people show different conduct when dealing within and across their national groups. Further, interesting experimental evidence shows how differences in family relationship ties influence behaviour in ultimatum games. Barr (2004), for example, analysed two groups of villages in Zimbabwe: a group of villages consisting almost entirely of unrelated families and a benchmark group of villages composed solely by closed households. She discovered lower levels of trust in the former towns, as a result of lower connection ties. Other studies use games to link war and social motivations: Gneezy and Fessler (2012) conducted an ultimatum game before, during, and after the Israel-Hezbollah conflict demonstrating that living in a society under a continuous external risk incidentally increases the willingness of senior residents to punish non-cooperators and prize cooperation.

This easy game has been firmly criticised as its experimental design is unlikely to test what it purports to test, i.e. how a proposer would make offers knowing that the respondent has no real way to punish an ungenerous offer or to reward an abundant one. The reason is that an experiment is in truth part of a long series of experiences with others. People cannot remove themselves from their experience of ceaseless human interactions in order to hide in the fold of time provided by the experiment. In fact, critics say, proposers and respondents act rationally and self-interestedly in the repeated rounds of life (see, for example, Aumann 1990).

The case of the ultimatum game suggests a number of general lessons for economic scholars. First of all, individuals can be influenced by their own other- and process-regarding inclinations. Second, the apparent or imputed attitudes of other actors may matter as much as the own inclinations so that, in a static system with stable preferences, it is sufficient that for only a share of the population guided by moral considerations, the rest of the population finds it utility-maximizing to act in a way that resembles moral behaviour. Third, while the previous mechanism raises the chance of saving a perfectly rational *homo economicus* (Henrich et al., 2001) by crediting virtuous or caring conduct only to a few exogenous others, such an approach is incomplete and inadequate.

2.1.3.2 Dictator game

Since the 1980s a new type of experiment, the dictator game, has developed in the field of behavioural economics. The dictator game is a simple adaptation of an ultimatum game proposed by Guth, Schmittberger, and Schwartze (1982) and the first of these experiments was led by Kahneman, Knetsch, and Thaler in 1986. It is a one-stage game in which a subject (player A) decides how to allocate a sum of money between him/herself and a second subject (player B). The name of the game comes from the first player's ability to "dictate" the rules of the game without hazard. In theory, if player A is purely self-interested, he/she should keep the whole sum, sharing nothing with Player B. Nonetheless, vast research finds that subjects usually send a noticeable amount to the counterpart under different sets of experimental conditions. The results of a large and reliable collection of experimental evidences beginning with Guth et al. (1982), confirm that positive offers are frequent in dictator games. Thus, as for proposers in the ultimatum game, players A usually make much higher than equilibrium offers, and substantial positive offers are often refused.

The aim of the game is to measure perceptions of fairness and reciprocity in resource distribution, but it is also widely used to examine altruistic behaviour and the factors that generate this cultural trait. For example, Haley and Fessler (2005) find that individuals' generosity increases when they are given a basic visual signal (e.g. a stylized eyespot on the screen) that reminds them of the possibility of being watched. Whitt and Wilson (2007), using five distinct designs of dictator games, researched the impact of an exceptional event as that of a war on cultural traits of generosity, individualism and collectivism. Another relevant element is represented by social distance. Goeree et al. (2008) and Leider et al. (2007) show that the more distant agents are from each other, the less generous is the offer. Also, it has been repeatedly proven that, on average, individuals from different social groups play different strategies in these kind of games (Henrich et al., 2001).

2.2 Differences in measurement approach

Table 2 – Measurement tools of national cultures

Method	General description	Advantages	Disadvantages
Survey data	Questionnaires or interviews with questions on several fields of life to test beliefs, preferences and cultural values	Vast coverage Easiness of analysis Accessibility Integration opportunities	Reverse causality effect Recall bias
Epidemiological approach	Evidences from second-generation immigrants in a benchmark country	Identification of persistent and vertically transmitted cultural traits	Unsettling issues affecting result Self-selection bias Low representativeness of the country of origin's culture
Experiments	Game sessions played by randomly selected participants from a sample (mainly ultimatum and dictator games)	Adaptability to various geographical locations and local samples	Design issues in multinational experiments Small sample sizes External legitimacy Dubious cultural interpretation

2.3 World Values Survey data: from 1981 to 2020

The World Values Survey (WVS) is a cross-country study project carried out for almost 30 years, whose database is public and freely accessible online. Originally, it was developed on the basis of the first European Values Study (EVS) in 1981, instituted by Tilburg University in the Netherlands. Its original purpose was to test the idea that economy and innovation are changing the fundamental attitudes and values in first-world nations. In doing so, the researchers designed questionnaires about demographics (gender, age, education), self-reported economic conditions (salary, income class), and explicit inquiries regarding religion, political preferences and attitudes. The first poll was to a great extent confined to industrialized countries, but interest in this programme expanded rapidly from the

Netherlands and surveys were carried out in more than twenty countries from all continents. Today the network incorporates several global researchers from over 100 nations who produced in total more than 300 publications in 20 languages, and secondary users have developed thousands additional reviews.

2.3.1 Waves

Since 1981 the WVS has completed six waves of polls, providing the most comprehensive analysis of the cultural attitudes worldwide. Each wave has representative national studies of the basic values and beliefs of individuals in a large panel of countries. The national coverage varies by wave. Due to the European origin of the project, the early waves of the WVS were Eurocentric in emphasis, with little representation of Africa and South-East Asia. The 1981–84 wave covered 24 countries presenting evidences for intergenerational shifts in cultural traits. The values of younger generations varied considerably from those predominant among older ones, especially in countries that had experienced rapid economic expansion. To test whether changes in values were actually occurring and to analyse the underlying motives, a second WVS wave was conducted between 1990 and 1994 including 20 additional countries. Since changes seemed to be connected with economic and technological development, it was crucial to open the survey to nations over the whole development spectrum, from low-income to rich societies. The third, fourth and fifth waves (1995–98, 1999–2004, 2005–09) examined, respectively, 55, 65 and 57 countries. The expansion was realised with the spread of a decentralised structure, according to which worldwide researchers engaged in the structure, execution and analysis of the data, and in publication of findings. The key goal was to get better coverage of African and Islamic societies, which had been under-represented in previous surveys. In exchange for providing the results of the polls in their own countries, each group of scholars acquired prompt access to data from every single partaking society, enabling them to develop more extensive and far-reaching analyses on social change. Using the same mechanism, the sixth wave's data covered 60 countries around the world during the 2010-14 period and more than 85,000 respondents completed the questionnaire. This is the latest resource available for the research community, as the current seventh WVS wave, which will cover 80 countries, is now in progress and will be released in July 2020.

2.3.2 Methodology

The World Values Survey collects information interviewing representative national samples randomly selected from the entire adult population (18 years and older) of the participating countries. The minimum sample is 1000 individuals, and in most countries no upper age limit is imposed. Respondents are drawn from census and electoral or national registers based on differences in location, income and social statistics, and in most countries the size and degree of urbanization of the Primary Sampling Unit (PSU) are taken into account. For each wave, a final survey form is developed in English starting from questions requested by social scientists worldwide. The poll is then interpreted and accurately adapted into different national versions. Some tests are conducted on the translated questionnaires to distinguish inquiries that investigate subjects of interest from avoidable ones. Following this logic, each wave is made up of questions that are increasingly relevant and useful for research, while the superfluous or problematic ones are discarded and excluded from national surveys making room for better questions.

Once the sampling and the survey design are completed, the data are finally collected. This process is realized through face-to-face or phone interviews carried out by professional agencies during a limited timeframe decided by the WVS Executive Committee. Every country nominates a scholar (Principal Investigator) responsible for the data collection stage, who supervises that the survey is conducted in accordance with the predetermined rules and procedures. Subsequently, a report is drawn up by the agency, which performs uniformity tests and checks the alignment between the structure of the sample and the results obtained. After a rigorous cleaning of the data, full documentation is delivered to WVS, comprehensive of the data set and country-specific information (e.g. significant political and social events occurred during the wave timespan).

The data analysis is the last step before publishing the wave. Leading social scientists, recruited from each of the states studied, participate to the WVS network and provide various interpretations of the survey outcomes. Coming from a wide range of cultures, they have different perspectives and develop distinct insights on the findings. This combination of ideas helps spreading diverse sociology methods to new nations, as each research team contributing to the survey analyses the findings according to its hypotheses. Since all analysts acquire information from all the samples interviewed, they are also able to compare the cultural traits of the individuals of their country with the scores of other societies and hence test alternative hypotheses. In addition, the participants are invited to international meetings where they can compare findings and interpretations with other members of the WVS network. The results are then promulgated through international conferences and joint publications.

2.3.3 Drawbacks

A criticism to the World Values Survey is that its questions do not contain any information on family background (e.g. family income, parental level of education) and ethnicity, which is only registered through interviewer's observation. Researchers are thus not able to use these control variables in their analyses (Giuliano and Spilimbergo, 2014). There can also be doubts on the fact that the WVS has no data on individuals' expenditures and savings; hence it is not possible to test whether the preferences over thriftiness education influence individual savings decisions directly (Guiso, Sapienza and Zingales, 2006). But the strongest critique focuses on the questions section on trust. About that, one possible limitation of the WVS questions is that with their answers, people can only state whether they trust or not, but cannot communicate the intensity of their belief. Other surveys allow for a wider spectrum of answers: for instance, the recently constructed US trust index (Sapienza and Zingales, 2009) is based on the WVS questions, but allows people to answer on a scale between 1 ("I do not trust them at all") and 5 ("I trust them completely"), and the European Social Survey considers an even more accurate scale between 0 (no trust at all) and 10 (complete trust). Intensity of beliefs is a pertinent indicator of the attitudes' distribution volume within a society and thus provide an insight on the level of homogeneity in a specific community. In late studies, it is also becoming increasingly common to ask trust questions that better express people's assessment about the probability of being cheated by an unknown person. For instance, the Mexican Family Life Survey and the Dutch National Bank Household survey (DNB survey) ask probabilistic trust questions that leverage comparability of the answers both across individuals and social groups and, since their wording refers to an explicit event (such as returning a lost wallet), avoids the ambiguity of the questions asked in the WVS. These models may spread the idea that the WVS provides poor measures of trust beliefs and rather reflect a mix of beliefs about others trustworthiness and individual preferences (Fehr, 2009). Actual trust behaviour, estimated for example by the amount of cash a person would loan to an anonymous opponent, clearly depends both on the belief the lender has about the borrower's reliability just as on the lender's willingness to bear the hazard that the borrower does not repay. In this case, "social risk", i.e. the risk that a loss is caused by another person rather than nature, depends on betrayal aversion (Bohnet and Zeckhauser, 2004), that is the dislike for the risk of being cheated, not risk aversion. Bohnet et al. (2008), collecting evidence from six countries (Brazil, United States, China, Turkey, Switzerland and Oman), found that that risk and betrayal preferences do differ. These evidences suggest that when structuring questionnaires on trust beliefs, wording should be such that it is clear to the respondent what and how much one is concerned about. On such point, probability questions of the sort asked in the DNB or Mexican might be more appropriate.

2.3.4 Consolidated relevance

Despite the above-mentioned critical issues, the work of the World Values Survey has continued uninterruptedly for many decades. It is considered to be the most stable source of data, used by researchers around the world for social science studies. The reason for this is the WVS's waves significant advantage in the number of nations overviewed. Because of its broad geographical coverage, and its long tradition, the WVS has been widely used in the social capital literature and frequently cited as a reference for other surveys that aim to collect information on values and beliefs. Its consolidated mechanisms and rules guarantee accuracy and reliability. Each publication is repeatedly revised in detail by members of the organization and updating and integration of data are constantly released. All procedures follow standards of maximum transparency: for each wave data are provided in four different formats (R, Sas, Spss, Stata) with attached versions of the interview forms and their related codebook. Moreover, the WVS files allow for the data to be divided into respondents' sub-regions or cities (e.g. the United States' 12 geographic areas). These regions are usually administrative districts, albeit other principles have been occasionally followed. The use of in-country examination also allows to control for country fixed effects, omitting the impact of other institutional factors. As for the critique to the trust questions section, efficacy of the WVS in measuring trust levels was proved. Asking to the same sample the WVS inquiry and a control question, it has been found that the WVS captures without errors beliefs about the trustworthiness of fellow citizens. For instance, in one of the modules of the 2003 Dutch National Bank Household survey (DNB survey), a sample of 1,990 people were asked both the WVS query and a question that maps trust into the probability that a generic person behaves honestly, allowing for a clear interpretation and a simple estimate of trust beliefs. Answers to this question were positively correlated with the WVS question, suggesting the goodness of the method used by the WVS.
For these reasons and its easiness of accessibility, in the next chapter dedicated to empirical evidence and statistical regression, the reference data will be taken from the most recent wave published by the World Values Survey.

