Essays on trust, corruption and welfare

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Declaration

In this section, I declare that:

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed Georgios Melios

Date 26/09/2019

STATEMENT 1 This thesis is the result of my own investigations, except where otherwise stated. Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

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Abstract

This thesis builds on the literature of new institutional economics focusing on the formation and interactions of formal and informal institutions as well as their effects on welfare.

The first empirical chapter focuses on Europe and explored the interplay between trust in national governments and corruption. Over the past decade European citizens' confidence in political institutions has declined sharply. This essay explores what makes individuals report a particular level of trust towards their national government and why in Europe such trust is declining. At first, the chapter identifies the theoretical grounds of what affects trust decisions; exploring subsequently the question empirically by analysing data from the Eurobarometer (2005-2018). Using a multilevel logistic regression, I combine micro and macro characteristics to also explore the role of perceived corruption in this process. Results suggest that corruption is a significant determinant of trust in national governments, particularly where austerity was present.

Subsequently, the second empirical analysis focuses on the interrelations between informal and formal institutions through the intergenerational transmission of trust. In this chapter, I explore the role of individuals' historical lineages in determining their contemporary political attitudes. Distinguishing between formal and informal institutions and motivated by a growing literature in economics and social sciences on how history matters in explaining variations in economic outcomes, I examine how pre-colonial cultural and ethnic characteristics in Africa persist over time and shape contemporary political beliefs and attitudes towards political and traditional leaders. Two different matching methods are employed in order to match as best as possible contemporary respondents of the Afrobarometer with their ancestral lineages. Results confirm the hypothesis that there exist deeply rooted ethnic legacies that still shape political attitudes and beliefs today.

The final essay shifts the regional focus again in the European Union and the interplay between political trust and subjective wellbeing is explored. Using data from the European Social Survey and a multilevel hierarchical modelling the effects of trust in national parliaments on subjective wellbeing are explored. Results suggest that insecurity with formal institutions, as expressed by distrust in national parliaments, is a significant determinant of subjective wellbeing in European Countries.

Abbreviations

AUEB	Athens University of Economics and Business
CCI	Control of Corruptin Index
COC	Control of Corruption
CPI	Corruption Perceptions Index
ESRC	Economics and Social Sciences Research Council
ESS	European Social Survey
EU	European Union
GDP	Gross Domestic Product
ICRG	International Country Risk Guide
IOEA	Institutional and Organisational Economics Academy
OECD	Organisation for Economic Co-operation and Development
SIOE	Society of Institutional and Organisational Economics
UCL	University College London
UK	United Kingdom
UN	United Nations
US	United States
WINIR	World Interdisciplinary Network for Institutional Research

″διπλοῦν ὁρῶσιν οἱ μαθόντες γράμματα″

[Those who are educated see twice as much as those who are not]

– Pythagoras of Samos, c. 570 – c. 495 BC

To my family

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1

Introduction

"Begin at the beginning," the King said, gravely...

– Lewis Carroll, *Alice in Wonderland*

Economics is the study of human behaviour as a relationship between ends and the scarcity of resources that have alternative uses (Robbins, 2007); a relationship that is usually characterised by cycles of balance and crises. The dynamics of this paradox have always driven social change through demographic transitions. Indeed, scientists have in good authority that these transitions caused by imbalances in fertility and mortality rates have been the key drivers of evolution (Acemoglu et al., 2002). Humanity owes most of its great leaps forward in such demographic changes.

Modern humans (Homo Sapiens) emerged about 200,000 years ago in Africa and started migrating across the globe 100,000 later. Humanity's population remained low – most probably less than 1 million – for about 90,000 more years. At that point in history, circa 10,000 BC, earth's population rose beyond a sustainable level, and nature's declining ability to satisfy the hunger of those

prehistoric hunter-gatherer societies forced them to innovate and conceive new ideas about other possible sources of nutrients. The primary example of that was the possibility of enslaving mammals in order to cultivate them and drink their milk on a perpetual basis, instead of eating them on the spot. This process set us on the path of the first great leap of humanity, the Neolithic revolution (also known as the agricultural revolution). Working with the soil, seeds and mammals allowed humanity to achieve for the first-time quantities of food and other products that exceeded the quantities they needed over the same period. What are nowadays called surpluses helped humanity deal with the severe food shortages that lead to the agricultural revolution and allowed the first significant demographic transition of human history. As shown in Figure 1.1, the human population rose by 170 times in 10,000 – from about 1,000,000 in 10,000 BC to about 170,000,000 in AD 1.

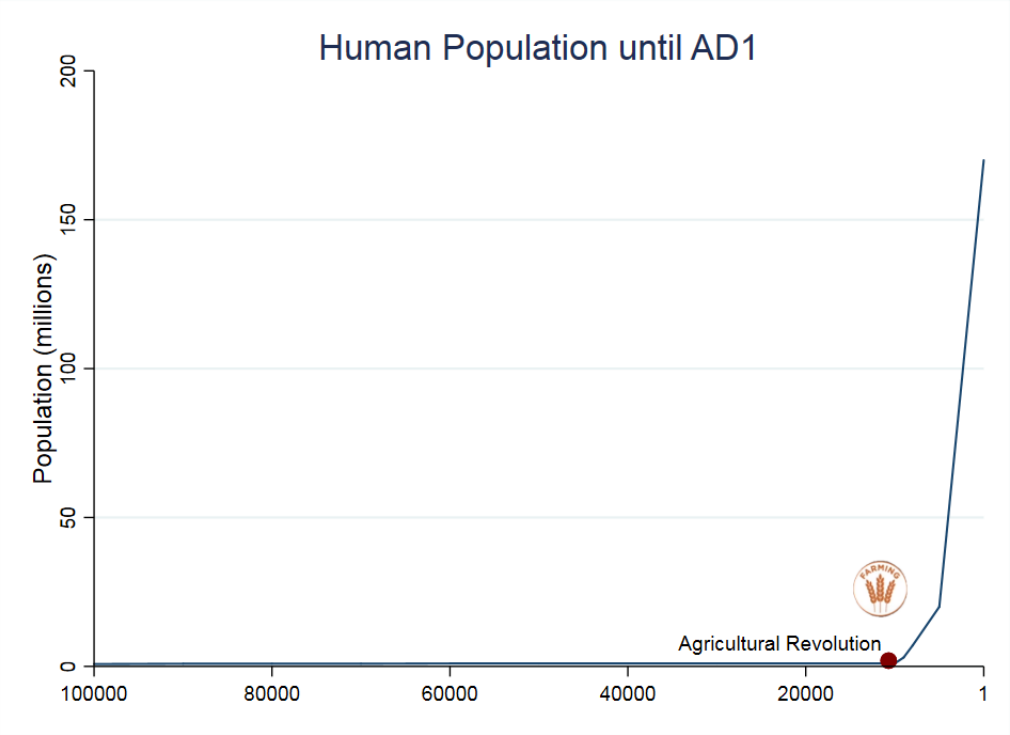

Figure 1.1 Evolution of homo sapiens population until AD1. Source: American Museum of Natural History

In turn, these surpluses created new needs that generated what is now considered the three pillars of civilisation: the written word, the wheel and the plough (Acemoglu, 2008). Simultaneously, these societies in order to manage and distribute the accumulating surpluses formed the necessary structures and mechanisms which over time evolved to what North (1991b) broadly defined as formal and informal institutions, *"[...] the humanly devised constraints that structure political, economic and social interactions [...]"*. Indeed, these surpluses gave rise to bureaucracies, organised religion, structured languages (initially developed for bookkeeping) and later on democracy.

Considering AD 1 as the ending point of the first significant demographic transition as well as the starting point of the path that leads us to the second great leap of humanity, essential similarities can be observed. As Figure 1.2 shows, the human population remained stable and low between AD 1 and the next significant demographic transition that lead to the second great leap of humanity, the industrial revolution.