Chapter 3: Empirical analysis on world's national cultures

3.1 Introduction

In an increasingly interconnected world, knowing the peculiar traits of other national cultures is of paramount importance. The trade levels of some of the wealthiest nations have skyrocketed in the last twenty years. The overall aggregate of exports at least doubled in five of these countries[10]. In Italy and the United States, for example, the overall world exports counted respectively $ 242 billion and $ 680 billion in 1998, while in the last measurement available (2018) they reached $549 billion and $1,665 billion. These data even tripled in the case of Germany (from 543 to 1,562 billion) and they increased 13-fold in China, going from just 183 billion in 1998 to nearly 2.5 trillion in 2018. These numbers have significant effects both on people's lives and on the world's political and economic balances. The acceleration in globalization has led to a strong increase in trade flows, which in turn is reflected in the intense personal and institutional relations across nations. In this context, social scientists have recognized the need to deepen the study of national cultures, and in recent decades have disseminated plenty of knowledge about cultural diversity. The literature has certainly helped to understand the factors that caused this heterogeneity, and to relate more effectively to other societies (e.g. Lewis, 2005). However, familiarity with foreign cultural traits, aiming at promoting economic transactions and the migration of people between countries, is not the only significant factor that has driven the development of the subject. As mentioned in the first chapter, modern definitions of culture originated in the second half of the nineteenth century, but concepts similar to those of culture had already been developed in antiquity. In particular, the Latin term *humanitas* indicated the subjective wealth of knowledge and ethical values that characterized individuals. This concept was later taken up and refined by the great philosophers of the seventeenth century such as Bacon, Pufendorf, Leibniz and Kant. It underwent the definitive transition from the "subjective" meaning to its modern and "objective" historical-social meaning during the Enlightenment. This explains how the attention towards the set of values shared by a society has always been inherent in man, since well before the phenomenon of globalization. Based on this, recent publications have combined this curiosity with the interest in the geographical differences between cultural traits, developing the matter of national cultures.

[10] Data retrieved from the World Integrated Trade Solution (WITS) of the World Bank, www.wits.worldbank.org

One of the most analysed cultural traits in literature is social capital. Interpersonal relationships and network dynamics have often been at the centre of social studies. This cultural variable is made up of four key features: cooperation, participation, social interaction and trust (Alesina and Giuliano, 2013). The latter was examined among others by Guiso, Sapienza and Zingales (2009), who discovered the tendency of historical and cultural variables (e.g. geographical distance, language, religion and legal systems) to influence trust in people from other European countries. Participation in civil associations and local organizations has also been the subject of some academic papers. In most of the surveys on cultural values questions that refer to the membership of unions or circles of shared interest are asked. These studies have brought to light, among other discoveries, a significant negative relationship between associations and heterogeneity of belonging communities (Alesina and La Ferrara, 2000). In the recent past, a topic of particular interest has also been the very concept of national culture. The stability over time of the typical traits of several cultures was investigated (Matei and Abrudan, 2018). In addition, social scientists looked at the similarity and the differences between cultures developed within national borders, with sometimes conflicting results[11]. Furthermore, a great deal of research has been carried out on individuals' preferences for social issues such as equality, welfare, redistribution of wealth and on the causes determining their different beliefs (Alesina and Giuliano, 2011; Alesina and Glaeser, 2004). Following a historical approach, the connections between exogenous shocks and cultural traits at national level were discovered. In this case, some scholars argue that external events seem to have not altered the pre-existing values (Whitt and Wilson, 2007), while for others the experience of unexpected episodes or extraordinary circumstances reshapes the beliefs in many socio-economic aspects. Finally, a recurring theme is the relationship between culture and economic results. In this sense, literature is almost in agreement in detecting a strong influence of the cultural traits of various nations on the current macroeconomic trends (Tabellini, 2010) and on the functioning of instruments and economic institutions, such as the stock market (Guiso, Sapienza and Zingales, 2004).

However, among the cultural factors concerning past research, some important traits have often been overlooked. Topics such as environmentalism, women's labour force participation and the civil rights of minorities (e.g. homosexual people, immigrants) have recently attracted particular international interest and deserve to be adequately explored. Furthermore, the authors expressed little attention in carrying out a cross-country analysis for a broad and far-reaching comparison between nations, in order to highlight the factors determining national differences (e.g. religion, historical events, personal characteristics, institutions).

[11] See Minkov and Hofstede (2012) and Grosjean (2011)

The goal of this chapter is to study the influential factors that contributed to root different or new values in national cultures. Through regression analysis I will try to confirm or raise doubts about the theses and ideas discussed in previous literature. The focus will be extended to rarely mentioned covariates and countries not yet comprehensively analysed. A fixed panel of 10 countries (China, Germany, India, Libya, Japan, Mexico, Netherlands, Russia, South Africa and United States) will be taken as a reference for the study, and the related data will be extrapolated from the last wave (2010-2014) released by the World Values Survey.
Section 3.2 describes the data selection. In section 3.3 the methods for the data analysis are presented, with a detailed scheme on the independent variables and the covariates. This is followed by section 3.4, which focuses on the main research findings. Finally, the results are discussed in paragraph 3.5, where the limitations of the study and the recommendations for future researches are given.

3.2 Data

Following the method used by the majority of papers on national cultures, this research relies on secondary data. Despite the main disadvantages that this method entails (outdated data, divergent purposes, non-specific information), it has been previously demonstrated[12] that data from international surveys conducted by authoritative research centres are particularly reliable. They clearly have an advantage in terms of external legitimacy towards the experiments, defining on average a much larger and more varied sample. The epidemiological approach is also discarded due to the lack of representativeness and the difficulty in obtaining data from a large number of migrants' nationalities.

3.2.1 Data sources

Data for this research are obtained from the latest available World Values Survey's datasets retrieved from the organization's website[13]. In light of the observed characteristics of the various data collectors[14], it seems appropriate for this research to use the data provided by this survey's wave, as it presents complete and continuous information over time on a vast sample of countries.
In the following paragraphs (i.e. sections 3.2.1 and 3.2.2), the data collection period and the selected samples are discussed.

[12] See paragraphs 2.1 and 2.2
[13] World Values Survey's website: www.worldvaluessurvey.org
[14] See paragraphs 2.1 and 2.3.

3.2.2 Timeframe and samples

The sixth wave of the World Values Survey was conducted over a 4-years period, from 2010 to 2014, with Haiti's only late inclusion in 2016. Although more recent data exist on the measurement of cultural traits, they are often geographically bounded and refer to distinct research centres. It was therefore preferred to use harmonized information, which derive from questions of the same original form and do not present traceable deviations attributable to the differences in the collection process. The time frame for publication spanned four years (with the aforesaid exception), during which the answers were collected at different times depending on the reference country. In 17 of the participating countries, interviews were run in 2011, and in 2012 as many as 19 countries released their results. Subsequently, a further 19 registrations are dated in the 2013-14 biennium, while only 4 observations were registered in 2010.

World's economic conditions differed greatly in these years. Overall, almost all countries suffered from the consequences of the 2008 financial crisis, which spread worldwide. However, while some countries were in a phase of economic recovery (e.g. the United States), others, especially in Europe, suffered from severe economic imbalances caused by debt crises. Among the 60 countries, Spain and Cyprus have experienced severe economic recessions, resorting to interventions in support of national finances by the European institutions. Many other nations have faced dramatic events over this period of time. The Arab Spring has certainly upset the social balances of North Africa and the Middle East and has affected several members of the WVS panel including Jordan, Lebanon and Morocco, and more severely, Iraq, Yemen, Egypt, Tunisia, Algeria and Libya, where the 2011 civil war and the subsequent NATO's military intervention changed the country's political structure. These events may have influenced the results of the surveys, especially in the research area of trust in governments, foreigners and political institutions.

The set of countries examined in the current dissertation was selected based on the respondents' sample size of each country, the estimated error reported in the official WVS results and the heterogeneity in geographical distribution. From this cross-analysis, 10 countries were found to have the most reliable and representative samples. These are: China, Germany, India, Japan, Libya, Mexico, Netherlands, Russia, South Africa and the United States. Brief presentations on data collection and sample selection for each of these countries can be found in the Appendix. In order to validate the obtained results, a subsequent analysis on a sample extended to all the countries involved in wave 6 of the WVS was conducted.

3.3 Methodology

The present research might best be described as theory elaboration. As defined by Lee, Mitchell & Sablynski (1999), theory elaboration is the process of conceptualizing and executing empirical research using pre-existing conceptual ideas or a starter model as a basis for finding new theoretical insights. This requires specifying constructs, relations, and processes at the theoretical level and assessing the fit of those relations empirically. This dual process encourages associations within and between the conceptual and empirical planes, thereby supporting "a logic of discovery rather than only a logic of validation" (Van Maanen et al., 2007).

Theory elaboration entails contrasting, specifying, or structuring hypotheses as operative tactics (Fisher & Aguinis, 2017). Contrasting facilitates comparisons across settings of examination to assess how relations apply in conditions different from those in which they were initially developed. It can take the form of horizontal contrasting, if the observations are processed in different contexts (e.g. different geographical areas, sectors, organizations), or vertical contrasting, if the comparison of a theory developed to explain a phenomenon is applied to different levels of analysis (frequent in managerial research). Specification creates clearer, increasingly valuable constructs and a better understanding of the nature of relations involving those concepts. In this case, it is possible to advance the theory by identifying and revealing constructs that have not been fully investigated in prior literature (new specifications) or to divide an existing hypothesis into several sub-parts to provide a more detailed framework (construct splitting). Structuring is a technique in which theoretical relations are advanced with the goal of precisely depict and clarify empirical observations. This supports the aim of organizational and management research, i.e. "to provisionally order, explain, and predict, observable social processes and structures that characterize behaviour in and of organizations" (Van Maanen et al., 2007, p. 1145). It may focus on determining unidentified and specific relations, on providing an explanation of a sequence of events or relations, or account for recursive interactions between different entities.

Thus, theory elaboration requires researchers to be familiar with the existing studies and that analyses are designed and conducted to purposely expand what has been done before. This dissertation is in line with the definition of theory elaboration, as it elaborates theoretical links not previously addressed in the literature and examines theories' application across other settings. For example, previous studies on national culture have often targeted limited geographical areas, reducing the international application of their findings, or have not adequately distinguished their investigations between different countries, resulting in the apparent contradictory findings described in the previous

sections[15]. This chapter represents an attempt to "simplify, reconnect and redirect theory"[16] on national cultures.

Descriptions of the dependent and independent variables, including their range of variation, are given in section 3.3.1.

3.3.1 Dependent variables

The theory previously examined in the literature has been elaborated through the analysis of four main cultural traits, whose values have been used as the outcome variables of the research. They are participation in voluntary organizations and associations, trust in other people (social trust), preferences for redistribution and environmentalism.

3.3.1.1 Social participation

Data for the regressions on participation are taken from the World Values Survey's question on voluntary organizations' membership (V25-35). It refers to the respondents' membership in organizations such as political groups, religious groups, unions, school associations, service groups, fraternities, sports and hobby clubs, etc. The structure of the question is as follows: "Now I am going to read off a list of voluntary organizations. For each organization, could you tell me whether you are an active member, an inactive member or not a member of that type of organization?". The answers to these questions are used to construct the dependent variable. Specifically, for each country in the panel, the respondents who self-declared as active or inactive members of one of the organizations mentioned were considered participant. Once the number of members was measured, the participation rate on the whole sample was calculated. This percentage is used as the explained variable in the regressions in order to verify any correlation with the selected covariates. This method was previously adopted by Alesina and La Ferrara (2000), who built their dependent variable on the homologous application of the General Social Survey to analyse participation in heterogeneous communities in the United States.

Now I am going to read off a list of voluntary organizations. For each organization, could you tell me whether you are an active member, an inactive member or not a member of that type of organization?			
	Active member	Inactive member	Don't belong
V25. Church or religious organization	2	1	0

[15] See paragraph 1.3.2.
[16] Lee, Mitchell & Sablynski (1999).

V26. Sport or recreational organization	2	1	0
V27. Art, music or educational organization	2	1	0
V28. Labor Union	2	1	0
V29. Political party	2	1	0
V30. Environmental organization	2	1	0
V31. Professional association	2	1	0
V32. Humanitarian or charitable organization	2	1	0
V33. Consumer organization	2	1	0
V34. Self-help group, mutual aid group	2	1	0
V35. Other organization	2	1	0

Voluntary organizations' participation question. Source: WVS

3.3.1.2 Social trust

For social trust, the following question from the World Values Survey is used: "I 'd like to ask you how much you trust people from various groups. Could you tell me for each whether you trust people from this group completely, somewhat, not very much or not at all?".

I 'd like to ask you how much you trust people from various groups. Could you tell me for each whether you trust people from this group completely, somewhat, not very much or not at all?				
	Trust completely	Trust somewhat	Do not trust very much	Do not trust at all
V102. Your family	1	2	3	4
V103. Your neighborhood	1	2	3	4
V104. People you know personally	1	2	3	4
V105. People you meet for the first time	1	2	3	4
V106. People of another religion	1	2	3	4
V107. People of another nationality	1	2	3	4

Social trust question. Source: WVS

It is similar to the Eurobarometer's: "I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust, or no trust at all". In this case, the question used by Guiso, Sapienza and

Zingales (2009) aimed at measuring the level of people's trust in citizens from other European countries. Although Glaeser et al. (2000) raise doubts on the validity of the WVS trust question, by showing that it is not correlated with the sender's behaviour in the standard trust game (Berg, Dickhaut, and McCabe 1995), other scholars rejected this criticism. Sapienza, Toldra, and Zingales (2007) argue that the sender's behaviour in the trust game is not a good measure of trust, because it is affected by the expectations about the receiver's behaviour. They show that the WVS trust question as well as other similar trust questions are strongly correlated with these expectations. Furthermore, in a sample of Dutch households, Guiso, Sapienza, and Zingales (2008) find a correlation between the answer to the WVS question on trust and the decision to invest in equity, which is intrinsically considered an act of trust. Thus, it can be recognized some external validity to this survey-based measure.

For the construction of the predicted variable, the national averages of people's trust in each of the categories mentioned were first measured, excluding the omitted answers. Subsequently, the average of all trust levels was calculated, in order to have a confidence index between 1 (complete trust) and 4 (do not trust at all). Finally, the index was converted into a scale from 0 (minimum trust) to 100 (maximum trust), in order to compare the selected countries and regress the variables.

3.3.1.3 Redistribution preferences

The preferences for government redistribution is assessed through the following question from the World Values Survey: "Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between". The statement in exam is: 'Incomes should be made more equal (1)' vs. 'We need larger income differences as incentives for individual effort (10)'. Also in these case, after averaging the answers to the question, a redistribution index between 0 (preference for difference in incomes) and 100 (preference for equality in incomes) is measured at the national level. This is the same variable and the closest question to the General Social Survey's used by many other authors in literature for the measurement of the redistribution preferences[17]. This question also has the largest historical coverage, since it has been asked in the last five waves.

> Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between.

17 See, for instance, Alesina and La Ferrara (2005), Alesina and Giuliano (2011) and Giuliano and Spilimbergo (2014).

V96.	Incomes should be made more equal									We need larger income differences as incentives for individual effort
	1	2	3	4	5	6	7	8	9	10

Question on preferences for redistribution. Source: WVS

3.3.1.4 Environmentalism

In order to formulate a new specification, the degree of sensitivity towards the theme of environmentalism has been measured. The variable is calculated with the answers to the question that focuses most on this value: "Now I will briefly describe some people. Using this card, would you please indicate for each description whether that person is very much like you, like you, somewhat like you, not like you, or not at all like you? 'Looking after the environment is important to this person; to care for nature and save life resources'".

Now I will briefly describe some people. Using this card, would you please indicate for each description whether that person is very much like you, like you, somewhat like you, not like you, or not at all like you?

	Very much like me	Like me	Some-what like me	A little like me	Not like me	Not at all like me
V78. Looking after the environment is important to this person; to care for nature and save life resources.	1	2	3	4	5	6

Environmentalism question. Source: WVS

This question, developed by professor Shalom H. Schwartz, is part of a survey's section that examines the respondents' values, asking them to give judgment on other hypothetical people's attitudes. Although this specific question was included in the questionnaire only in the fifth wave, questions about the environment protection and participation in ecological associations have been asked by the WVS since the first release in 1981.

The process of development of the environment variable followed the same method of the other response variables. In each country the average values have been calculated and the scale has been reversed in order to have increasing levels of environmentalism as the variable grows.

3.3.2 Covariates

Following are some comments and a description of the explanatory variables used.

3.3.2.1 Religion

One obvious variable to consider is that related to religion. A response belonging to the questions section of the WVS on the respondents' moral values was used as measure of people's religiosity. The questions ask: "Do you belong to a religion or religious denomination? If yes, which one?".

V144. Do you belong to a religion or religious denomination? If yes, which one?		
No:	do not belong to a denomination	0
Yes:	Roman Catholic	1
	Protestant	2
	Orthodox	3
	Jew	4
	Muslim	5
	Hindu	6
	Buddhist	7
	Other (write in): _____	8

Question on religion. Source: WVS

Since questions like religion concern the quality of people, the data are more qualitative (sometimes with yes or no answers) than quantitative, and therefore the constructed variables take only a limited range of values. In order to process the regressions, the percentage of people belonging to at least one religion was calculated for each country. The data were grouped into 9 main religious denominations: Catholicism, Protestantism, Orthodoxy, Islam, Judaism, Buddhism, Hinduism, African Church and Other religions. In addition, the percentages of people belonging to no religion and the percentage of omitted responses were calculated. The regressions were subsequently conducted considering three main covariates: percentage of religious people, percentage of non-religious people and percentage of Roman Catholics (as it is the only religion for which there are registrations in all the countries analysed).

3.3.2.2 Personal history

The origins of the respondents can also be relevant factors, as the family structure can strengthen attitudes and beliefs. In particular, the survey asks if the person interviewed has immigrant parents, is him/herself an immigrant and if he/she has the citizenship of the country in question.

Are your mother and father immigrants to this country or not? Please, indicate separately for each of them.

	Immigrant	Not an immigrant
V243. Mother	1	2
V244. Father	1	2

V245. Where you born in this country or are you an immigrant?

1 I am born in this country.

2 I am an immigrant to this country.

V246. Are you a citizen of this country?

1 Yes, I am a citizen of this country.

2 No, I am not a citizen of this country.

Questions on family origins. Source: WVS

The data were aggregated, measuring the percentages of second-generation immigrants, original immigrants and citizens in the national sample considered.

3.3.2.3 Personal characteristics

Among the covariates it is also necessary to include the personal and demographic characteristics of the sample interviewed. The aim is to find out if any relationships exist between them and the cultural traits studied as dependent variables.

Gender

Data on the gender of respondents are derived from the interviewer's observations. In almost all countries, the percentages of male and female respondents are around 50%.

V240. (Code respondent’s sex by observation):

1 Male

2 Female

Observation on gender. Source: WVS

Age

The age of the interviewees is asked both indirectly, i.e. the year of birth, and directly, i.e. the number of years. The average age of the survey's sample was measured for each country.

V241. Can you tell me your year of birth, please? 19____ (write in last two digits)
V242. This means you are ____ years old (write in age in two digits).

Age questions. Source: WVS

Ethnicity

The ethnicity of the respondents is registered through observation. The main ethnic groups are: White/Caucasian, Black, South Asian (e.g. Indian), East Asian (e.g. Chinese), Arabic, Mixed.

V254. (Code ethnic group by observation):	
1	White / Caucasian
2	Black
3	South Asian (Indian, Pakistani, etc.)
4	East Asian (Chinese, Japanese, etc.)
5	Arabic
6	Mixed

Observation on ethnicity. Source: WVS

Ethnicity data were recorded nationally on the selected sample. The percentage of each ethnic group and the level of racial fragmentation was determined in each country. This index was derived from the formula used by Alesina and La Ferrara (2000), and is equal to:

$$\text{Ethnic fragmentation index} = 1 - \sum_k s_{ki}^2$$

where i represents the countries in the panel and k the aforementioned ethnic groups.

Income

The indication of income is entrusted to the personal perception of people. Each interviewee is invited to select an income class (from 1 to 10) that better represents their household's financial situation in relation to their country.

V239. On this card is an income scale on which 1 indicates the lowest income group and 10 the highest income group in your country. We would like to know in what group your household is. Please, specify the appropriate number, counting all wages, salaries, pensions and other incomes that come in.

Lowest group									Highest group
1	2	3	4	5	6	7	8	9	10

Income question. Source: WVS

An average of the income was measured to record the national average level of declared income on this scale.

3.3.2.4 Shocks and living conditions

Another possibly important explanatory variable is the experience of shocks or challenging living conditions from a social point of view. The questions that refer to this variable are three. The first two explicitly deal with the danger of the respondent's area of residence. The third, on the other hand, investigates the level of concern regarding some individual and collective situations that could put the interviewee's living conditions at risk.

How frequently do the following things occur in your neighborhood?

	Very frequently	Quite frequently	Not frequently	Not at all frequently	DK/NA
V171. Robberies	1	2	3	4	-1
V172. Alcohol consumption in the streets	1	2	3	4	-1
V173. Police or military interfere with people's private life	1	2	3	4	-1
V174. Racist behavior	1	2	3	4	-1
V174. Drug sale in streets	1	2	3	4	-1

V179. Have you been the victim of a crime during the past year?

V180. And what about your immediate family - has someone in your family been the victim of a crime during the last year?

	V179. Respondent	V180. Family
Yes	1	1
No	2	2
DK/NA	-1	-1

To what degree are you worried about the following situations?

	Very much	A good deal	Not much	Not at all	DK/NA
V181. Losing my job or not finding a job	1	2	3	4	-1
V182. Not being able to give my children a good education	1	2	3	4	-1
V183. A war involving my country	1	2	3	4	-1
V184. A terrorist attack	1	2	3	4	-1
V185. A civil war	1	2	3	4	-1
V186. Government wire-tapping or reading my mail or email	1	2	3	4	-1

Questions on living conditions and shocks

Some assumptions have been made for the data analysis. First of all, neighbourhoods where respondents declared observing very or rather frequently robberies, alcohol consumption on the street, military interventions, racist behaviour, drug trafficking or at least one of these, were considered dangerous, while neighbourhoods where these events do not happen were registered as quiet neighbourhoods. The percentage of dangerous and quiet neighbourhoods was therefore calculated on the national sample. As regards crime, respondents were classified on the basis of having suffered a crime directly or indirectly (at family level) in the last year. A crime rate was subsequently calculated by dividing the number of people who suffered a crime by the whole sample. Finally, the respondents were divided into people with good or bad social conditions. In this case, the respondents who declared that they were at least a good deal worried about the situations mentioned were classified in bad conditions, while the remaining ones were in good conditions.

3.3.2.5 Political preferences

Political preferences are also critical variables that affect cultural values. The World Values Survey requires respondents to indicate their political tendencies on a scale from (1, left) to (10, right). In addition, the results to the question on the preferred political system for national government are also analysed.

V95. In political matters, people talk of "the left" and "the right." How would you place your views on this scale, generally speaking?

Left									Right
1	2	3	4	5	6	7	8	9	10

I'm going to describe various types of political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing this country?

	Very good	Fairly good	Fairly bad	Very bad
V127. Having a strong leader who does not have to bother with parliament and elections	1	2	3	4
V128. Having experts, not government, make decisions according to what they think is best for the country	1	2	3	4
V129. Having the army rule	1	2	3	4
V130. Having a democratic political system	1	2	3	4

Questions on political preferences. Source: WVS

In order to measure the correlation with the predicted variables, the average level of political preference and the percentage of people considering the democratic form of government to be fairly or very good were estimated.

3.3.3 Analysis method

In order to validate results through a robust examination, the WVS data underwent three stages of analysis with different methods and sample sizes. The first analysis was conducted through linear regressions on the 10 selected countries using the Excel software's data analysis tool. Linear regression is the most used method in the literature to identify the relationships between predictor (x) and responsive (y) variables. The data were graphically represented using scatter plots and for each dependent variable (social participation, social trust, redistributive preferences and

environmentalism) the line that best predicts the relationship with the selected covariates has been drawn. The coefficients and intercepts of the lines and the values of R (correlation coefficient), R_2 (determination coefficient) and the standard error were then measured. Statistical significance has been examined through a statistical hypothesis test with the observation of the p-value. In the event that this value is less than $\alpha = 5\%$, the relationship between variables is considered significant. The second analysis is focused on the investigation of possible association between the variable Environmentalism (retrieved from the answer to the question V81) and other categorical variables. These variables are religion, gender, age, income, neighbourhood conditions, political preferences and social participation. Data are retrieved from the last wave of WVS (6), which cover the timeframe 2010-2014 and the countries in the panel analysed are the same 10 of the first study. The method used is the construction of contingency tables with the variable environmentalism and the explanatory variable chosen. The tables were built for each country in the sample as well as for the entire pool of selected countries, to provide an aggregate result. All the observations in the national samples were used to display the multivariate frequency distribution of the variables, except for the missing data. For each analysis the odds ratio (only for 2x2 tables), the Chi-square and the Cramer's V (or φ coefficient) are measured. The results were classified according to the following: NO ASSOCIATION if V (or φ) is < 0.1; LOW ASSOCIATION if V (or φ) is > 0.1 and < 0.3; MODERATE ASSOCIATION if V (or φ) is > 0.3 and < 0.5; HIGH ASSOCIATION if V (or fi) is > 0.5. The third analysis session investigates the relationships between the previously described dependent variables and independent variables on the basis of the results of the first data analysis (or preliminary analysis). As well as for the other two analyses, also in this case data are retrieved from the last wave of WVS (6), which cover the timeframe 2010-2014. Based on the statistically relevant results emerged in the first data analysis, the panel of countries is enlarged to all the countries in wave 6 of WVS (60 countries). Using the online analysis tool on the WVS website, the national averages of the variable values are estimated. The relations analysed are: Environmentalism - Age, Environmentalism - Gender, Environmentalism - Religion, Environmentalism - Political preferences, Environmentalism - Social participation, Participation - Ethnic fragmentation, Participation - Income fragmentation, Participation - Second generation immigrants, Social trust – income. All the observations in the national samples are used to measure the national averages, except for the missing data. The method used is the linear regression analysis between dependent and independent variables. Results are considered statistically relevant if the p-value is lower than 5%. In this analysis, I included in the regressions the GDP per capita of the individual countries to carry out a multivariate regression that also included the economic variable. Subsequently, I calculated the average index of the various variables (e.g. environmentalism - religion) thanks to the weights as a percentage of the total of the

respondents of each country on the entire sample. Finally, I represented this "middle" point in the graph. I tried to create a single national results dataset, but it was not possible. The results of all countries are divided into 60 different Excel files and it would have been very time-consuming the aggregation of a large amount of data with the following cleaning and analysis process. Unfortunately, the analysis tool provided by the WVS does not provide the possibility to aggregate the data but only to compare the results at the country level. Furthermore, regressions with individual observations, as I explained in the research limitations, are problematic due to their qualitative nature. For example, by aggregating the data of individual countries, the regression between participation and ethnic fragmentation would still require the aggregation of data in countries, as it is not possible to observe the index of ethnic fragmentation at the level of individual observation.

3.4 Results and analyses

3.4.1 First data analysis

Table 3 shows the average values of the observed response variables for each country in the panel. As described above[18], the dependent variables are social participation, social trust, redistribution preferences and environmentalism. All these cultural traits are measured with indices or rates that fluctuate from 0 to 100.

Table 3 - Sample values of dependent variables

Country	Membership rate	Trust index	Redistribution index	Environmentalism index
China	25.04	53.65	61.65	63.48
Germany	70.04	59.94	68.83	61.48
India	51.89	59.61	78.65	69.20
Japan	49.37	49.71	53.35	53.41
Libya	35.90	53.72	37.10	81.81
Mexico	81.05	44.28	51.50	79.56
Netherlands	78.34	57.19	50.30	57.96
Russia	23.12	56.48	73.87	69.13
South Africa	87.45	58.40	43.84	67.59

[18] See paragraph 3.3.1.