As far as the industrial revolution is concerned, the cause can be traced back to another demographic transition known as the *"Black Death"*. Starting from China through the silk road in 1346, the bubonic plague reached Europe through the Ukrainian port of Crimea in the Black Sea (Harari, 2014). The plague is often characterised as one of the most devastating pandemics in human history and is estimated to have cost between 75 and 200 million lives in Europe and Asia. That pandemic and its spread through the silk road lead humanity on a path to discover other possible routes of trade which in turn brought improvements in navigation and shipbuilding. These improvements made it possible for the first time to establish a set of new global trading networks which led to the Spanish, British, Dutch and Portuguese colonies and the birth of a new way to accumulate

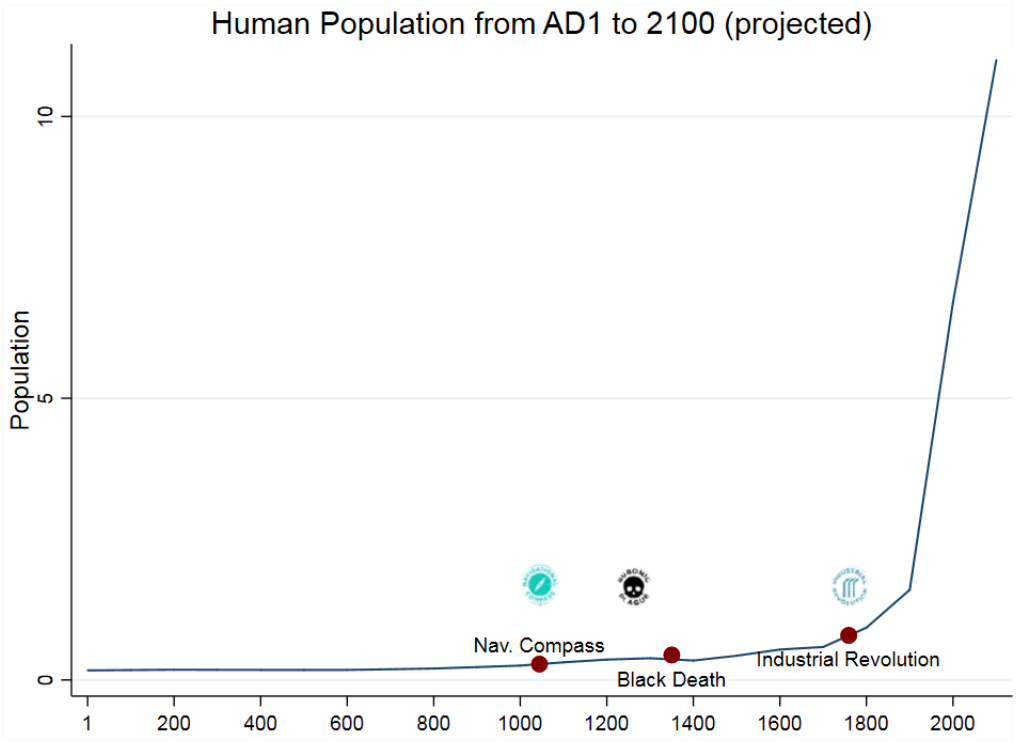

Figure 1.2 Evolution of homo sapiens population between AD1 and today. Source: American Museum of Natural History

surpluses, the "commodities" and "global currencies". Traders could exchange wool for Chinese silk, that silk for exotic spices from India and these spices for more wool than they had in the beginning, accumulating "surpluses" through long-distance arbitrage. The accumulated wealth, alongside with the tragic introduction of a new form of trade, that of slaves, formed a unique combination of available capital and labour that became the spark that ignited the industrialisation (see Harari (2014) for a brief account of the historical literature on the topic and Pamuk (2007) on the economics of it).

In the course of these 12,000 years that passed between the Neolithic revolution and today, humanity has shown many great advancements, two of which are the main scope of this thesis: institutions and the notion of wellbeing. As discussed above institutions can be thought of as the formal and informal contracts that shape the way humans interact socially, politically and economically.

In his seminal work North (1990) defines institutions as the *" rules of the game"* that accumulated over time and guided humanity from the hunter-gatherer societies of 10,000 BC to today's modern ones. These contracts that allow individuals to act collectively or at least act individually in a collaborative way, helped humanity escape from the starvation trap and use accumulated surpluses for purposes other than food (i.e., clothes, better shelters, jewels, tools, artefacts) building over time a culture of flourishing instead of survival, known as "wellbeing".

With the notion of wellbeing, one is attempting to describe a general term for an individual's (or a group's) condition in life after the escape of the starvation trap. Over the millennia, there have been numerous theories on what is wellbeing, if it exists, how do different societies understand it and what determines it. Evolution theory suggests that humans evolved to survive and reproduce not to be happy (Rayo and Becker, 2007a). However, according to Hudson (2006) happiness is considered by most people nowadays to be the single most important goal in life when considering that virtually most people would prefer to be happy rather than unhappy. It is only after the agricultural revolution, circa 10,000 BC, when most ancient civilisations started to show signs of a progressive social transformation, from food-gathering centred societies to ones concerned more with human flourishing. At the end of the day, people want an overall positive life experience that is not driven solely from consumption and researchers to attempt to understand what influences these positive experiences in order to aid the human capital aspire to them and increase their productivity.

The first important reference of the concept of wellbeing, either personal or civil, is traced back to the work of the Greek political philosopher Aristotle on *"Eudaimonia"* (Ευδαιμονία in Greek), a Greek word for happiness and welfare. In Aristotle's work, happiness is a by-product of a good life (sustained happiness)

rather than a static goal that people can attain by aspiring to it (Frey and Stutzer, 2002b). For centuries after Aristotle, happiness has been a central theme of multidisciplinary research. Philosophy was the first field to deal with happiness with major works of Bentham, Mill, Kant and others. Afterwards, the empirical study of happiness has been mostly the province of psychology, sociology as well as political science. Nowadays research on wellbeing is widely accepted as being relevant in economics as well resulting in a significant volume of related literature. Reviews of the relevant developments can be found in Frey and Stutzer (2002b) and Kahneman et al. (1999).

The early contribution of Easterlin (1974) linked psychological research on happiness and subjective wellbeing to economics. According to Frey and Stutzer (2002b), general interest among economists in the measurement and the determinants of happiness was raised in a 1993 symposium, the proceedings of which were later published in the Economic Journal (Oswald, 1997). In the late 1990s, many empirical works emerged on the determinants of happiness in various countries and periods. Since then much multidisciplinary research has furthered our understanding of the sources of happiness, life satisfaction and other embodiments of subjective wellbeing. All these studies, through different measures, methodologies and targets had the same broad goal that of identifying what makes people experience a particular level of satisfaction with their lives, in other words, what makes them happy. Nowadays there is a substantial literature on the economics of happiness, much of which is focused on cross-sectional and time series analysis, aiming to establish the determinants of happiness.

One of the hypotheses which have emerged from the literature is that institutional factors have an impact upon wellbeing and while literature has already identified institutions as a determinant of wellbeing, the nature, magnitude

and details of this relationship remain widely unchartered mainly due to lack of relevant data. The investigation of this relationship is considered timely and relevant (Bennett et al., 2016) for numerous reasons, to understand it however one must first clearly understand the notion of institutions, their determinants and effects.

In economics, institutions were broadly defined by the seminal work of North (1991b), according to whom institutions *"[...] shape the subjective mental constructs that individuals use to interpret the world around them and make choices. Moreover, by structuring the interaction of human beings in certain ways, formal institutions affect the price we pay for our actions [...]"*. In that sense, institutions play a vital role in reducing transaction costs and shaping the appropriate incentives that drive economic outcomes (Bennett et al., 2016).

North's work on institutions sets out the framework on how economists think about the nature, foundations and mechanisms of these mental constructs some of which over time transformed to formal constraints (formal institutions i.e. governments, laws) whilst others exist as informal ideologies that persist across generations through norms and beliefs (i.e. trust, cooperation). Trust is a key concept among the norms and beliefs studied by economists and social scientists as it encompasses the formulation of decisions upon information acquired. These decisions influence how humans interact with each other and ultimately determine their subjective experiences, part of which is their satisfaction with various aspects of their lives (Bennett et al., 2016).

Most of the existing literature on the field of new institutional economics focuses on establishing the importance and effects of institutions on aggregate macroeconomic outcomes such as GDP, investments, GDP growth, or individual income, as well as the mechanisms of these relationships. A significant part of

the literature is also concerned about how the development of these institutions, formal and informal, have shaped and established modern societies resulting in new ones.

A part of the literature that remains widely unchartered is the interaction of institutions with wellbeing (Bennett et al., 2016). Combining that with interdisciplinary literature on wellbeing, one assumes that institutions must have both direct and indirect effects upon individuals' wellbeing. The direct one is the effect that these mental constructs have on subjective experiences by shaping different living conditions in modern societies and the indirect the effect that institutions have upon wellbeing through economic transmission channels.

Wellbeing as a multidimensional concept, requires looking not just at the mechanisms, sustainability and health of the economic systems, but also at a variety of other factors such as living conditions, civic engagement, health, household income, education, social interactions, overall life satisfaction, emotions, meaning and self-esteem. Many of these wellbeing dimensions are strongly correlated with economic development.

However, there are also striking discrepancies, especially, when it comes to how people perceive their lives are going (Stiglitz et al., 2009). An excellent example of this observation could be some oil-rich countries of the Middle East where some of the highest levels of per capita GDP globally are observed, and they lack in other wellbeing dimensions such as education, freedom, democracy, human rights or women rights. It is essential to understand that while well structured, inclusive institutions are an optimal goal that societies must aspire to, studying the effects of different types of existing institutions and their imperfections on different outcomes (i.e. aggregate output or wellbeing), might help understand their mechanisms and decide on different public policies.