United States	85.93	63.45	49.54	60.89

In tables 4 and 5 it is possible to observe the national average values of the covariates described in the previous paragraph. They are also represented in percentage, with the exception of the Income variable which is presented on a scale from 1 to 10.

Table 4 - Sample values of explanatory variables (1)

	Religion			Personal history			Personal characteristics				
Country	Religious people	Unknown	None	Second generation immigrants	Immi-grants	Citizens	Male	Female	Age	Ethnicity	Income
China	13.91%	5.83%	80.26%	0.00%	0.00%	100.00%	48.96%	50.96%	43.92	-	4.42
Germany	53.03%	1.08%	45.89%	12.95%	10.80%	94.72%	49.61%	50.39%	49.48	0.04	4.82
India	99.56%	0.00%	0.44%	5.89%	0.59%	99.53%	56.15%	43.77%	41.22	0.44	4.51
Japan	40.48%	6.26%	53.25%	0.00%	0.00%	100.00%	48.18%	51.82%	50.74	-	3.98
Libya	98.22%	1.78%	0.00%	4.08%	3.33%	96.76%	51.10%	48.90%	38.42	0.20	5.38
Mexico	81.85%	0.20%	17.95%	7.20%	0.80%	99.25%	49.95%	50.05%	37.48	0.37	3.32
Netherlands	35.86%	0.58%	63.56%	20.93%	11.36%	95.69%	46.48%	53.52%	53.34	0.19	4.57
Russia	70.92%	2.84%	26.24%	0.00%	5.20%	99.12%	44.60%	55.40%	46.06	-	4.21
South Africa	72.78%	10.59%	16.62%	3.57%	0.99%	99.26%	49.96%	50.04%	36.67	0.41	5.29
United States	67.61%	2.02%	30.38%	12.81%	11.07%	92.88%	48.57%	51.43%	48,91	0.45	5.17

Table 5 - Sample values of explanatory variables (2)

	Shocks and living conditions				Political preferences		
Country	Bad neigh-borhood	Quiet neigh-borhood	Crime rate	Bad social conditions	Good social conditions	Political preferences	Democracy considered good
China	13.91%	5.83%	80.26%	0.00%	0.00%	100.00%	48.96%
Germany	53.03%	1.08%	45.89%	12.95%	10.80%	94.72%	49.61%

India	99.56%	0.00%	0.44%	5.89%	0.59%	99.53%	56.15%
Japan	40.48%	6.26%	53.25%	0.00%	0.00%	100.00%	48.18%
Libya	98.22%	1.78%	0.00%	4.08%	3.33%	96.76%	51.10%
Mexico	81.85%	0.20%	17.95%	7.20%	0.80%	99.25%	49.95%
Netherlands	35.86%	0.58%	63.56%	20.93%	11.36%	95.69%	46.48%
Russia	70.92%	2.84%	26.24%	0.00%	5.20%	99.12%	44.60%
South Africa	72.78%	10.59%	16.62%	3.57%	0.99%	99.26%	49.96%
United States	67.61%	2.02%	30.38%	12.81%	11.07%	92.88%	48.57%

After having measured the variables at national level, they were subjected to a linear regression analysis to verify any correlations between them. The correlation coefficients resulting from this study are shown in Table 6.

Table 6 - Regression coefficients

Independent Variable	Dependent variable			
	Membership rate	Trust index	Redistribution index	Environmentalism index
Religious people	0.103	1.154	-1.800	23.531*
(Catholic people)	(0.755*)	(-11.212)	(-13.544)	(13.568)
Second generation immigrants	2.388*	30.530	-26.380	-31.539
Immigrants	1.983	67.628	-3.789	-62.459
Citizens	-4.589	-129.336	120.547	66.360
Gender	0.757	15.376	62.152	102.676
Age	0.001	0.285	0.495	-1.251**
Ethnicity	0.847*	6.584	-17.296	15.871
Income	0.047	6.439*	-7.157	-0.169
Neighborhood conditions	0.079	-3.396	5.715	-21.582*
Crime rate	1.384	-21.033	-50.535	44.223
Social conditions	-0.578	-13.255	6.800	-22.503
Political preferences	0.140	-5.226	-20.442	11.938
Democratic people	1.203	10.812	-3.046	13.991

N	10	10	10	10

* p < 0.05 ** p < 0.01 The correlation coefficients between the variables that are statistically significant (p-value lower than 5%) are marked with an asterisk.

In some cases, the correlations between variables have proven significant. As regards the dependent variable on social participation (measured by the membership rate), the regression shows a positive relationship between participation and Catholic religion (coefficient = 0.755). For a percentage point of the Catholic population in the country, an increase of 0.75% in the rate of participation in activities and social organizations should correspond. Another positive association is demonstrated between social participation and second-generation immigration (coefficient = 2.388). This result implies that a 1% increment in second generation immigrants among the national population increases the participation rate by 2.39%. Moreover, from the outcome of the research, it is possible to predict an increase of about 0.85% in the participation rate for every increase of 0.01 in the ethnic fragmentation index in the national territory. This shows a significant social participation-ethnic fragmentation relationship. Looking at the social trust variable, only one result was statistically significant. The Trust Index is an aggregator of respondents' answers on levels of trust towards family, unknown people, known people, other nationalities and other religions. The only variable with which it has been shown to have a meaningful association is the level of income. Therefore, on a scale of 1 to 10, as one level of declared income increases, trust in others increases by 6.44 points. The variable on redistribution preferences did not reveal any noteworthy correlation. The study of the environmental sensitivity of the survey participants showed instead some interrelationships with explicative variables. In particular, the relationship between environmentalism and religiosity shows a significantly positive relationship, with an increase in the environmentalism index of 0.23 for each percentage increase of religious people in the country. Furthermore, the negative trend of environmental sensitivity with increasing age was verified (coefficient = -1.25). Finally, the analysis shows a negative correlation between low quality of life (in particular good conditions in the neighbourhood) and environmentalism, with a decrease of 0.21 in the environmentalism index for a 1% increase in people who claim to live in quiet neighbourhoods.

3.4.2 Second data analysis

In the second phase of data review, the focus was on the environmentalism variable. The following tables show the most significant results produced by the construction and analysis of contingency

tables. For every table, the multivariate frequency distribution and the relative frequency distribution is presented along with a clustered column chart that visually represents the data.

Table 7 – Contingency tables Environmentalism – Politics in Japan

Environmentalism – Politics (JAP)			
	Environmentalist		
Politics	Yes	No	Total rows
Left	79	58	137
Centre	308	380	688
Right	69	125	194
Total columns	456	563	1019
	Environmentalist		
Politics	Yes	No	Total
Left	0.58	0.42	1
Centre	0.45	0.55	1
Right	0.36	0.64	1
Total columns	0.45	0.55	1
X_2	15.86		
V	0.1	LOW ASSOCIATION	
N	1019		

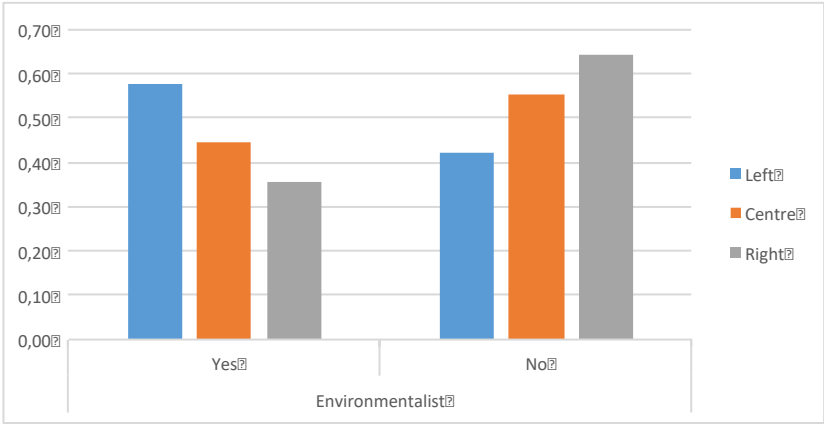

Figure 5 – Environmentalism – Politics relative frequency distribution in Japan

Table 8 - Contingency table Environemntalism - Politics in the Netherlands

Environmentalism – Politics (NLD)			
	Environmentalist		
Politics	Yes	No	Total rows
Left	203	97	300
Centre	437	547	984
Right	84	203	287
Total columns	724	847	1571
	Environmentalist		
Politics	Yes	No	Total
Left	0.68	0.32	1.00
Centre	0.44	0.56	1.00
Right	0.29	0.71	1.00
Total columns	0.46	0.54	1.00
X_2	90.01		
V	0.2	LOW ASSOCIATION	
N	1571		

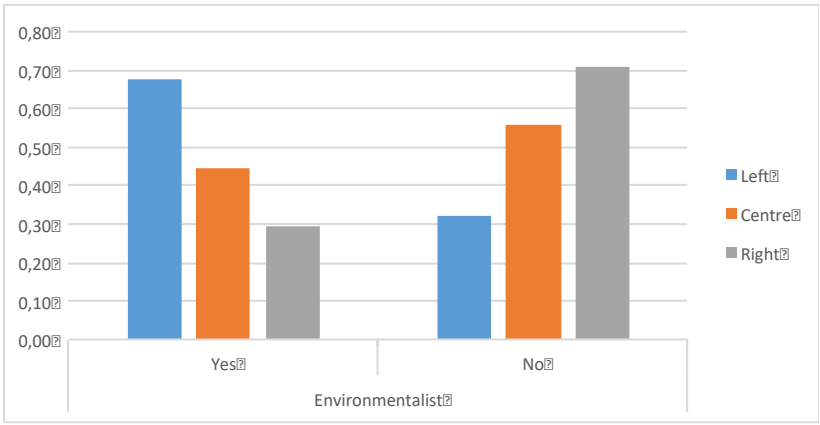

Figure 6 – Environmentalism – Politics relative frequency distribution in the Netherlands

Table 9 - Contingency table Environemntalism - Religion in the USA

Environmentalism – Religion (USA)			
	Environmentalist		
Religion	Yes	No	Total rows
Non religious	321	369	690
Religious	504	970	1474
Total columns	825	1339	2164
	Environmentalist		
Religion	Yes	No	Total
Non religious	0.47	0.53	1.00
Religious	0.34	0.66	1.00
Total	0.38	0.62	1.00
OR	1.67		
X_2	29.76		
N	2164		
φ	0.1	LOW ASSOCIATION	

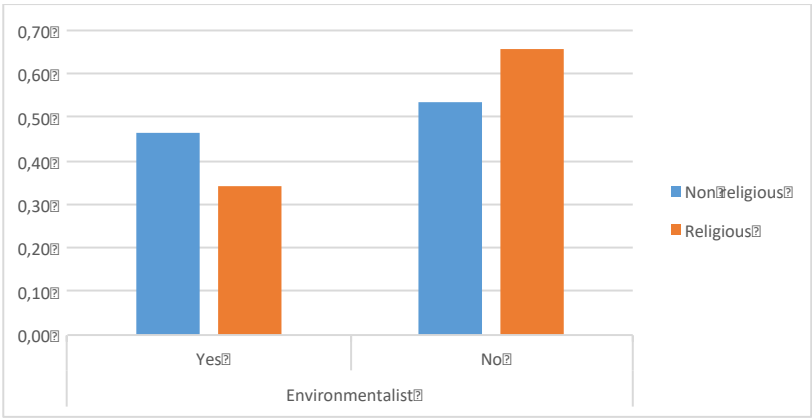

Figure 7 – Environmentalism – Religion relative frequency distribution in the USA

Table 10 – Contingency tables Environmentalism – Age in the USA

Environmentalism – Age (USA)			
	Environmentalist		
Age	Yes	No	Total rows
18-29	175	202	377
30-44	198	281	479
45-64	329	568	897
over 65	128	299	427
Total columns	830	1350	2180
	Environmentalist		
Age	Yes	No	Total
18-29	0.46	0.54	1.00
30-44	0.41	0.59	1.00
45-64	0.37	0.63	1.00
over 65	0.30	0.70	1.00
Total	0.38	0.62	1.00
X_2	25.91		
V	0.1	LOW ASSOCIATION	
N	2180		

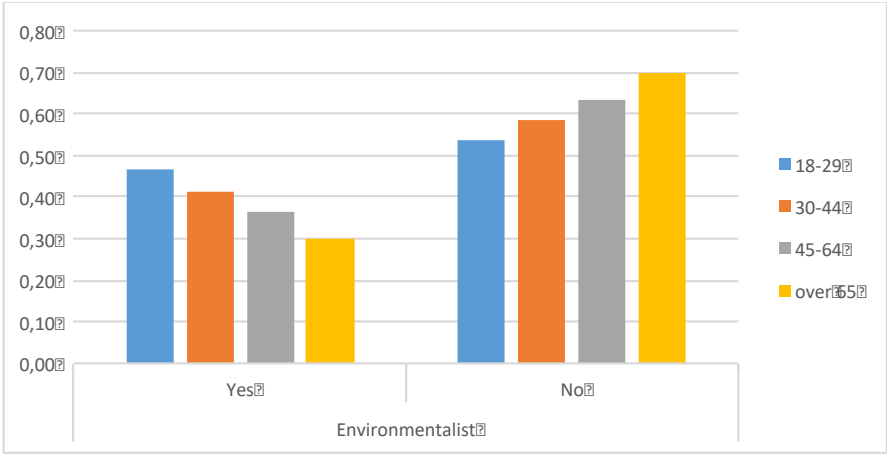

Figure 8 - Environmentalism – Age relative frequency distribution in the USA

Table 11 – Contingency tables Environmentalism – Politics in the USA

Environmentalism – Politics (USA)			
	Environmentalist		
Politics	Yes	No	Total rows
Left	171	84	255
Centre	556	856	1412
Right	79	384	463
Total columns	806	1324	2130
	Environmentalist		
Politics	Yes	No	Total
Left	0.67	0.33	1.00
Centre	0.39	0.61	1.00
Right	0.17	0.83	1.00
Total columns	0.38	0.62	1.00
X_2	178.95		
V	0.3	MODERATE ASSOCIATION	
N	2130		