Some might raise concerns about whether wellbeing is something that should be instructed by public policy. For example Johns and Ormerod (2007) raise the concern that *"The logical conclusion of much happiness research – that individuals' personal judgements about what is good for them can, indeed should, be overridden by experts who can 'prove' these judgements did not make them happier- is both undemocratic and unattractively paternalistic. While it is true that individual agents are not in general capable of following the maximising precepts of the behaviour of economic theory, the idea that policymakers can do so in their stead should be treated with a great deal of scepticism."*. However, understanding the relationship between institutions and wellbeing will not only allow to explore policies on wellbeing but mainly will allow to comprehend institutional fallacies and design policy reforms that will make institutions perform better over time and subsequently strengthen the necessary conditions for increased wellbeing.

The following two chapters present two distinct but also interrelated reviews of the literature in regard to the two main aspects of this doctoral thesis: institutions and trust. At first, the importance and relevance of institutions is explored followed by a thorough look on the enquiries about trust throughout centuries and different disciplines. The literature review chapters are followed by Chapter 4 which provides an overview of the methodological framework used throughout the thesis and the three main empirical exercises of this thesis.

Chapter 5 focuses on Europe and explores the interplay between trust in national governments and corruption. Over the past decade European citizens' confidence in political institutions has dropped sharply. This chapter examines what makes individuals report a particular level of trust towards their national government and why in Europe such trust is declining. At first, the chapter lays the theoretical grounds of what affects trust decisions; exploring subsequently

the question empirically by analysing data from the Eurobarometer (2005-2018). Using a multilevel logistic regression, I combine micro and macro characteristics to also explore the role of perceived corruption in this process. Results suggest that corruption is a significant determinant of trust in national governments, particularly where austerity was present.

Chapter 6 focuses on the interrelations between informal and formal institutions through the inter-generational transmission of trust. In this chapter, I explore the role of individuals' historical lineages in determining their contemporary political attitudes. Distinguishing between formal and informal institutions and motivated by a growing literature in economics and social sciences on how history matters in explaining variations in economic outcomes, I examine how pre-colonial cultural and ethnic characteristics in Africa persist over time and shape contemporary political beliefs and attitudes towards political and traditional leaders. Two different matching methods are employed in order to match as best as possible contemporary respondents of the Afrobarometer with their ancestral lineages. Results confirm the hypothesis that there exist deeply rooted ethnic legacies that still shape political attitudes and beliefs today.

Lastly, in Chapter 7, the regional focus is shifted again in the European Union and the interplay between political trust and subjective wellbeing is explored. Using data from the European Social Survey and a multilevel hierarchical modelling the effects of trust in national parliaments on subjective wellbeing are explored. Results suggest that insecurity with formal institutions, as expressed by distrust in national parliaments, is a significant determinant of subjective wellbeing in European Countries.

Concluding remarks and discussion of the results of this thesis follows on Chapter 8, after which a full list of bibliographic references is provided.

This doctoral thesis contributes to a growing body of empirical literature of the determinants and effects of institutions on economic and political outcomes. The contributions of this work can be summarised in the following three main points:

- **Micro-Macro level interactions**: One of the main novelties of this doctoral thesis is that for the regions, time periods and topics of this study (to the author's knowledge), applies for the first time a novel multilevel empirical strategy that allows for the better examination and decomposition of different outcomes. Even though such empirical strategies have been used in the past in social sciences and both their merits and limitations are known (see Bryan and Jenkins (2016)), its use for the study of macro to micro political and institutional outcomes is limited. Recent literature (Foster and Frieden, 2017) suggests that such empirical strategies could be helpful in order to decompose individual country level effects on political attitudes. In that suggestion, lie both the main motivation and contributions of the methodological component of this thesis. The use of multilevel models, especially in Chapter 5, allowed for a more thorough investigation of the country-level determinants of individuals' levels of political trust in national governments.

- **Determinants of institutional perceptions**: Through the exploration of macro-micro interactions, this thesis also contributes, in ways beyond methodology, to the literature of empirical studies that seek to explain how individuals form their perceptions and beliefs about institutions and their quality. Through Chapters 5 & 6 of these thesis, the reader gets novel insights on how different environments shape individuals beliefs about political institutions. Using the financial crisis of 2008 as a starting point, Chapter

5 explores its differential impacts on citizens perceptions across different European countries providing insights on the role individual institutional frameworks on the process (through perceived corruption). At the same time, Chapter 6 takes a more macroscopic view of the determinants of political trust by trying to understand the deeply-rooted determinants of such processes. This provides novel insights on how unconscious processes (such as intergenerationally transmitted cultural traits) affect political decisions at the present.

- **Direct effects of political perceptions on lived experiences**: Lastly, the macro-micro interactions empirical strategy of this thesis allows for an interesting investigation of the direct effects of political perceptions on individuals' welfare (as measured through subjective wellbeing). That is achieved by exploiting the advantages of multilevel analysis, as presented by Mehmetoglu and Jakobsen (2016). The main advantage of this methodological strategy is that it decomposes through variance decomposition, whether changes in individual level outcomes can be attributed to their micro level characteristics or macro level determined phenomena. This is applied in the empirical exercise of Chapter 7 which seeks to explore what were the effects of the sharp decline of political trust in Europe, which was explored in Chapter 5, in individuals' wellbeing.

2

Institutions

2.1 Definitions of Institutions

The definition of institutions is that these are key rules which set the framework in which individuals act and interact. The rules can be social conventions or formal laws and are both known to the members of the society. One of the most widely cited definitions for institutions is the one provided by North (1990):

> *"Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction. In consequence, they structure incentives in human exchange, whether political, social, or economic. Institutional change shapes the way societies evolve through time and hence is the key to understanding historical change (North 1990, p3-5)."*

North (1990) defines institutions as the rules that influence the interaction between players (humans). Additionally, North (1994) adds that "institutions are the rules and organisations and entrepreneurs are the players" (p. 361), while institutions are shaped by the interaction between groups of individuals. However,

the conflicts arising within organisations (political parties, firms, unions etc.) are eliminated if they are considered as actors (Hodgson 2006a). Such conflicts could determine "winners" and "losers" within the organisations and may have additional political and economic effects for the society or the country. As a result, this may impact the evolution of institutions. On the one hand, if the main interest is the political and economic system as a whole, one may choose to define organisations as player. While on the other hand, organisations may be defined as institutions if the internal conflicts and rules of the organisations may affect different outcomes. Nonetheless, this will depend on the scenario examined by the researcher.

Furthermore, North (1990, 1991a, 1994) distinguishes between formal rules and informal constraints, while his definition has been extensively discussed by Hodgson (2006a). The term "formal rules" corresponds to the laws and orders in a country "enforced by courts", while informal rules are those enforced by the society. Hodgson (2006a) argues that the distinction between "formal rules" and "informal constraints" is confusing and a further distinction is necessary. Even if "formal rules" indicate laws and "informal constraints" indicate behaviour or habits, Hodgson argues that "If all rules are formal, and institutions are essentially rules, then all institutions are formal" (Hodgson 2006a, p.11). Additionally, Hodgson maintains that North does not include any definitions that separate rules from constraints and, due to the vagueness that these terms create, he proposes that they should be either abandoned or defined more accurately.

In conclusion, Hodgson (2006a) defines institutions as "durable systems of established and embedded social rules that structure social interactions, rather than rules as such. In short, Institutions are social rule-systems, not simply rules." Hodgson (2006a) offers a further distinction between "agent sensitive institutions"

and "agent insensitive institutions". An "agent sensitive institution" is one that changes or is abandoned as preferences change, while the "agent insensitive institutions" are those not subject to preferences or the behaviour of the individuals. Compared to North's definition, Hodgson illustrates the importance of an individual's psychology and preferences in explaining the creation of institutions. He argues that some institutions are highly influenced by preferences, while others are set by hard constraints that leave no choice to the individuals. Consequently, some institutions – and institutional change – are influenced by the beliefs of individuals, while others determine the behaviour of people during their interactions (Hodgson, 2004).

2.2 Creation and Evolution of Institutions

2.2.1 Origins of Institutions

Apart from the definition of institutions, another important subject is the factors that lead to the creation and evolution of institutions (Acemoglu and Robinson, 2000). The concept of institutions and evolution have a long standing history as more and more researchers have attempted to evaluate, analyse and criticise the theories and their validity. According to Hayek (1973), these types of shared rules have persisted as they have shown to be functional to the society or a group of people after their first appearance.

One of the main concepts on evolutionary economics was introduced by Adam Smith who argued that social order can emerge without any central direction, as conscious overall design does not always lead to economic outcomes. The philosophy around institutions and evolution has attracted considerable attention

by a number of social scientists, while the evolutionary principles of Charles Darwin were first brought into the social sciences by Thorstein Veblen (Hodgson 2004).[1]

While institutional economics dates back to sources such as the German historical school and the original American Institutionalists (Hodgson, 2004), the traditional institutionalism was heavily criticised by a mount of researchers and scientists. For instance, Langlois (1986) in his work argued that *"the problem with the historical school and many of the early Institutionalists is that they wanted an economics with institutions but without theory"*.

After the 80s, the evolutionary and institutional economics has changed drastically. In his statement on institutions supporting that institutionalism is *"not theoretical but anti-theoretical"*, Coase (1984) has played a major influence over the past decades as more and more scholars have shifted from the generic term to the term 'new institutional economics'. This new term was first introduced by Williamson (1975) stating that *"Where they differ is that older style institutional economics was content with description, whereas newer style institutional economics holds that institutions are susceptible to analysis"* (Williamson, 2002).

The new institutionalism has two important characteristics; the first one is that institutions are explained in terms of the interactions of individuals with a given preference function or given purposes. In that sense, it explains institutions through a set of given individuals and their interactions (Hodgson, 2004). The second important characteristic as outlined by is the focus on the survival of specific institutional forms as they are *"alleged to lower 'transaction costs' relative to their alternatives"*.

[1] A number of social scientists have further developed evolutionary ideas such as Schumpeter (1912), Hayek (1973), Hayek (1988) and Nelson and Winter (1982)

Several institutional economists have shifted from the neoclassical theory to the new institutional economics approach as an attempt to introduce the theory of institutions to economics. According to North et al. (1993), the new institutional economics *"builds on, modifies, and extends neoclassical theory to permit it to come to grips and deal with an entire range of issues heretofore beyond its ken"*.

A number of researchers from different fields have used the approach of the new institutional economics. For instance, in North (1986) it is argued that although the new institutional economics has similar groundings to the neoclassical theory (e.g. in terms of the methodological individualism and the self-interest principle), the neoclassical economics did not take into consideration the impact of institutions. Nabli and Nugent (1989) applied the NIE theory to development economics and emphasised on two main approaches as being relevant to the NIE theory; first are the transaction and information costs targeting private goods; second is the theory of collective action which targets public goods (e.g. pollution or highways, higher wage rate, a higher price, ... a regulation, a lower tax rate or a policy rule etc) (Nabli and Nugent, 1989).

Coase (1937) influential work was the first who connected institutions, transaction costs and neoclassical theory. North et al. (1993) emphasised the importance of institutions for obtaining market efficiency. In particular, he argues that the neoclassical theory provides efficient markets only when transactions are without costs. However, as most of the individuals transactions are based on the national income (hence costly), institutions and property rights are important determinants for market efficiency.

However, the new institutionalist literature which emerged after the 1980s was criticised by a number or authors. As stated by Hodgson (2007), it is generally argued that in the new institutional theory the explanations start from

the traditional institutionalism, however, the starting point of explanations cannot be institution-free. Hodgson further suggest a theory of process and development instead of proceeding from an initial artificial *"state of nature"*.

Haavelmo (1997) stated the importance of reformulating the new institutionalism and include historical institutions in the analysis so that the evolution of institutions would emerge from other institutions and not from an institution-free *"state of nature"* (Hodgson, 2007). Moreover, Knight and Jack (1992) argued that it neglects the importance of distributional and power considerations in the emergence and development of institutions, while Aoki et al. (2001) developed an approach using game theory in order to explore the evolution of further institutions.

Another influential contribution in the spectrum of institutional economics was made by Elinor Ostrom in her work on *"governing the commons"*, which is a major contribution in developing a theory to better understand self-governing institutions. Her work emphasised on the *"development of a broader theory of institutional arrangements related to the effective governance and management of common-pool resources (CPR)"* (Ostrom, 2005). The main aim was to examine the main determinants that lead individuals in CPR situations to organise collective action. CPRs are defines as *"a natural or man-made resource system that is sufficiently large as to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use"* (Ostrom, 1990).

Many of the early scholars that discussed the creation and persistence of institutions argue that institutions form and persist only because the ideas and the rules that they incorporate are, to a large extent, individuals' habits (Dewey 1888; James 1892; Dewey 1922; Kilpinen et al. 2000). Dewey (1888, 1922) is one of the first scholars that discussed the creation and change of institutions. Dewey

argues that institutions emerge due to the fact that people tend to react similarly under the same circumstances (*"in like fashion"*). Following that he argues that they persist because these rules become social customs and are passed from one generation to the next. Bisin and Verdier (2001) and Nunn (2007) among others have provided theoretical and empirical insights and evidence that support the argument of inter-generational transmission of formal and informal institutions. These will be further explored in Chapter 5.

Another avenue of enquiries regarding the formation and evolution of institutions was that of the impact of beliefs and habits. Searle (1995, 2005) argues that most institutions exist because people have particular beliefs and attitudes that become a widely-accepted rule. On the other hand, Tuomela (1995) supports this theory but distinguishes between rules and norms. Tuomela (1995) argues that norms are interactions between individuals with common beliefs, while rules are the result of agreements that are enforced by some authority. As preferences are formed based on individuals' beliefs and habits, they have a key role in determining the outcome of human interactions. Hence, institutions are the result of conflicts/cooperation between people or groups of people with opposing/common interests, or, as Sugden (2000) argues, the creation and evolution of institutions is a result of preferences.

The idea that institutions emerge due to norms can partly explain why they evolve slowly and tend to be sticky. However, accepting that institutions are solely influenced by norms and a rule-following behaviour, would be myopic as it allows no space for *intentionality* from the definition of institutions. It is a fact that many behaviours form due to the intentions and expectations of people during different forms of interactions. As a result, some of the institutions that emerged and persisted through the years are a result of good or bad intentions; one example is

the two-term limit for the US president. Term limits were a tradition in many US states prior to the establishment of the Constitution and they were regarded as a way to protect democracy and the states from oligarchies. As a result, rotation in office was regarded by voters and officials as natural (Struble 1979).

Regarding the origin of institutions, there are four major views(Acemoglu et al., 2005):

- Efficient Institutions
- Social Conflict
- Ideology/ Beliefs
- Incidental Institutions

According to the *"efficient institutions view"*, social groups or individuals by maximising their surplus, influence existing institutions. An institution is established when the costs are less than the benefits the groups are facing. Consequently, if the current conditions in societies are beneficial for a certain group but negative for another, these two groups may negotiate and change the institutions or create new ones, hence, increasing the total surplus. According to the *"efficient institutions view"*, the differences in institutions between countries arise from the different characteristics of each country. No good or bad institutions exist; while an institution may create significant benefits for one country or a society, it might have the opposite effects in another.

The *"social conflict view"* suggests that institutions may appear as choices of groups, but are not necessarily efficient. This interpretation originates from the idea that institutions are shaped mostly by the social groups that hold political power and make choices according to their own benefits. Therefore, due to the role of initial allocation of power, emerging institutions may not always maximise

total surplus. Schumpeter (1934) describes another aspect of the process of economic growth which is called "creative destruction". Economic growth will destroy economic relationships, businesses and sometimes individual income by introducing new technologies or institutions as well as creating new companies that will replace the existing. This process creates a natural social tension, even in a growing society. Kuznets (1957) discussed the mechanisms through which growth and development are often accompanied by structural transformations that substitute/ destroy certain established social relationships creating winners and losers. Greif (2007) offers an example supporting this view, analysing the origin of constitutionalism[2]. Greif (2007) emphasised that constitutionalism evolved due to the need of the ruler for administration.

The *"Ideology/ Beliefs view"* focuses on the role of beliefs of individuals in the formation and development of institutions. Over the centuries, prominent authors have enquired about the role that expectations about others' actions and beliefs have in social interactions, including Plato, Adam Smith, David Hume and Huizinga (2008). In relation to institutions, this view is based on the impact beliefs may have on social networks and interactions and is linked to the role of culture in shaping institutional and economic outcomes. For years, a major barrier regarding this research avenue was the lack of data and difficulties in measuring beliefs or even how they differ across contexts in order to explore the mechanisms through which they affect institutions. Over the past decades, new methodologies and data allowed for a renewed interest in this topic (i.e. Nunn and Wantchekon (2011); Michalopoulos and Papaioannou (2013); Michalopoulos et al. (2019)). The literature regarding this view will be furthered explored and analysed in Chapter 5.

[2]A set of rules that may constrain the government or those in power

The fourth and last of the views regarding the origins of institutions is *"the incidental institution's view"*, which indicates that institutions are a result of the interaction within societies, rather than choices of social groups. As people interact, some institutions may unintentionally be formed (Nelson and Winter 1982; Young 1998; Acemoglu 2003; Acemoglu et al. 2005). One can argue that due to the wide range of variations of social orders around the world, there is evidence to support each view in different cases and therefore most probably a holistic approach to institutional development lies in a solution that involves multiple equilibria of the interaction of these four views depending on the case study.

2.2.2 Levels of Institutions

In addition to the complexities of defining institutions and exploring their origins another avenue of research focuses on their typology. Williamson (2000) argues that institutions can be sorted in four levels.