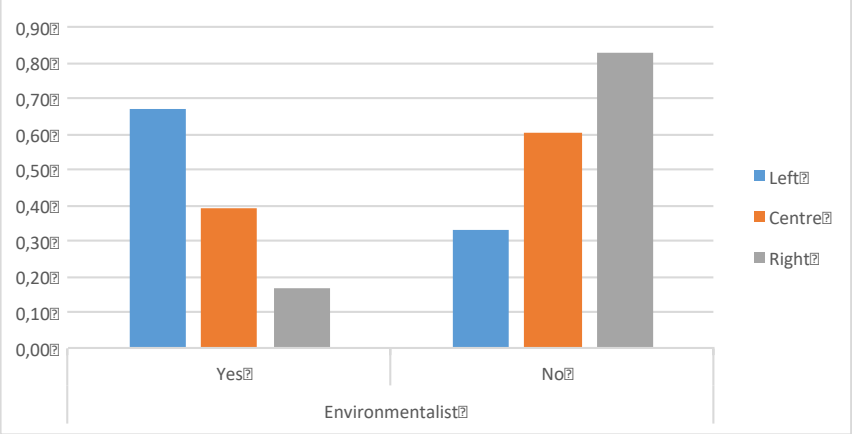

Figure 9 - Environmentalism – Politics relative frequency distribution in the USA

Of the 10 countries analysed, only 3 showed some positive associations of variables. They can be summed up as:

- LOW ASSOCIATION between Environmentalism and Political preferences in JAPAN;
- LOW ASSOCIATION between Environmentalism and Political preferences in the NETHERLANDS;
- LOW ASSOCIATION between Environmentalism and Religion in the USA;
- LOW ASSOCIATION between Environmentalism and Age in the USA;
- MODERATE ASSOCIATION between Environmentalism and Political preferences in the USA.

Specifically, the relationship that has been most observed is that between environmentalism and political preferences. In Japan and the Netherlands, a low association was found between these two variables. In particular, it can be seen how more "left" political positions are associated with a sensitivity towards environmental issues, while a "right" political alignment reveals less attention to the environment. In the United States this relationship is even more marked, registering a Cramer's V of 0.3, and therefore a moderate association between the variables. In the United States it was also possible to record two other significant results, namely the low association between environmentalism and age, so that as people age, attention to the environment is weaker, and the association between

environmentalism and religion, that people who do not profess religiose would have a more prominent environmentalist spirit. However, no statistically relevant results come from the total panel analysis.

3.4.3 Third data analysis

The process of validating the results continues with a third analysis, which takes up the methods adopted in the first inspection. The study is confined only to the results emerged in the first analysis and the sample analysed is spread to all the countries present in the latest study published by the World Values Survey (wave 6). Testing the results on a larger panel of observations, this phase aims to confer greater robustness to the research and to demonstrate its general validity.

Table 12 - Regression coefficients

Independent Variable	Dependent variable		
	Membership rate	Trust index	Environmentalism index
Religious people	-	-	-0.101
(Catholic people)	(9.790*)	-	-
Second generation immigrants	7.980	-	-
Gender	-	-	0.458
Age	-	-	0.004
Ethnicity	18.017**	-	-
Income	12.716**	1.705	-
Political preferences	-	-	0.026
GDP per capita	-	2.07E-04***	-
N	48-55	56	51-57

* p < 0.05 ** p < 0.01 *** p < 0.001 The correlation coefficients between the variables that are statistically significant (p-value lower than 5%) are marked with an asterisk. The number of observations varies according to the regressions, since for some variables there are countries for which data are not reported. In particular, data from Palestine, Taiwan and Trinidad & Tobago are missing for the environmental variable. New Zealand data are missing for the social trust variable. For the variable religion the data of Egypt are missing. For the variable political preferences data from China, Haiti, Jordan, Kuwait, Qatar and Singapore are missing. Data on the ethnic groups of Argentina, Egypt, Georgia, Kuwait, Palestine, Qatar, Rwanda, Slovenia, South Korea, Spain, Taiwan and Turkey are missing.

Conducting the third analysis, most of the statistically relevant results in the first analysis are not confirmed, except for the positive correlation between participation and ethnic fragmentation and the positive relationship between participation and Catholic religion (coefficient = 9.79). Other statistically significant results are the positive relation between social participation and income

inequality (coefficient = 12.72) and between social trust and GDP per capita (coefficient = 2.07E-04). This means that an increase of 1 point in the standard deviation of the income level on the national level causes an increase of 12.72% in the participation rate and an increase of 2.7 points in the trust index occur for every increase of $10,000 in the GDP per capita. Unlike the preliminary analysis, in this case the GDP per capita was included in the regressions with all the countries in order to check for the economic dimension of the countries. Since it was not possible to use fixed effects by not using panel data (fixed effects = 0/1 variables that "absorb" the "fixed" characteristics of the countries that do not vary over time and that are used to check for the peculiar characteristics of the units of observation that alter the coefficient), a craft and partial control is performed through the GDP. The data on the GDP per capita in U.S. dollars are retrieved from the World Bank database[19], based on the year of the survey.

3.4.4 Results overview

Table 13 – List of results classified by analysis

Analysis 1	Positive relationship between Social participation and Roman Catholic religion - Positive relationship between Social participation and Second-generation immigration- Positive relationship between Social participation and Ethnic fragmentation - Positive relationship between Social trust and Income levels- Positive relationship between Environmentalism and Religion- Negative relationship between Environmentalism and Age - Negative relationship between Environmentalism and Neighborhood conditions-
Analysis 2	Positive association between Environmentalism and “Left” political preferences (low to moderate intensity, Japan, Netherlands and USA)- Negative association between Environmentalism and Religion (low intensity, USA)- Negative association between Environmentalism and Age (low intensity, USA)-
Analysis 3	Positive relationship between Social participation and Roman Catholic religion- Positive relationship between Social participation and Ethnic fragmentation- Positive relationship between Social participation and Income inequality Positive relationship between Social trust and GDP per capita

[19] World Bank website: https://data.worldbank.org

3.5 Discussion

Starting from the cultural phenomena previously studied in the literature, this chapter attempts to verify and contribute to the knowledge of the cultures and interconnections between the different national cultural traits. As previously described, the research is based on the concept of theory elaboration and its three operative tactics (contrast, specification, structuring). In conducting the empirical study, great attention is paid to the choice of variables analysed, the selection of countries in the reference panel and the study of the relationships emerged.

Specifically, by conducting research on a pool of 10 countries (60 for the control of results), it was possible to analyse the effects of cultural traits on different societies and this allowed to structure a horizontal contrasting work. Observing how relationships occur in conditions and contexts different from those initially examined helps to develop the theory known so far and to give a more global view of the phenomena studied. Many of the papers analysed in the literature review have focused on geographically limited regions or countries. For instance, Alesina and La Ferrara (2000) examined the relationship between participation and personal characteristics (ethnic, racial fragmentation and income inequality) in the American federal states; Alesina and Giuliano (2011) studied the correlation between redistribution preferences and individual features in the United States; Guiso, Sapienza and Zingales (2004) based their article on the relationship between trust in the stock market and social capital (legislative quality) in Italy; Whitt and Wilson (2007) conducted an experiment to observe the effect of a civil war on the redistribution of wealth in Bosnia; Giuliano and Spilimbergo (2014) observed the relationship between redistribution preferences and economic recession in the United States. These relationships between cultural variables, individual characteristics and social conditions have been reported in current research on a sample of countries that could best represent phenomena at an international level. Furthermore, the contrast is also developed on a temporal basis, as none of the research analysed is based on data from the latest wave of data released by the World Values Survey (2010-2014).

From the constructs' specification point of view, some variables have been transformed compared to previous research. In particular, to increase the validity and scope of the reports examined, new specifications and the aggregation of some associations was elaborated. For instance, in their paper *Cultural Biases in Economic Exchange?,* Guiso, Sapeinza and Zingales (2009) analyse the relationship between trust in other countries and characteristics at a national level, while in current research it has been decided to extend the variable trust also to other social components such as the family, the neighbourhood, religious groups and known and unknown people. The same three authors in *The Role of Social Capital in Financial Development* (2004), investigate the relationship between

the amount of investments in the stock market (as a proxy of the level of trust) and the social capital, represented by the quality of the legislation. In current research, it was decided to measure the trust-social capital relationship through different variables, that is, between an aggregate trust index and the living and social conditions experienced by the respondents to the WVS surveys. Another observable difference is that with the experiment conducted by Whitt and Whilson (2007). The two American scholars conducted an experiment to explore the correlation between resource allocation and the experience of a war. However, to expand the scope of the study, more general variables were chosen here, so the research focused on the relationship between redistributive preferences and social conditions, which also include other concerns about shocks besides wars. The same reasoning was applied in the case of the analysis based on the work of Giuliano and Spilimbergo (2014), whereby the variable "shock from economic recession" was broadened more generally to the social conditions and people's concerns. Finally, in Tabellini's study on economic development in the European regions (2010), it is possible to observe the study of the effect of a country's historical-cultural heritage on its economic conditions. In the present dissertation the culture-economy relationship was also analysed, but in this case it was performed through a different construct, that is the relationship between current cultural traits and GDP per capita.

As regards the structuring, some relationships previously brought to light have been re-examined with the same variables used in the literature. In the case of the relationship between participation and ethnic fragmentation or income inequality and between redistributive preferences and personal characteristics, the study has taken up the specifics analysed by the previous authors (Alesina and La Ferrara, 2000; Alesina and Giuliano, 2011), in order to confirm or redefine the relationship between the specific constructs and improve the predictive capacity of associations.

The results summarized in paragraph 3.4.4 are below classified into three different classes, among those that have been confirmed by a subsequent study, those that result from only one of the analyses carried out and the contradictory ones. Among the results that emerged only from the first study of the three conduits are: the positive relationship between social participation and second-generation immigration, the positive relationship between social trust and income level, the negative relationship between environmentalism and conditions of the area of residence. These results reflect the socio-cultural conditions of the 10 countries included in the panel. Analyses on individual countries also show a positive relationship between environmentalism and leftist political preferences. Finally, from the analysis on the entire pool of countries included in wave 6 of the WVS, positive relationships can be found between social participation and income inequality and between social trust and GDP per capita. The results of the preliminary examination supported by the evidence from the third study are: the positive relationship between social participation and Catholic religion and the positive

relationship between participation and ethnic fragmentation. Furthermore, the negative relationship between environmentalism and registry age emerged both from the selected sample and in the United States at the observational level in the population (second analysis). An ambiguous result concerns the relationship between environmentalism and religion. This is in fact positive in the sample of 10 countries, but negative, albeit of low intensity, in the United States.

Table 14 – List of results classified by relevance

Confirmed results	Positive relationship between Social participation and Roman Catholic religion Positive relationship between Social participation and Ethnic fragmentation Negative relationship between Environmentalism and Age
Non confirmed results	Positive relationship between Social participation and Second-generation immigration Positive relationship between Social trust and Income levels Negative relationship between Environmentalism and Neighborhood conditions Positive association between Environmentalism and "Left" political preferences (low to moderate intensity, Japan, Netherlands and USA) Positive relationship between Social participation and Income inequality Positive relationship between Social trust and GDP per capita
Ambiguous results	Positive relationship between Environmentalism and Religion Negative association between Environmentalism and Religion (low intensity, USA)

It is now necessary to provide explanations for the results obtained by the multistage analysis process. The positive relationship between participation and Catholic religion can be understood in the light of the questions asked in the WVS questionnaire and the method by which the membership rate was constructed. The rate takes into account all questions from V25 to V35 which concern possible associations to social organizations in which people can participate. In the event that a person proves to be associated with at least one of the organizations mentioned, he is considered a "member" unlike those who do not respond positively to any of the questions. Religious organizations are also included among the group categories. The difference between the significance of this relationship and the non-significance of the relationship between participation and macro-variable religion lies in the fact that unlike other religions in which the relationship between the two variables is not clear, for the Christian Catholic religion a significant correlation exists. The rationale of this evidence is the strong sense of community that underlies the Christian faith. Almost all those who profess to be Catholics actively or inactively participate in the activities organized by the ecclesiastical institution, but the same

cannot be said of other religions. Furthermore, it is shown that for those who profess to be Christian there is a greater probability of being a member of other organizations in addition to the religious one. A relevant result is also the positive relationship between social participation and ethnic fragmentation in society. From the results of the WVS it emerges that participation increases the greater the ethnic fragmentation. The ethnic fragmentation rate indicates how likely it is in the reference population to meet a person belonging to a different ethnic group. This evidence is peculiar in that, if considered together with the result on the entire sample of 60 countries of the positive relationship between participation and income inequality, it contradicts the conclusions of the study by Alesina and La Ferrara (2000), which predicted a negative relationship between ethnic fragmentation (and income inequality) and social participation. Unlike the explanation given by Alesina and La Ferrara, that ethnic groups do not want to get in touch and mix within organizations, this study shows how ethnic difference is an association driver in most of the countries. This can be explained by the differences in the two studies. The authors conducted an analysis based on the American federal States, while the current study is based on data from world's countries. Considering a global sample, a more diluted situation at the aggregate level in the effects of ethnic fragmentation can be seen. Furthermore, unlike the case of the United States, where historical circumstances made ethnic minorities represent a high share of the entire population, in some panel countries the main ethnic groups have a much more significant presence, and ethnic minorities are much less numerous. The consequences of this peculiarity reflect in the diversity of social conditions that shaped the national culture. This evidence can also be justified by considering the 20-year time span between the two studies, where trends in socio-cultural dynamics may have changed.

Finally, it is possible to note the negative correlation between environmentalism and age. This means that as the average age of the reference population increases, the percentage of people who self-declare as sensitive to environmental issues decreases. This trend is visible both in the sample of 10 countries and in the panel enlarged to 60 countries. These data highlight how younger people place the protection of the planet among the social priorities, unlike older people. Only in very few countries with a medium-high age is there a high environmental sensitivity (e.g. Sweden). A recent historical evidence of this correlation is represented by the spread of environmental movements such as Fridays for Future, born from the Scandinavian countries thanks to the protests carried out by the Swedish activist Greta Thunberg. This mobilization became global starting from 2018 with mass school strikes for climate and it is supported by mainly young people under the age of 30.

3.5.1 Limitations

Some research difficulties were encountered in the data analysis process. First of all, since the variables resulting from the questions on culture are mainly categorical, it was necessary to create most of the times dummy variables, to translate them into quantitative variables of the value 0 or 1. However, as the dependent variables were frequently quantitative, it was not possible to process regressions at the observational level within the national sample. This limit is evident, for example, in the analysis of the correlation between social participation (membership in voluntary organizations or associations) and the ethnic diversity of the sample. The question on participation asks to indicate if a person is an active, inactive or not a member of one of the organizations mentioned, and the ethnicity is registered through the observation of the interviewer. The solution adopted to verify the correlation was to calculate the percentage of people participating in these groups at the country level and the index of ethnic fragmentation at national level. Therefore, by measuring these values for the national samples and subsequently conducting the regressions at the level of the countries panel (and not within the individual national samples) it was possible to obtain the results sought, albeit with a lower level of confidence. In this case, the number of observations to conduct the regressions, although based on thousands of people interviewed, are only 10 in the first analysis and 60 in the second. This method had been used in literature by Alesina and La Ferrara (2000), and for this reason it was considered adequate for current research. This method was mainly used for all first and third data analysis, due to difficulties in conducting regressions at the national sample level. Another problem underlying the survey is the respondent's understanding of the questionnaire. This problem is a disadvantage common to all surveys, and it is very difficult to overcome, if not with a cross-analysis of several answers that was conducted in the first analysis. Finally, in the responses given by the different national samples, a trend in the responses that varies from country to country may turn out. This drawback can be overcome by attributing a fixed country effect to the responses of some samples. For these reasons, although the data have undergone three stages of analysis with different methods, the results obtained show limitations due to the internal issues of the dataset. This inquiry can be interpreted as a well-structured preliminary analysis that requires a more in-depth study in the future, through more sophisticated methods for managing WVS data.

3.6 Conclusion

Despite the aforementioned doubts, the confirmed results of Table 14 have been statistically demonstrated repeatedly, and the analysis is sufficiently robust to derive some conclusions. First, the difficulty in finding results that are statistically relevant for the whole world has been demonstrated. This is due to the differences between national cultures that influence responses to WVS surveys. Only three results have been confirmed on a globally enlarged sample. This justifies the choice of scholars in the literature to focus mainly on one or a few specific countries. This evidence can also be considered as a confirmation of Hofstede's study (1981, 2001), who has always supported the presence of national differences in cultural traits in his writings, which makes it difficult to find common trends globally.

Secondly, it was difficult to find out the drivers of some cultural traits. Although some professors in literature have tried to demonstrate the relationship between redistribution preferences and personal and social characteristics, by widening the exam to a global sample, it was not possible to find significant relationships with this cultural trait.

Finally, the results obtained proved to be new or opposite to those of the literature. The negative relationship between environmentalism and registry age is a new specification compared to previous studies and is easily justifiable. An original result is also the positive correlation between Catholic Religion and social participation, which as previously discussed can find reason in Catholic doctrine and in the large number of organizations linked to this religious confession. The positive relationship between social participation and ethnic fragmentation is certainly a result that needs to be better explored through further studies. This evidence contradicts the results of research conducted in the United States. One possible reason is that the American socio-cultural situation is very peculiar and represents an isolated case in the relationship between these variables. In the future it will be appropriate to research and clarify the causal links between these factors.

Conclusions

The goal of the current thesis is to explore the concepts of national culture from a theoretical and empirical point of view. Throughout the dissertation I try to give responses to the questions that inspired the construction of this study. Being the reference material broad, I focused attention on economic studies dealing with cultures.

Starting from the theory level, in the first chapter answers were given to questions regarding the definitions of culture, the emergence of current terminology and the explanation of the main analytical models on culture. An overview of the leading academic contributions to the subject was developed to better frame the context of the study. Thanks to this theoretical revision, the notions of culture, cultural traits and values and social capital were illustrated. First of all, starting from an historical point of view, the definition of the term culture has been provided. The work of illustrious scholars such as Kroeber and Kluckhohn (1952) proves to be the most complete in this field. It documents more than 160 definitions classified into six categories. The review of the literary material on the subject shows the large amount of definitions and provides an index of the relevance of the topic in literature. Subsequently, a detailed report occurs of the major empirical results scholars achieved in the field of national cultures on a national and global scale. The evaluation of the estimating equations, the testing methods and the selected samples was the starting point and the reference model for the research later elaborated in the third chapter. It also helped answering the question "Which are the important cultural traits to compare countries?". In order to provide statistical evidences, most of the researches based their analysis on a set of cultural aspects including individualism vs. collectivism, redistribution preferences, political positioning, trust, participation. In the research conducted in the third chapter, this group of variables has been extended to 4 dependent variables and 5 macro explanatory factors, to delineate a view of the relationships between social and cultural aspects on a sample of 10 countries. In the cross-country panel examined, the countries' selection followed the logic of heterogeneous presentation and significance of the data.

Another crucial step of the thesis is the discussion on the measurement tools of national cultures. It was addressed in the second chapter, with a comprehensive elucidation of the methods used in literature to examine national customs. Although data on thousands of people interviewed are recorded yearly all over the world, it has been shown that the measurement of cultural traits is not an easy process. Above all, the right tool has to be chosen. The World Values Survey (WVS) and other global research projects have been storing data on cultural traits from numerous countries starting from the early 1980s. Since then, numerous and repeated surveys have been conducted on samples of

thousands of individuals in more than 100 countries. The answers to these questionnaires contributed to identify beliefs, values and attitudes from disparate world's regions. Also, the results supported studies on cultural diversity, helped policy makers activities and gave possible explanations to historical events. The primary advantage of the data deriving from the surveys is the high representativeness of the population. However, as they often translate into categorical variables, they show a higher complexity in conducting pure regression analyses. The data must undergo major cleaning and transformation processes (e.g. use of dummy variables, averages on the national sample), in order to conduct quantitative mathematical examinations. In this sense, studies based on real experiments appear more immediate. Here the results can be quantified directly through observation (e.g. frequency distributions, amounts exchanged). Nonetheless, multistage games are characterized by low validity, and the results are difficult to generalize. This has led the scholars to use as primary sources the international datasets on cultural values.

As regards the definition of national cultures, it has been shown that the controversy in considering virtues and preferences on a national scale is still an open question in literature. Indeed, this approach has been widely adopted through the years and sees Hofstede among the most authoritative supporters, but some scholars have harshly criticized it. For instance, Grosjean (2011) demonstrated through a gravitational model that the impact of a common history between people groups is considerably more critical than nationality. The evidences found in my own empirical research reveal a low degree of universality in the relationship between cultural values and social conditions when extending the analysis to multiple countries. The results provided at national level are rarely confirmed on a global scale. Verified outcomes emerged on only three occasions: in the relationship between the Catholic religion and participation, between environmentalism and age and between participation and ethnic diversity. The rationales for these results were discussed at the end of the third chapter, and can be summarized in three main circumstances: the tendency of Catholic people to participate in religious communities, the common attention of new generations towards sustainability and environmental protection and the peculiarity of social conditions and historical heritage in the United States, where the negative relationship between participation and ethnic fragmentation was previously proved. The scarcity of shared conditions demonstrates a poor ability to generalize the relationships between cultural variables at an international level, and therefore the persistence of cultures shaped within national borders. However, the presence of distinctive characteristics among national cultures should not lead people to root their thoughts on fixed and stable models determined by the historical heritage of a country. On the contrary, the increased interconnectedness and interdependence of peoples and countries should motivate individuals to uncover the links between foreign societies and cultures.

Nevertheless, it should be noted that the data sources on which the research is based are not recently published. They are based on surveys conducted between 2010 and 2016. Although more recent data exist on the measurement of cultural traits, they are often geographically limited and come from research centres adopting distinct methodologies. It was therefore preferred to use harmonized information, which derive from questions of the same original form without traceable inconsistencies adduced by the differences in the collection process. In the time that has elapsed, some deviations from the present results may have occurred. For this reason, the future work of study centres such as the World Values Survey, will be even more important. Since societies and the composition of populations are in continuous ad rapid evolution, the measurement of the social and cultural composition and their connections is an essential process for understanding changing world balances, and should be conducted even more frequently. An unceasing monitoring activity is necessary to investigate how cultural equilibria evolve and create new circumstances on the basis of renewed relationships between national and global socio-cultural traits. Starting from the publication of the new WVS wave of data in July 2020, the scientific community will be supported by new evidences, and this will hopefully encourage the development of further research on the topic.

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Appendix

Countries in the panel

China

In China, responses were recorded over a period of about two and a half months between 2012 and 2013 through the Research Center for Contemporary China (RCCC) at Peking University. The sample is composed by 2,300 adults of both genders, and the results have an estimated error of 2.1. The primary sample unit (PSU) chosen is the territorial administrative unit, i.e. municipal districts, provinces and regions.

Germany

Germany counts 2,046 respondents, of which 1,034 in western Germany and 1,012 in eastern Germany, and an error of 2.2. The results were collected by the IPSOS institute between 22 July and 13 November 2013 and the municipalities represent the PSUs. The percentage of men and women interviewed is 48.8% and 51.2% respectively, and the survey only covered people aged 18 or over. With around 20% of the sample, the age group between 40 and 49 is the most represented.

India

India is the country with the highest number of observations and the lowest estimated error value (1.6). The sample of 4,078 respondents was drawn in 2012 using a multi-stage stratified random sampling. Of the 543 parliamentary constituencies (PCs) (electoral districts) scattered across the country, 320 were selected across all 28 states. The institute in charge of collecting the data was the Center for Research in Social Sciences & Education (CERRSE) at Jain University.

Japan

The Nippon Research Center, Ltd. (NRC) collected 2,443 observations in November and December 2010. The sample interviewed is representative of the entire adult national population between 18 and 79 years old and was selected through a multi-stage stratified sampling. As for the other countries, the interviews were conducted face-to-face in the official national language (Japanese) after some trial tests.

Libya

Libya is the most represented Nord-African country in wave 6 of the WVS. The sample size is 2,131 people with a 95% confidence level and an estimated marginal error of 2.14%. The method used by the Research and Consulting Center at University of Benghazi (BRCC) was the random multi-stage sampling. The primary sampling units are the *Mahallahs*, in total 667 locations grouped in 22 provinces (*Shabiyah*) by the census. The interviews targeted Libyan residents aged 18 and over.

Mexico

In Mexico, the surveys were conducted by the Instituto Tecnológico Autónomo de México in February 2012. 10 individuals were randomly selected from each of the 200 electoral sections defined by the Federal Elections Institute, considering a combined distribution of urban (68%), mixed (12%) and rural (20%) sections. The sampling universe includes the entire adult population. Respondents are equally distributed in gender (50-50%), and the most represented age class is the 30-49.

Netherlands

The Netherlands provided 1,902 results (884 men and 1018 women) to the study with a random selection of people over the age of 18. The sample was extrapolated from the panel of households belonging to LISS (Longitudinal Internet Studies for the Social sciences), and the survey was administered by the University of Tilburg's CentERdata in cooperation with Statistics Netherlands. Data were collected in December 2012, and the estimated error of the results is 2.3.

Russia

Thanks to the work of the Levada Analytical Center, 2,500 interviews were conducted in Russia between September and October 2011 for the sixth wave of the WVS. The sample is based on PSUs of settlements belonging to 8 Federal districts. About 55% of the interviewees are female and the most represented age group is over 50 years old. The most examined region is that of Central Russia (28% of the sample), while the Far east area counts the least interviews (4%).

South Africa

In South Africa, the national study was conducted from August to October 2013 by the IPSOS institute. The sample is the largest in the African continent and one of the youngest in the world (64% younger than 30). It counts 3,531 people, aged 16 or over, selected through a three-phase sampling method based on the census's regions. The method used is that of computer assisted personal interviews (CAPI), and the questionnaire was made available to respondents in 6 different languages.

United States

Of the 3,150 people invited to participate, only 2,232 American respondents completed the survey conducted by Knowledge Networks. An internet sample was used with coverage of approximately 97% of US households, and an estimated statistical error of 2.1%. The research took place between June and July 2011 on individuals over the age of 18. The questionnaire was provided in a bilingual (English and Spanish) version to the participants, mainly women (51.5%) over 50 years old.

Table 6

Country	Year(s)	Sample size	Estimated error
China	2012-13	2,300	2.1
Germany	2013	2,046	2.2
India	2012	4,078	1.6
Japan	2010	2,443	2.0
Libya	2014	2,131	2.2
Mexico	2012	2000	2.2
Netherlands	2012	1,902	2.3
Russia	2011	2,500	2.0
South Africa	2013	3,531	1.7
United States	2011	2,232	2.1

Below is the list of countries present in wave 6 of the WVS.