The first level is the *"social embeddedness level"*. It concerns *"informal constraints"* part of North's definition and consists of norms, customs, traditions, etc. When examining the determinants of institutions and the effects of institutions on the economic performance of a country, many scholars consider this level of institutions as fixed as it takes centuries or even millennia for them to change. According to Smelser and Swedberg (2010), the different types of social embeddedness such as cognitive, cultural, structural and political should be specified and defined further in order to better understand how informal institutions arise and why it takes so long for them to change. Recent studies have focused on decomposing this *"black box"* of informal constraints, norms and culture both theoretically and empirically (i.e. Tabellini (2008); Nunn and Wantchekon (2011)'

Uslaner (2018); Michalopoulos et al. (2019)). The scope of this thesis is to add on this literature by providing empirical evidence on the role of trust beliefs in determining political and welfare outcomes.

The second level of institutions according to Williamson is the *"institutional environment"* which consists of formal rules and laws and define property rights and contract laws. Level two's main aim is to "get the institutional environment right" and is the start of "*first-order economising"*. This second level of institutions is very important for the economic performance of a region as it affects the productivity and the economic activities within a society. Institutional change at this level is also slow but may come through civil wars, a military coup , breakdowns or crises.

The third level is *"the institutions of governance"*. This level consists of all the rules that govern the contractual relations and can vary/ adjust in order to minimise transaction costs. It is related to transaction costs economics and as Williamson describes, level three's main aim is to "get the governance structures right" and is the start of the "second-order economising".

The fourth and final level is referred to as *"the resource allocation and employment"* which is the continuous adjustment of prices and quantities within an economy. In this level, Williamson refers to it as *"getting the marginal conditions right"* and builds up on the *"third-order economising"*. While level 3 consists of a discrete structural analysis of governance, the final level consists of the neoclassical analysis and agent theory.

There is an interaction between the levels defined by Williamson (2000). Higher levels have an important role in the shaping of lower levels and there is some feedback from lower to higher levels; for example, level one has a significant role in the designing of level two, setting the constraints for the institutional

environment of a society and level two in the shaping of level three etc. In turn, lower levels affect the higher levels, as they are the results of the higher levels' designing. However, as higher levels tend to change much more slowly than each subsequent lower level, this feedback can be ignored.

Ostrom (2005) with her views on common-pool resources, argues that rules *"can differ from laws and official regulations"* and presents a new distinction between three different levels of rules:

The first level of analysis is the *"Operational-choice rules"* which, according to Ostrom are the regulations placed for the work and decisions taken on a daily basis. The processes in this level are described as "Appropriation", "Provision", "Monitoring" and "Enforcement".

The second level as outlined by Ostrom are the "*Collective-choice rules"*. These rules are indirectly affecting operational rules as they are mainly used by appropriators, officials or authorities. Hence, its process requires "Policy-making", "Management" and "Adjudication".

The last level of rule is the *"Constitutional-choice rules"*. Ostrom states that constitutional-choice rules "affect operational activities and their effects in determining who is eligible and determining the specific rules to be used in crafting the set of collective-choice rules that in turn affect the set of operational rules". This process includes "Formulation", "Governance", "Adjudication" and "Modification".

As stated by Ostrom, individuals who are self-governed and self-organised are able to work among the different levels of rules. On the contrary, if individuals are neither of the two (self-governed or self-organised), they are given the structure of a problem and are allowed to adjust accordingly.

2.2.3 Theories of Institutional Change

The role of institutions and institutional change in the economic performance has received much attention during the past decades. However, there is no general agreement on either the definition of institutions or the process of the evolution of institutions.

The literature on institutional change can be grouped into two broad categories (Kingston and Caballero 2009). The first group includes the theories in which institutions are created in a centralised or by interactions between individuals or groups of individuals that try to implement or block institutions for their own benefit. On the other hand there are the theories of *"evolutionary"* change where the process is decentralised and new institutions are created spontaneously without the coordination of individuals. Both approaches are useful and may be applied to different settings.

The theories on centralised institutional change consider institutional change as a process in which the new policies and rules are set by the state or groups of individuals during political or economic interactions. Ostrom (2005, p. 254) outlines the process of institutional change *"... appropriators ... have to conclude that the expected benefits from an institutional change will exceed the immediate and long-term costs."* The author furthermore states that the need for cooperation and organisation depends on the current institutions.

In decentralised institutional change theories or evolutionary theories of institutional change, *"there is no central mechanism which causes a coordinated shift in the rules perceived by all players, or in their behaviour or beliefs"* (Kingston and Caballero 2009, p. 160). Kingston and Caballero (2009) argue that under the evolutionary theories of institutional change, new rules or institutions are

created unintentionally or randomly. As a result, successful institutions survive while unsuccessful ones are replaced, however, this process is not coordinated. In many cases, these changes are the result of changes in the *"habits of thought"* (Veblen 1899).

2.2.4 The Role of Political and Economic Power

Following North's definition, institutions determine and are determined by the interactions of the players in economic and political activities. Moreover, theories of institutional change describe that the creation and evolution of institutions are driven by a net benefit analysis; when the economic, political and social benefits of an institutional change exceed costs, the transition to a new set of institutions is possible. However, it is reasonable to wonder whose costs and benefits matter. The political and economic power some players hold have a significant effect on the process of the creation and evolution of institutions. Acemoglu and Robinson (2000) and Acemoglu et al. (2005) state that political power may come from two different sources, distinguishing between two types of political power.

First, an individual or group can be allocated de jure power by political institutions. The second type of political power accrues to individuals or groups if they can solve the collective action problem, create riots, revolts, or demonstrations, own guns, etc. We call this type of power de facto political power (Acemoglu et al. (2005), p. 448).

Acemoglu et al. (2005) describe the term de jure as the political power that is allocated to some individuals due to the institutions. For example, a democratic country gives political power to the president – if it is presidential – or to the parliament – if it is parliamentary – and similarly in a monarchy, the head of the

state that holds political power is the king or the queen. On the other hand, "de facto" political power arises from the distribution of resources or the ability to solve the collective action problem. From this definition, it arises that wealth is not the only determinant of de facto political power. The collective action problem refers to people failing to work together to achieve a common objective and was discussed by Hume (1739) in his work "A Treatise of Human Nature" and later developed by Olson (1965). Lohmann (2003) discusses the inefficient outcomes of the collective action problems and argues that information is important in solving a collective action problem. Some voters do not understand - or it is too costly for them to evaluate - the implications of the policies implemented by the government. An important aspect of this process is the level of education that an individual has. In their seminal book "The Civic Culture", Almond and Verba (1989), p. 315-316) state:

> As in most other studies of political attitudes, our data show that educational attainment appears to have the most important demographic effect on political attitudes. Among the demographic variables usually investigated – sex, place of residence, occupation, income, age, and so on – none compares with the educational variable in the extent to which it seems to determine political attitudes. The uneducated man or the man with the limited education is a different political actor from the man who has achieved a higher level of education."

Similarly, Putnam (2001) argues that:

> Education is one of the most important predictors – usually, in fact, the most important predictor – of many forms of social participation – from voting to associational membership, to chairing a local committee to hosting a dinner party to giving blood.

Acemoglu et al. (2005) continue describing the process during which institutions are shaped, emphasising seven points. The first point is the preferences of individuals regarding economic institutions due to the latter determining the allocation of resources. Second, due to different preferences within the society, social conflicts arise, which determine winners and losers. The third is the commitment problem of those who hold the political power; it arises from the fact that those in power cannot commit not to use it for their benefit. Fourth, political power determines economic institutions and the allocation of resources. In the fifth and sixth point, they describe the de jure and de facto political power. Finally, the seventh point describes the fact that political power is also endogenous, meaning that future political power is affected by economic institutions and the distribution of resources.

Figure 2.1 is a great illustration on the process of how political and economic institutions interract.

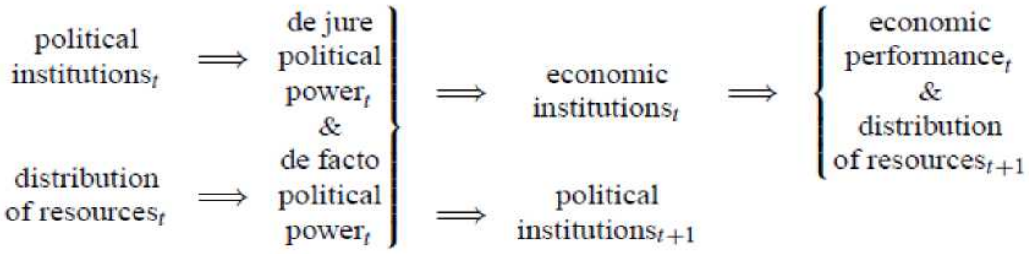

Figure 2.1 Illustration of the relationship between institutions. Source: Acemoglu et al. (2005, p.392)

In this framework, we have two state variables: political institutions and the distribution of resources. That is, for any period t, if these two variables are known, following the above mechanism enables us to determine all other variables in this dynamic system. "Economic institutions are endogenous" as they are the result of the choices social groups make. However, in most cases there will be a "conflict of interest" among social groups. The equilibrium that determines the

economic institutions depends on the involved groups. In spite of the fact that the efficiency of the economic institutions may influence the decision made, the key player in the conflict will be the group that has more political power.

Greif (2007) investigated the relationship between constitutionalism[3] with economic prosperity, focusing on the inability of constitutionalism to properly protect property rights. As the author mentions, historical evidence suggests that constitutionalism "emerged in order to facilitate cooperation among the powerful." Furthermore, according to the author, constitutionalism is not a tool to achieve equilibrium. Instead, it is a result of some equilibria in which the ruler, in order to control those with administrative power, had to take into consideration their preferences when designing policies. The main assumption of Greif's analysis is that in the absence of administrators, rulers' decisions are simple wishes, as the administrators are directly involved in the enforcement of those policies.

According to Greif constitutionalism emerged from the need to properly manage the relations between rulers and administrators. In other words, following Acemoglu's analysis of the relationship between political and economic institutions using de facto and de jure political power, we may argue that constitutionalism is the response of the society to the de jure political power of administrators. Moreover, administrative power and the link with constitutionalism help us understand why constitutionalism is in many cases negatively related with economic prosperity. Namely, when the administrators are very powerful and cannot be controlled by the rulers, the result favours the elite. On the other hand, when the preferences of administrators line up with economic growth, constitutionalism is positively correlated with economic welfare.

[3]In Greif's (2007) work Constitutionalism has the same meaning as the Rule of Law. Particularly, Constitutionalism is the idea that there should exist established limits to what those who hold the power can do, i.e a constitution

2.3 Summary

Following North's seminal work, literature has reached a broad consensus on the importance of institutions in determining political and economic outcomes. The scope of this thesis is to explore and understand the interrelations between what North (1990) defined formal and informal institutions through empirically examining how formal and informal institutions affect micro level welfare outcomes and perceptions. For that reason, this chapter reviewed the literature related to the nature, formation, evolution and change of institutions.

This review also serves the purpose of setting the grounds and definitions of important terms that will be present in different parts of this doctoral thesis. Despite the potential flaws that different definitions and terminologies have, including that of North's, for the purposes of this thesis the definition that *"Institutions are the rules of the game in society or, more formally, are the humanly devised constraints that shape human interaction"*, is deemed adequate and will be repeated when necessary for the analysis.

3

Trust

"The best way to find out if you can trust somebody is to trust them"

– Ernest Hemingway

3.1 Introduction

Trust is a complex, old and ambiguous concept. The vague and broad nature of the term is probably partly responsible for the absence of a unique all-inclusive definition of it. Different academic fields approach trust with different definitions. For social psychologists trust refers to an individual's confident belief that another individual's motivation is benevolent towards him/her and that the other person will therefore be responsive to his/her needs(Rousseau et al., 1998). For economists, trust is associated to the faith or confidence that one has that a favourable outcome will turn out of any process (Guiso et al., 2006), a concept that enters into nearly any kind of human interaction in economic, social and political aspects of life. Trust is pervasive and therefore over the centuries attracted the attention of researchers

of various disciplines such as philosophers, evolution theorists, psychologists, anthropologists, ethnologists as well as social and political scientists. In addition, over the past years the biological and neurological foundations of trust entered the agenda of neurologists and biologists (Fehr, 2009).

3.1.1 Philosophy on trust

Philosophers have wondered about the essence of trust for millennia. Aristotle's early contribution in the third book of his "Politics" (original title – "Πολιτικα") was that trust is a virtue, a characteristic/attitude that *"good citizens"* have towards others and towards governance (Aristotle, 2006). In his ideal social structure *"Polis"* each person is assigned the matter he is the best at (i.e. politicians –governance, philosophers – education of the young etc) therefore, ideally each person should trust others on their role as they are the best fit for it[1]. Modern philosophers, as Hume, also wondered about the nature of trust as a motive of cooperation and social cohesion.

According to the Stanford Encyclopedia of philosophy (McLeod, 2015), philosophically trust has a twofold nature, a positive one associated with attitudes that allow us to form relationships with other people, as well as a negative one associated with danger through the possibility of betrayal by the people one trusts. For trust to be warranted, both parties must be trustworthy. Therefore, trusting requires that an individual can:

1. be vulnerable to others (vulnerable to betrayal in particular);
2. think well of others, at least in certain domains;
3. be optimistic that they are, or at least will be, competent in certain respects

[1]The male pronoun he is used in this case instead of he or she because in Aristotle's theory only men were allowed in such positions

Some philosophers believe that trustworthiness can be *"compelled by the force of norms"* or, more generally, by the force of social constraints (Hardin, 2002). In an effort to be trustworthy, people can subject themselves to social constraints, as someone does when publicly declares an intention to lose weight, putting him/herself at risk of public censure if not.

The question that modern philosophers ask in regards with trust is what is the type of reliance that constitutes trust. Based on McLeod (2015), to trust someone to do something is to rely on them to do it and to do so out of a certain attitude towards the disposition that they will do it for the right reasons. Now this definition implies that two more questions need to be asked:

- What is the right attitude?
- What are the right reasons?

These two questions briefly summarise current philosophical debates on what is trust. Gambetta (1990) developed the belief view on trust according to which, a person believes that people will do things for the right reasons, and it is that belief that underwrites individuals' reliance on them. This view was criticised by Baier (1986) who suggested that it fails to distinguish trust from mere reliance and more importantly that as a reliance when this type of trust is violated you feel mere disappointment rather than betrayal.

Another view on trust, the affective attitude view, was developed by Jones (1996) which captured the idea that there is an emotional flavour to trusting. Instead of a mere belief, Jones describes trust as something like a felt optimism towards the proposition that the person will do what he/she is trusted to do for the right reasons. This view has also come under some scrutiny, mainly through an objection raised by Horsburgh (1960) who suggested that there are cases in which

one trusts even though he/she feels no optimism about the likelihood that the other person will do as trusted to. Horsburgh is essentially describing a different kind of trust, often called therapeutic trust, which presents a scenario that you trust someone to do something and that they will do so because you are hoping that they will recognise that you are trusting them to do this and that itself will get them to do as you trusted them to do. Pettit (1995) argues that in the kind of cases described by Horsburgh, when you trust someone in the hope that their recognition of being trusted will actually make them trustworthy, both gives them a reason to be trustworthy and give you a reason to believe that they are trustworthy.

A third view about the relevant sort of attitude that constitutes trust is owed to Holton (1994) who argued that to trust someone is to take a *"participant stance"* towards them. The attitude that you have towards the proposition that they'll do what you trust them to do for the right reason is the attitude of expecting them to do so, with the disposition to feel a sense of betrayal if they don't. The criticisms of this view focus on the fact that this view appears to take as an assumption one of the fundamental things about trust that philosophers attempt to explain, namely why individuals feel betrayed when their trust is violated. To answer questions like these, one has to dig deeper into how humans develop and respond to their instincts.

3.1.2 Evolution, biological and neurological foundations of trust

Going even further back than Aristotle, evolution theorists, biologists and neurologists are attempting to explain why people trust each other through the study of hunter-gatherers. Even in these societies the survival of early humans depended on

cooperation and mutual exchanges (i.e. hunting parties, tribes etc). For instance in order to trade fruits and nuts for meat, people needed to anticipate who they could count on to engage in fair exchanges and who deserved their suspicions as possible cheaters (Baumeister and Vohs, 2007). Therefore, evolutionary thinkers have argued that issues of trust were critical even at this early stage of homo sapiens' development. They also needed to understand who among their significant others could be truly relied on to take care of them in times of serious need and who, instead, were friends only to be trusted in flourishing times. Given that issues of trust were so important for early homos' welfare, evolutionary theorists suggest that specific mechanisms likely exist in the modern brain that allow people to monitor behaviours relevant to others' motivations and calibrate the level of trust that a person warrants.

These mechanisms are associated with the amygdala and midbrain regions and have long been in the research agenda of biologists and neuroscientists. Evidence suggest that in non-human mammals the essence of trust through pair bonding and monogamy was associated with the neuropeptides oxytocin and vasopressin (Young et al., 2001). Kosfeld et al. (2005) extended this evidence in humans by conducting a version of a trust game with two groups: one group inhaled a spray containing the uniquely mammalian oxytocin and the second one a placebo spray. They hypothesised that oxytocin might cause humans to exhibit more behavioural trust, so by assigning randomly the subjects to the oxytocin and placebo groups they investigated that possibility. Surprisingly they found no hard evidence on differences between the oxytocin and placebo groups in terms of risk-seeking or pro social behaviours.

These results suggest that neurophysiological mechanisms affect subjects' preferences for trust, but that these preferences are distinct from those towards

risk and ambiguity. Therefore, some preferences components must exist that is not captured by risk or ambiguity preferences. Baumgartner et al. (2008) performed a similar experiment, which suggested that social risk-taking requires the involvement of neural networks that go beyond what is needed for asocial risks. Their claim of distinction between social and asocial risk taking is enforced by Reuter et al. (2009) who performed a new experimental study with oxytocin, which showed that subjects who have a particular variant of the oxytocin receptor gene exhibit more trust than those who exhibit the alternative variant of the gene. Future research in the field is required to determine the existence of a biologica mechanism of trust predisposition.