Algeria; Argentina; Armenia; Australia; Azerbaijan; Belarus; Brazil; Chile; China; Colombia; Cyprus; Ecuador; Egypt; Estonia, Georgia; Germany; Ghana; Haiti; Hong Kong; India; Iraq; Japan; Jordan; Kazakhstan; Kuwait; Kyrgyzstan; Lebanon; Libya; Malaysia; Mexico; Morocco; Netherlands; New Zealand; Nigeria; Pakistan; Palestine; Peru; Philippines; Poland; Qatar; Romania; Russian Federation; Rwanda; Singapore; Slovenia; South Africa; South Korea; Spain; Sweden; Taiwan; Thailand; Trinidad and Tobago; Tunisia; Turkey; Ukraine; United States; Uruguay; Uzbekistan; Yemen; Zimbabwe.

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Summary

In modern times, the study of cultures and their geographical declinations has drawn the attention of economists, social scientists and scholars, by reason of their crucial implications in the fields of politics, sociology and trade. International transactions among the wealthiest nations have skyrocketed in the last twenty years. The overall aggregate of exports at least doubled in five of these countries. In Italy and the United States, for example, the overall world exports counted respectively $ 242 billion and $ 680 billion in 1998, while in the last measurement available (2018) they reached $549 billion and $1,665 billion. These data even tripled in the case of Germany (from 543 to 1,562 billion) and they increased 13-fold in China, going from just 183 billion in 1998 to nearly 2.5 trillion in 2018. These numbers have significant effects both on people's lives and on the world's political and economic balances. The acceleration in globalization has led to a strong increase in trade flows, which in turn is reflected in the intense personal and institutional relations across nations. Being the world increasingly interconnected, cultures have acquired great relevance as they shape the way people deal with new global trends. Phenomena such as globalization, systemic financial crises, pollution and climate change, the increase and aging of the world population and the scarcity of natural resources are dominant aspects of our time that may contribute to profound transformations of the established socio-cultural conditions. The shared ideas, customs and social behaviour are the instruments of people to face the challenges of modernity in a unique way, and academics are interested in human reactions to changes in the social and economic world’s equilibria. Furthermore, knowing the differences in traits of extraneous cultures is considered of paramount importance in managerial studies nowadays. It helps in understanding the external environment since international relationships, companies’ strategies and economic transactions are strongly influenced by countries’ social heritage and people’s way of thinking. The large impact of national cultures on economy boosted the desire to understand the dynamics underlying populations’ attitudes and values. For these reasons, a branch of research has developed that focuses on the study of national cultures and the preferences and traits that differentiate some geographical areas from others.

The modern concept of culture developed from the mid-1800s thanks to the work of English and German philosophers and linguists. However, attention to the set of collective knowledge and ethical values had already been emerged in antiquity. In particular, the Latin term *humanitas* indicated the subjective wealth of knowledge and ethical values that characterized individuals. This concept was later taken up and refined by the great philosophers of the seventeenth century such as Bacon, Pufendorf, Leibniz and Kant. Although this curiosity for the virtues of citizens was already present

in Greek and Roman times, the creation of an objective vision of culture as a set of preferences and customs shared by a group of people took place only in modern times. The term underwent the definitive transition from the "subjective" meaning to its modern and "objective" historical-social meaning during the Enlightenment. This explains how the attention towards the set of values shared by a society has always been inherent in man, since well before the phenomenon of globalization. Only from the 1980s onwards cultural theories have begun to be elaborated. This attention spread as a consequence to the increasing connections among peoples and the intercultural exchanges between individuals. Even more recent are the studies that investigate the interrelations between the typical cultural traits of a population and the social characteristics or experiences of a nationally defined group of people. These works aim to know the causal relationships between cultural values and personal or collective features, that helps discovering how cultural traits originate. Based on this, recent publications have combined this curiosity with the interest in the geographical differences between cultural traits, developing the matter of national cultures. Despite the problems related to the measurement of socio-cultural traits and the criticality of inverse causality, in the last decades a prolific literature has been developed on the subject. The major contributors came from economists and social scientists, interested in learning about the relationship between culture and economic mechanisms and institutions. This field of research is particularly interesting from the perspective of international relations, which are based on understanding different mindsets.

This thesis nests in the field of national culture research conducted on the basis of survey data collected through societal observations. In doing so, it attempts to answer a set of questions. What can be considered culture? When did the analysis of the concept of culture begin? How many definitions have been developed? What are the main theoretical models on the concept of culture? What are national cultures and how can they be measured? Which are the important cultural traits to compare countries? Is it possible to see a clear difference between geographical regions? What are the main factors that influenced these differences? Is it possible to find associations between different cultural traits on a global or national level? Giving answers to these inquiries, the research aims to clarify the matter of study creating a broad framework on the concept of culture and examining empirically its main influential factors. At the same time this dissertation fills a literature gap, extending the research field on national cultures to unobserved countries and attempting to find causal links between cultural traits with respect to an original set of variables.

The structure of the thesis is composed of three chapters, in which the academic literature on the subject, the measurement and analysis methods and the empirical research conducted are respectively presented.

In order to outline the theoretical and empirical contexts of the thesis, the first chapter illustrates the typical concepts of this field of study and the main researches on the subject. The dissertation begins with the interpretation of the term culture, whose current meaning has spread starting from the second half of the 19th century. For this purpose, the work by Kroeber and Kluckhohn (1952), who recorded more than 160 definitions classifiable in six different categories has been reviewed. The authors trace the first appearance of the world 'culture' in Germany in later eighteenth century used by philosopher Johann Gottfried Herder (1744-1803), the most known representative of a group of writers of universal history, spelled as *Cultur* or *Kultur* (Kroeber and Kluckhohn, 1952). In its first use, the word had the meaning of progress in cultivation. Influenced by ethnographer Gustav Klemm (1802-1867), the term culture came to have its modern meaning since about 1850 thanks to the work of Sir Edward Burnett Tylor (1832-1917), who, in his most famous book *Primitive Culture*, defined culture as "that complex whole which includes knowledge, beliefs, arts, morals, law, customs, and any other capabilities and habits acquired by man as a member of society" (Tylor, 1870). Starting from then, an extraordinary amount of definitions has been counted during the 20th century, arriving till today's definition of culture as "the ideas, customs, and social behaviour of a particular people or society" (Oxford English Dictionary, 2020). Hofstede (1980) defined culture as "the collective programming of the mind that distinguishes the members of one category of people from another". This definition means that every person has mental programs that operate as "software of the mind" and make actions predictable in similar conditions. Similarly, other sociologists as Rossi (1989) and Schein (1985) developed theories on culture based on unobservable and implicit conceptions. Culture has been conceptualized also as "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation" (Guiso, Sapienza, and Zingales, 2006, p. 23). According to Greif (1994), "cultural beliefs are the ideas and thoughts common to several people that govern interaction between these people, and between them, their gods, and other groups" (p. 915). Therefore, a cultural belief is any belief considered real by a large group of people. These definitions differ as they can be classified as descriptive, historical, normative, psychological, structural or genetic whether they put more emphasis on the enumeration of content, social heritage or tradition, rules or ideals, adjustment and learning, patterning and organization or the concept of culture as a product (Kroeber and Kluckhohn, 1952). The incredible abundance of notions demonstrates how matter has fascinated scholars and is still in the evolutionary phase.

A fundamental step is then the illustration of other recurrent concepts in literature, which help reading the previous academic contributions on the subject. The terms analysed are: cultural traits, cultural complexes, cultural values, national culture, institutions and social capital. Cultural traits are the smallest unit of culture. A trait is "a characteristic of human societies that is potentially transmitted

by non-genetic means and can be owned by an agent" (Birukou et al., 2009). Each culture includes thousands of traits that can be represented by single objects, actions, or beliefs and influence cultural preferences. Being culture divided in two components: material and nonmaterial (Hoebel, 1956), some examples of material culture traits are the wedding ring, clothing, cars, and buildings while nonmaterial culture traits include gestures (e.g. handshake, saluting the flag), norms (e.g. washing one's hands), and language. Cultural complexes are large clusters of traits organized about some nuclear points of reference (Hoebel, 1956). Cultural traits do not usually appear independently, yet they are combined with other related traits. Cultural values are the core principles and ideals whereupon a whole community exists, secure and depend on for a balanced connection. They can be thought as norms and ways of behaviour moulding attitudes and responses to events and various phenomena in a cultural setting. These values usually differ on a national basis. National culture is the culture associated with a geographical/political region and its inhabitants. It is widely defined in literature as the distinctive set of values, beliefs, behaviours and norms shared by members of a sovereign nation. It comprises the typical practices, assumptions and customs of a certain population acquired through individual and group striving. Although a large share of empirical studies is based on nations as units of analysis in cross-cultural studies, it is a controversial approach. Some political scientists and economists strongly defend this method, while some others are very critique. Hofstede is one of the main supporters of the existence of national cultures. In his book *Culture's consequences: comparing values, behaviors, institutions and organizations across nations* (2001) he developed a framework to explain the mechanism that permits the maintenance of stability in cultural traits. In the centre are societal norms consisting of a value system (i.e. mental software) shared by members of a national group, which originate from various ecological factors (e.g. geography, history, demography, etc.). In turn, societal norms lead to the spread of social institutions uniquely functioning and structured. These include various systems such as family, education, politics and legislation. Institutions, when built up, fortify the cultural standards and the ecological conditions that prompted their foundation. In a generally shut society such a framework will barely change by any means. Nonetheless, Grosjean (2011) showed through a gravitational model that the impact of a common history between people groups is considerably more critical than nationality. Indeed, his examinations have indicated that it takes at any rate 400 years of political integration (e.g. empire domination) to effectively affect the cultural traits of individuals. This shows that the controversy in considering virtues and preferences on a national scale is still an open question in literature. As concerns institutions, according to North (1990) they are encompassing formal constraints (rules, laws, constitutions) and informal obliges (standards of conduct, convention, and self-imposed codes of behaviour) that sort out social, political and economic relations. One of the best-known models on

institutions is developed by Scott (2008), who argues that three analytical elements comprise institutions, which consist of cultural-cognitive, regulative, and normative elements. The widespread opinion is that institutions can be interpreted as rules guiding living behaviour. Finally, social capital alludes to "connections among individuals, or social networks and the norms of reciprocity and trustworthiness that arise from them" (Putnam, 2000). Thus, it is a cultural variable that comprises “those persistent and shared beliefs and values that help a group overcome the free rider problem in the pursuit of socially valuable activities” (Putnam, 2000). It tends to be viewed as determinant of the success or failure of institutions.

A paragraph is then dedicated to the most significant theoretical models in the field of culture. Here, the works by Hofstede (1980), Schein (1985) and Lewis (2005) are discussed. They represent culture through multidimensional schemes that depict the concept from three different points of view: sociological, organizational and linguistic. Hofstede (1980) theorized that national cultures are based on four bi-polar dimensions to which answers can vary according to the country. These dimensions are: power distance, i.e. “the extent to which the less powerful members of organizations and institutions (like the family) expect and accept that power is distributed unequally”; uncertainty avoidance, or “the intolerance for uncertainty and ambiguity”; individualism vs. collectivism, i.e. “the extent to which individuals are integrated into groups”; masculinity vs. femininity, represented by “the dualism between assertiveness and competitiveness and modesty and caring”. Hofstede added in later studies a fifth and sixth dimension. They are the polarity between long-term and short-term orientation and the dualism between indulgence and restraint. Schein elaborated a model of culture in organizations. In his book *Organizational culture and leadership* (1985) he suggested the idea that culture is built on three levels. The first level is represented by the artifacts, the most superficial cultural aspects of organizations where people can only analyse the observable traits of culture (e.g. language, environment, behaviours). Espoused beliefs and values are the intermediate level in culture structure and represent the ideals and the shared assumption according to which people behave. Finally, the basic underlying assumptions are the most rooted cultural dimension. They underlie the organizational members’ behaviour, are the less visible to strangers and are taken for granted and pre-conscious. Lewis (2005), starting from a linguistic analysis on a large set of countries in the world, has come to determine a model that brings together cultures with similar material and non-material cultural traits. He has classified the world’s cultures in three main categories: linear-active, multi-active or reactive. Linear-active cultures give importance to scheduling (e.g. Sweden, Germany). Multi-actives consider reality more important than plans, are loquacious, do many things at a time and prioritize actions not according to a time schedule but to the importance for their selves (e.g. (e.g.

Italian, Spanish, Africans). Reactive cultures are based on respect and listening, as they react to partners actions or opinions and listen carefully before giving feedbacks (e.g. Japan, China).

The first section concludes with the rundown of 10 empirical research on the subject of national cultures, later taken as a model for the elaboration of the research developed in the last chapter. The empirical contributions are examined in detail, reporting predictive models, studied variables, methods used. The results achieved by scholars are now briefly described. Alesina and La Ferrara (2000) demonstrate that the propensity to participate is influenced to a large extent by individual characteristics by noticing that in U. S. cities whith high income inequality and racial and ethnic fragmentation, participation is significantly lower. Guiso, Sapienza and Zingales (2009) show that, from regressions linking trust levels and cultural similarities and distance, different cultural heritages affect trust among European countries in systematic ways. Minkov and Hofstede (2012) observe that when basic cultural values are compared, in-country regions tend to cluster along national lines rather than be scattered and intermixed with the regions of other countries in the same cultural or geographic area. Alesina and Giuliano (2011) display that preferences for redistribution are determined by personal characteristics such as age, gender, race and socioeconomic status, but they are also a product of history, culture, political ideology and a perception of fairness. The results achieved by Guiso, Sapienza, and Zingales (2004) demonstrate that trust is strongly related to how people invest and participate in financial markets, i.e. where social capital is very low, households invest more in the least trust-intensive form of investment (cash) than in the most-intensive form of investment (stocks). Contradicting Hofstede, Grosjean (2011) advocates the idea that history plays a crucial role in determining cultural traits and preferences, supported by the evidence that people belonging to locations that shared the same former empire show similar level of social trust. Whitt and Wilson (2007) investigate the effect that an outstanding shock (Bosnia's civil war) has on cultural traits through experiments. Scholars argue that, looking at how people treat their in-group and their out-group, a norm of fairness persists, despite preferential in-group treatment and a distinct out-group effect. The paper by Giuliano and Spilimbergo (2014) provides evidence that individuals who grew up during a recession tend to support greater government redistribution, believe that luck is more relevant than effort in determining economic success in life, and vote more for left-wing parties. Bardhan (2000) looks at the relationship between self-crafted and government-enforced rules and law observance. His research highlights that in decision making and rule crafting, the authority needs to be reverted to local farmers, rather than imposing governmental laws. Tabellini (2010) examines the effect of culture and past economic development on per capita GDP, realizing that history is a significant determinant of current economic trends and that the cultural component explained by historical variables greatly influences economic performance.