3.1.3 Social psychology of trust

Another field in which scientists have shown a particular interest on trust is that of psychology and particularly in the sub field of social psychology. A widely accepted definition in psychology is that interpersonal trust is *"a psychological state comprising the intention to accept vulnerability based upon the positive expectations of the intentions or behaviour of another"* (Rousseau et al., 1998). According to Simpson (2007) trust lies at the core of nearly all major theories of interpersonal relationships. Psychologists with backgrounds differing from clinical to social psychology have identified that interpersonal trust is a social construct of far-reaching significance (Evans and Krueger, 2009). Literature suggests that trust facilitates social functioning and individual action, yielding positive outcomes that include pro social behaviour, enhanced work attitudes, conflict resolution and communication. (Dirks and Ferrin (2001); Colquitt et al. (2007); Gupta et al. (2016)).

Over the years researchers in psychology have used two main approaches to conceptualise trust. The earliest work adopted a dispositional (person-centered) perspective according to which trust entails general beliefs and attitudes about the degree to which other people are likely to be reliable or cooperative. In the early 1980s the focus turned on the role of trust in specific partners and relationships (Simpson, 2007). As theoretical and empirical works on the matter increased, a pattern emerged that gave birth to a different approach to trust. The interpersonal (or dyadic) perspective holds that trust has a threefold nature. According to Hardin (2002) trust is a psychological state of an actor (the trustor) towards a specific partner (the trustee) with whom the actor is in some way interdependent to achieve a pre-specified goal under the current circumstances. (i.e. I (trustor trust you (trustee) to do X).

According to Cook (2005) *"[...] if we value maintenance of a particular relationship, we will behave in a trustworthy manner toward the other, and if the other recognises our interest in being trustworthy, the other will trust us [...]".*

A subgroup of social trust as described above from the psychological perspective is that of political trust, the trust that individuals have towards groups of people associated with different aspects of political life. These groups can be politicians, political parties, political directions (left, centre, right), the government, local councils or even the political system as a whole including all the above.

3.1.4 Political trust

The topic of political trust remains prevalent in the political science research agenda and explores the foundations and consequences of different levels of reported trust in different political entities. As political trust, literature generally defines citizen's

confidence in political institutions to perform their role in the social, political and economic life of the country. Political trust can be an important indicator of political legitimacy (Turper and Aarts, 2017) as well as a measurement that can provide useful information about the stability of political systems (Easton, 1965). Trust in political regimes has crucial implications since it is considered essential component for the stability of democratic systems (Verba and Almond, 1963).

Literature and available data suggest that over the past decades there is a phenomenon of declining political trust in modern (particularly Western) democracies. This decline is often associated to long-term processes of modernisation and globalisation, which over time allowed citizens to have better and easier access to education, increased their interested in politics and allowed them to question their respect and loyalty to traditional authorities and beliefs. All these processes increased dissatisfaction of the better-educated citizens towards the processes, institutions and directions of the political system (Dalton (2004); Thomassen et al. (2005)). This declining trust in political institutions translates into a distrust caused by the poor institutional performance in a previous time horizon – in other words with institutions apparently failing to provide what they are expected to.

More recent evidence, particularly following the 2008 financial crisis showed that distrust to mainstream political parties and political institutions can also arise from the lowly educated individuals suggesting an inverse U-shaped relationship between education and political trust (see Foster and Frieden (2017) for a discussion about education and trust in Europe and Uslaner (2018) for a summary of evidence globally).

3.1.5 Economics of trust

As in other disciplines, trust in economics is ambiguous. Economists thought for a long time that contracts of any kind, even though incomplete are mostly enforced by some kind of institution and thus trust is irrelevant to economic analysis. Following North (1990) and his analysis on institutions, institutional imperfections and imperfect enforcement, the assumption that trust is irrelevant was shaken. North's claim was enforced by empirical and analytical literature on the incompleteness, costly procedures and imperfections of contracts. These contractual imperfections created a role for informal promises and mutual trust in most economic transactions.

This role was explored for the first time in the seminal work of Arrow (1974) who noted that in the face of transaction costs, trust is ubiquitous to almost every economic transaction, arguing that much of the economic backwardness in the world could be explained by the *lack of mutual confidence and our understanding of its mechanisms*. Arrow suggested that trust in economics take the form of reputation or the informal role in self-enforcing contracts in cases where there are incomplete information. This observation raised important questions about economic behaviour. Is trust a primitive in economic models of behaviour? What factors determine and increase/decrease the likelihood of trust in economic transactions?

Since Arrow's claim, a vast empirical literature investigates the link between aggregate trust and economic outcomes, revealing a positive monotonic relationship (Guiso et al., 2006). Aggregate trust is correlated with GDP per capita, GDP growth and growth of firm sizes (Knack and Keefer (1995); Knack (2001); Guiso et al. (2006)). These correlations were enforced by analytical works such as Milgrom and Roberts (1982) who claim that a a certain level of trust is necessary

to proceed with any economic interaction, as well as Tabellini's work (Tabellini, 2008) who defined strategies that isolate the causal effect of trust on economic performance.

Although the link between aggregate trust and aggregate economic performance seems to be robustly established, there are little known about the micro economic foundations of trust. Questions about topics such as what determines trust in the individual level, why individuals report certain levels of trust, what causes shifts in individuals' trust beliefs, remain broadly unexplored. A large literature, using data from various international individual level data sets, provides evidence that trust on micro level presents the following characteristics:

- *Persistence across generations*: The neurological suggestions that partially trust in heritable begs the question on whether that element of heritage make trust persistence across different generations. According to Guiso et al. (2006) in order to document whether that one must use data on trust levels from different age groups, data that are not currently available. However, he suggests that trust beliefs densities can be compared among second-generation immigrants from a specific country currently living in a different one and compare them to the densities of the people currently living in the country of origin. Comparing different moments of these trust beliefs he found *"indisputable evidence of a remarkable persistence [...]"*.

- *Heterogeneity across and within countries*: The above-mentioned hypothesis suggests that since trust might be partially inherited and it persists across generations, then it should be probably be mostly homogeneous. However, evidence suggest otherwise. Trust beliefs do differ a lot across countries but also within the homogeneous groups. The main explanation of this "paradox" provided by the literature is that trust is initially acquired through cultural

transmission by informal institutions and then constantly is shaping through the accumulation and processing of new personal experiences and influences.

3.1.6 Institutions & Trust

The relationship between institutions, trust and cooperation is important for many avenues of inquiry in social and political sciences (Farrell, 2009). In order to understand it though, one must first try to set out important questions about the political economy of institutions as well as of trust. For example, what implications do informal and formal institutions have for the workings of the economy? How can one best understand the sources and consequences of trust and cooperation? Bringing these questions together, what effects do institutions have on the way that individuals decide to trust (or not trust) and cooperate (or not cooperate) with each other?

The empirical observations in regards with these questions are limited and Johnson (2003) argues that the main reason for the poor accounts of the relationship between institutions and trust is because of the weakness of the underlying theories of this relationship. Thus, one can argue that a more coherent theoretical account for the institutions-trust relationship is a necessary initial step towards a better empirical understanding.

For now, the most sophisticated accounts of trust have very little room for institutions, stressing instead personal relationships as the key source of information underlying trusting beliefs. However, institutional literature suggests not only that institutions are relevant and can be modelled in this relationship, but also that different kinds of institutions are likely to have quite different consequences for trust and cooperation. Arguably Hardin (2002) encapsulated

an interesting approach that provides currently the most sophisticated account of the mechanisms of trust, and thus an excellent starting point to think about this concept. Hardin begins by considering trust as a set of expectations about the trustworthiness of others in imperfectly defined future situations. That might allow us to understand how institutions can provide information about other types of actors, and how they are likely to behave in such situations, contributing in that way to trust/distrust among these actors (Farrell, 2009). In that sense, Hardin's proposition is that institutions are best conceived as mechanisms of equilibrium selection that make some equilibria more likely, and other less, to be chosen by the relevant actors. By bringing together these theories of institutions and trust, the concept of trust should only be invoked in circumstances where institutional rules do not have fully determinate effects (imperfect contracting). By that, one can explore the following phenomena:

- How change in power relations is likely to affect institutions, and therefore trust
- How variations in institutional frameworks are likely to be associated with variations in the level and nature of trust among actors

3.1.7 Determinants of institutional trust

Evidence from different scientific disciplines and backgrounds presented above describe different ways of thinking about the nature of trust as well as presenting evidence and suggestions about possible factors that determine it. Hudson (2006) on his empirical work on institutional trust and well-being set up the framework for the analysis of institutional trust.