Some general conclusions can be drawn from the emerged results. First of all, several investigations have shown that in the context of social trust, the greater the diversity in terms of social characteristics (e.g. ethnicity, income), cultural traits and social heritage between people, the lower the level of social capital and consequently trust. The negative relationship between social capital and trust has been proved also in the functioning of formal institutions. For instance, in financial markets it has been manifested the tendency to make safer operations when the quality of legislation is lower. Even in the legislative system, participation and compliance with the law depend on social cooperation and the effective functioning of networks. Secondly, studies on the very concept of national culture have produced contradictory results. On the one hand Minkov and Hofstede (2012) argue that people from different regions show a tendency to recognize themselves in the cultural values developed within national borders. On the other hand, the gravitational model developed by Grosjean (2011) demonstrates the decisive role of history in influencing the cultural traits shared in some territories. This demonstrates that the idea of national culture is still under discussion. Another relevant insight is the correlation between exogenous shocks and cultural values. Experiments and survey data have widely validated that in general, the preferences for a fairer redistribution of wealth are positively correlated with the experience of traumatic events (e.g. war or economic recession) and with belonging to social minorities (e.g. women, African American people).

In the second chapter, moving from the theoretical framework of chapter 1, the focus is on the research methods used in the study of cultures. Starting from the measurement methods, data surveys are presented as the most natural and common tool for measuring culture. The cultural traits observed are usually aggregated in individual surveys' answers to measure values and beliefs at the country level and correlated with variables such as economic indexes or significant events in order to find parallels in cultural preferences and societal conditions. Despite the disadvantage of reverse causality effect, i.e. differences in beliefs may be solely a consequence of different economic and institutional environments, surveys are particularly common because of the easiness of analysis and the possibility of having large samples of individuals interviewed without great effort. Surveys are generally classified according to two dimensions: the instrumentation used and the timeframe in which data are collected. The main survey typologies are the questionnaires or the interviews, according to the data collection mechanism used, and the cross-sectional or longitudinal surveys, depending on the repetition of the observation. The questionnaire is a paper-and-pencil consultation administered to a sample of respondents. Interviews are interpersonal examination designed with the presence of two individuals (interviewer and interviewee). Regarding the span of time needed to complete the survey, cross-sectional studies are data analyses conducted at a specific point in time, while longitudinal

studies track the same subject repeatedly through several observations over a long or short period of time.

As regards the data sources, four research projects collecting direct measures of values and beliefs focusing on specific regions of the world are presented. The General Social Survey (GSS) is the dataset of reference in the United States. It is conducted by the National Opinion Research Center (NORC) at the University of Chicago, on a nationally representative sample of thousands of respondents starting from 1972. Eurobarometer is a survey programme conducted by the TNS Opinion network on behalf of the European Commission investigating on a series of topics relating to the EU and its member states. The Life in Transition Survey (LITS) is a survey series (counts three releases in 2006, 2010 and 2016) directed by the European Bank for Reconstruction and Development (EBRD) in collaboration with the World Bank which collects information on respondents' living conditions and on their beliefs concerning economic, political and social themes. The International Social Survey Programme (ISSP) is an organization founded in 1984 by four national think tanks in Germany, the United States, England and Australia conducting surveys covering useful topics for social sciences research with over one million total respondents participating in the survey sessions.

A different methodology of estimating the effects of culture, holding organizations steady, is to analyse the migrants' behaviour in a goal nation. This logic is typically used in epidemiological studies, which in order to recognize the environmental effect on genes, compare outcomes for immigrants with the ones for natives. For this reason, the method is also known as the epidemiological approach. It is very useful to catch vertical transmission of cultural traits and is based on running regressions where the left-hand-side variable is the result among first- or second-generation immigrants and the independent variables are some measures of cultural traits in the country of origin.

Finally, the third instrument to estimate the role of culture is experimental evidence. Experiments establish an extra asset to measure cultural values such as trust, in addition to the subjective measures that can be retrieved by survey data. Some drawbacks of this method are the experimental design issues in multinational experiments, the prevalence of small sample sizes and the external legitimacy, that is how much evidence from games played by small groups can be generalized. Two of the most common methods used in experiment sessions are the ultimatum and dictator games. The ultimatum game is played by two players, a proposer and a responder. The proposer is given the opportunity to divide a certain sum between him/herself and the responder. The latter has two options: accepting the proposal or refusing it. The equilibrium of the game occurs when the proposer, proposes a sum next to nothing (a token) to the counterpart, who accepts the proposal. The dictator game is a simple adaptation of an ultimatum game proposed by Guth, Schmittberger, and Schwartze (1982). It is a one-

stage game in which a subject (player A) decides how to allocate a sum of money between him/herself and a second subject (player B). The aim of the games is to measure perceptions of fairness and reciprocity in resource distribution, but they are also widely used to examine altruistic behaviour and the factors that generate this cultural trait. In the table below, the differences between measurement methodologies are summarized.

Table 15 – Measurement tools of national cultures

Method	General description	Advantages	Disadvantages
Survey data	Questionnaires or interviews with questions on several fields of life to test beliefs, preferences and cultural values	Vast coverage Easiness of analysis Accessibility Integration opportunities	Reverse causality effect Recall bias
Epidemiological approach	Evidences from second-generation immigrants in a benchmark country	Identification of persistent and vertically transmitted cultural traits	Unsettling issues affecting result Self-selection bias Low representativeness of the country of origin's culture
Experiments	Game sessions played by randomly selected participants from a sample (mainly ultimatum and dictator games)	Adaptability to various geographical locations and local samples	Design issues in multinational experiments Small sample sizes External legitimacy Dubious cultural interpretation

The second chapter ends with a paragraph entirely dedicated to the World Values Survey (WVS), the longest-running research organization in the world. It is a cross-country study project carried out for almost 30 years originally developed on the basis of the first European Values Study (EVS) in 1981 at Tilburg University in the Netherlands. Since 1981 the WVS has completed six waves of polls, providing the most comprehensive analysis of the cultural attitudes worldwide, with a country coverage that varies from 24 countries in the first wave to 60 countries in the last one. The method is based on information collection through interviews on representative national samples of minimum

1000 individuals randomly selected from the entire adult population (18 years and older). Despite doubts and critisisms around questions on family background and ethnicity, the absence of data on individuals' expenditures and savings and the imprecise measure of trust levels, the work of the World Values Survey has continued uninterruptedly for many decades and it is considered to be the most stable source of data used by researchers around the world for social science studies.

In the third chapter, based on the WVS latest data, an empirical research is developed. It focuses on the study of the most important cultural traits to compare national cultures and the goal is to give empirical contribution to the literature by looking at the consolidated relationships between cultural traits. Starting from thousands of observations, a sample of 10 countries is analysed in order to explain what are the factors that influenced the national preferences in four main social aspects. Through regression analysis I tried to confirm or raise doubts about the theses and ideas discussed in previous literature. The analysis is extended to rarely mentioned covariates and countries not yet comprehensively analysed. The content is divided into six sections: introduction, data, method, results, discussion and conclusion.

Following the method used by the majority of papers on national cultures, this research relies on secondary data. Despite the main disadvantages that this method entails (outdated data, divergent purposes, non-specific information), it has been demonstrated that data from international surveys conducted by authoritative research centres are particularly reliable. Data are obtained from the latest available World Values Survey's datasets retrieved from the organization's website. The sixth wave of the World Values Survey was conducted over a 4-years period, from 2010 to 2014, with Haiti's only late inclusion in 2016. Although more recent data exist on the measurement of cultural traits, they are often geographically bounded and refer to distinct research centres. It was therefore preferred to use harmonized information, which derive from questions of the same original form and do not present traceable deviations attributable to the differences in the collection process. The set of countries examined in the current dissertation was selected based on the respondents' sample size of each country, the estimated error reported in the official WVS results and the heterogeneity in geographical distribution. From this cross-analysis, 10 countries were found to have the most reliable and representative samples. These are: China, Germany, India, Japan, Libya, Mexico, Netherlands, Russia, South Africa and the United States.

Concerning the method, the present research might best be described as theory elaboration, which entails contrasting, specifying, or structuring hypotheses as operative tactics (Fisher & Aguinis, 2017). Contrasting facilitates comparisons across settings of examination to assess how relations apply in conditions different from those in which they were initially developed. Specification creates clearer, increasingly valuable constructs and a better understanding of the nature of relations

involving those concepts. Structuring is a technique in which theoretical relations are advanced with the goal of precisely depict and clarify empirical observations. This dissertation is in line with the definition of theory elaboration, as it elaborates theoretical links not previously addressed in the literature and examines theories' application across other settings. The theory previously examined in the literature has been elaborated through the analysis of four main cultural traits (participation, trust, redistribution and environment), whose values have been used as the outcome variables of the research. They are regressed with some explanatory variables: religion, gender, age, income, ethnicity, neighbourhood and social conditions and political preferences. For the construction of the predicted variables, the national averages of samples in each of the categories mentioned were first measured, excluding the omitted answers. Subsequently, an observational index was calculated. Finally, the index was converted into a scale from 0 (minimum trust) to 100 (maximum trust), for easier comparisons of the countries and variables regressions.

In order to validate results through a robust examination, the WVS data underwent three stages of analysis with different methods and sample sizes. The first analysis is conducted through linear regressions on the 10 selected countries using the Excel software's data analysis tool. In the event that this value is less than $\alpha = 5\%$, the relationship between variables is considered significant. The second analysis is focused on the investigation of possible association between the variable Environmentalism and the above-mentioned categorical variables. The method used is the construction of contingency tables with the variable environmentalism and the explanatory variable chosen. For each analysis the odds ratio (only for 2x2 tables), the Chi-square and the Cramer's V (or φ coefficient) are measured. The third analysis session investigates the relationships between the previously described dependent variables and independent variables on the basis of the results of the first data analysis (or preliminary analysis). Using the online analysis tool on the WVS website, the national averages of the variable values are estimated. The method used is the linear regression analysis between dependent and independent variables and results are considered statistically relevant if the p-value is lower than 5%.

After having analysed the data, the evidence and results of the study are reported. They are summarized in the table below.

Table 16 – List of results classified by relevance

Confirmed results	Positive relationship between Social participation and Roman Catholic religion Positive relationship between Social participation and Ethnic fragmentation Negative relationship between Environmentalism and Age

Non confirmed results	Positive relationship between Social participation and Second-generation immigration Positive relationship between Social trust and Income levels Negative relationship between Environmentalism and Neighborhood conditions Positive association between Environmentalism and "Left" political preferences (low to moderate intensity, Japan, Netherlands and USA) Positive relationship between Social participation and Income inequality Positive relationship between Social trust and GDP per capita
Ambiguous results	Positive relationship between Environmentalism and Religion Negative association between Environmentalism and Religion (low intensity, USA)

The outcomes of the study are discussed in detail, especially the three associations statistically confirmed: the positive relation between social participation and ethnic fragmentation, the negative correlation between environmentalism and age and the positive relationship between the Roman Catholic religion and the social participation. The rationales for these results can be summarized in three main circumstances: the tendency of Catholic people to participate in religious communities, the common attention of new generations towards sustainability and environmental protection and the peculiarity of social conditions and historical heritage in the United States, where the negative relationship between participation and ethnic fragmentation was previously proved. The scarcity of shared conditions demonstrates a poor ability to generalize the relationships between cultural variables at an international level, and therefore the persistence of cultures shaped within national borders.

At the end of the chapter, the research difficulties encountered are illustrated. First of all, since the variables resulting from the questions on culture are mainly categorical, it was necessary to create most of the times dummy variables, to translate them into quantitative variables of the value 0 or 1. However, as the dependent variables were frequently quantitative, it was not possible to process regressions at the observational level within the national sample. The solution adopted to verify the correlation was to calculate the percentage of people participating in these groups at the country level and the index of ethnic fragmentation at national level. This method was mainly used for all first and third data analysis, due to difficulties in conducting regressions at the national sample level. Another problem underlying the survey is the respondent's understanding of the questionnaire. This problem is a disadvantage common to all surveys, and it is very difficult to overcome, if not with a cross-analysis of several answers that was conducted in the first analysis. A related drawback is that a trend in the responses that varies from country to country may turn out. This can be overcome by attributing

a fixed country effect to the responses of some samples. Finally, it should be noted that the data sources on which the research is based are not recently published. They are based on surveys conducted between 2010 and 2016. In the time that has elapsed, some deviations from the present results may have occurred. For this reason, the future work of study centres such as the World Values Survey, will be even more important. Starting from the publication of the new WVS wave of data in July 2020, the scientific community will be supported by new evidences, and this will hopefully encourage the development of further research on the topic.