Thinking of trust as a subcategory of risk as Coleman (2000) described would lead to an analysis explicitly directed at dyadic, interpersonal or social trust, which determines just partially institutional trust. An individual is considering trusting an institution not to carry out a political act for them over which they have a choice but to fulfil its role in a satisfactory manner over time in a holistic way. In considering this the individual is not weighing up the gains or losses from engaging in an (implicit) contract with the institution, even though their behaviour may change depending upon whether the individual does or does not trust the institution (Hudson, 2006).

There are two alternative, although probably complementary, explanations for the determination of institutional trust. Cultural theories argue that trust is exogenous Inglehart (1997) and based on dyadic trust. As such, it is frequently viewed as being learned early in life enhancing the neurobiological argument that it is partly inherited. Institutional theories on the other hand argue that it is endogenous (Hetherington (1998); North (1991b); Hudson (2006)) and influenced by institutional performance. These two hypotheses have different implications and results on the analysis of institutional trust with the first one suggesting that relatively little difference in the levels of trust can be attributed to different institutions. In that way, it is not obvious why it should vary with personal characteristics such as age or education. However, as mentioned above even though persistent across generations, trust is heterogeneous suggesting that in fact is not only learned at an early age and remain stable in the course of an individual's life.

There is some empirical work to draw upon while thinking about this concept; Mishler and Rose (2001) analyse institutional trust in Central and Eastern Europe along several dimensions including parliament, trade unions, the police, the courts

and the media. Using regression analysis they analyse trust in institutions as a whole, defined as average trust in six institutions. The results show only a weak significance for socio-economic variables, with trust increasing with age and for smaller towns and villages. Perceptions of factors such as corruption and economic performance are in contrast much more significant. They also find little evidence that dyadic trust impacts on political trust. Brewer et al. (2004) conclude that in the USA international trust or trust in other nations is dependent upon social trust, (domestic) political trust and declines with age. Schweer (1997) focuses on the determinants of young adults' experienced trust towards the central institutions of society and concludes that the perceived attributes of an institution are relevant for the degree of experienced trust. Williams et al. (1999) analyse trust among residents close to a nuclear weapons site in the USA and conclude it is influenced by a variety of factors including personal traits, experiences and economic needs.

Considering this literature, one can conclude that institutional trust is a function of three main elements:

- the individual's inherited predisposition to trust that derives from cultural and biological transmission channels
- the individual's personal, social and demographic characteristics such as age, gender, marriage, education, living conditions, income etc
- the environment in which the individuals act including factors such as the underlying institution's quality and past performance

3.2 Measuring trust

Political trust is an important indicator of citizens' beliefs regarding decision making actors and political institutions and reflecting upon people's trust preferences one can draw important results regarding modern democratic regimes. There are empirical evidence suggesting that these beliefs are directly correlated with the propensity to pay taxes (Scholz and Lubell, 1998) as well as with citizens' compliance with collective obligations (Marien and Hooghe, 2011). The importance of political trust for democracy or good governance drove a large portion empirical research on developed democracies (Lipset and Schneider 1983; Hetherington 1998; Marien 2011) and non-democracies such as China and Russia (Lovell, 2001). Therefore, it is important to measure the level that people trust a specific political institution as accurately as possible.

For more than five decades, researchers have tried to develop robust measures of support to a political system (Agger et al. 1961; Finifter 1970; Niemi et al. 1991) and considerable effort was devoted to measures of trust. Despite these efforts for robust indicators and the considerable research about the importance of political trust, there is little consensus about the accuracy of different measurements (Schneider, 2017). Measurements of trust depend on national or international extensive surveys where individuals are being asked about their trust on different political and social institutions. Political trust was measured in that way for the first time via a battery of survey questions on the US National Election Study (NES) in 1958 (Seyd, 2015). Nowadays, NES continues to measure trust with the same battery of questions. NES was followed by numerous national, European and international surveys that incorporated the notion of trust including the World Values Survey, the European Social Survey (ESS), the European Union Statistics on Income and Living Conditions (EU-SILC). These surveys have been widely

used in a broad spectrum of social sciences (i.e. sociology, political science and economics) to approximate trust in both micro level (analysing data from the individuals' answers on the surveys) and macro level (creating aggregate indicators of trust for specific countries, regions or populations).

The empirical chapters of this thesis will use such measurements from international surveys, namely the Eurobarometer survey, the Afrobarometer survey and the European Social Survey. All three have different metrics (in both terms of scale and sampling) for different types of trust (both social trust and trust in political institutions).

These indicators, however, have been criticised to suffer from methodological weaknesses, which undermine their ability to serve as robust measurement instruments (Seyd, 2015). Hooghe (2011), for example, criticises researchers' dependence on standard trust in government survey questions *"without questioning their validity or even wondering what political trust actually refers to, or what place the concept could have in democratic society"*. Schneider (2017) to account for these weaknesses, attempted to answer two questions about the measurement of political trust: a) if standard "trust in government" survey indicators represent a single, comprehensive attitude of political trust and b) whether there are different measurement models of political trust equivalent in all countries. Employing group confirmatory factor analysis she suggests that while in some indicators respondents with diverse backgrounds do not have equivalent understanding of political trust, accounting for these differences researchers can rely on trust indicators to distinguish trust in different institutions (e.g. central vs local government).

According to Rodet (2015) though, one of the critiques that still remains unanswered about survey responses on political trust is that of the system-representative problem. In other words whether in a survey question about

political trust the respondent answers based on his/her beliefs and trust towards the current representative agent of the institution or about his/her notion and beliefs about the quality and necessity of the underlying institution over time. In the example of a national parliament, would the individual respond based on beliefs and information about current MPs and their aggregate parliamentary output or based on a notion and belief that the parliament as an institution will perform satisfactorily irrespective of who is currently representing it.

3.3 Summary

Different academic disciplines approach trust in different ways. This chapter provided information on the normative debates around the essence/nature of trust, its importance in determining economic and political outcomes as well as ways to measure it empirically in order to quantitatively understand its determinants and effects. These debates are crucial for the empirical exercises of this thesis as they set the framework around which all analysis will take place in Chapters 5, 6 and 7. The issues around identifying proper causal links between trust and different outcomes as well as around accurately measuring trust should be taken into consideration across all chapters of the thesis.

4

Methodological Framework

4.1 Introduction

The usage of panel data techniques to model relationships between variables has been strongly extolled in empirical work as it provides better insight and helps in overcoming many of the problems encountered in cross-section and pooled cross-section data techniques. This is indeed the case because (i) it allows for higher degrees of freedom and lower levels of multicollinearity between the regressors, characteristics which improve the precision of the estimates, (ii) it opens the possibility for more complex modelling of the behaviour of economic agents, and (iii) it accounts for individual heterogeneity by taking into account the characteristics of individuals that are fixed over the panel period. This could potentially eliminate a source of omitted variable bias Hsiao (2014); Wooldridge (2016). The advantages of panel data techniques are significant in the literature pertaining to the examination of attitudes of agents over different subjects, as cross-sectional data techniques could fail to address issues of endogeneity and time trends.

Unfortunately, in many countries, there is a lack of genuine panel data where specific individuals are followed over time being asked the same survey questions. There are, however, repeated cross-sectional surveys where random samples are taken from the population at consecutive points in time allowing us not only to estimate models based on independent cross sections but also to compute models of pooled cross sections under certain conditions. Obviously, the limitation of that is that since individuals are not followed over time, the deduction about specific individuals' histories are limited and the problems described above could persist.

4.2 Multilevel Analysis

A modern tool that allows researchers to compute such models is multilevel analysis, a tool that allows us to investigate thoroughly not only how individual-level characteristics influence other individual-level characteristics but also how aggregate characteristics affect individual and vice versa. In other words, multilevel analysis allows the exploration of how individuals react with the society and how the society with individuals. Multilevel analysis requires the use of hierarchical data and therefore, different waves of repeated cross-sectional surveys across countries can be combined.

According to Hox's handbook on multilevel analysis, (2010), "The term 'multilevel' refers to a hierarchical or nested data structure, usually subjects within organizational groups, but the nesting may also consist of repeated measures within subjects, or respondents within clusters, as in cluster sampling. The expression multilevel model is used as a generic term for all models for nested data. Multilevel analysis is used to examine relations between variables measured at different levels of the multilevel data structure". Individual observations

and aggregate characteristics can be conceptualized as a hierarchical system of individuals nested across time within groups, with individuals and groups defined at separate levels of this hierarchical system. The founder of multilevel modelling is considered Harvey Goldstein (1986) who developed the software that allowed for the first time to run two and three level models. However, (Raudenbush and Bryk, 2002) who developed a hierarchical linear modelling software (Mehmetoglu and Jakobsen, 2016) brought multilevel modelling to prominence.

Multilevel analysis became popular particularly with educational research mainly because it allowed researchers to nest students within groups of school classes, schools within regions etc. Ordinary regression models assume the independence of units, an assumption that is breached with the existence of hierarchical datasets. Multilevel analysis allows to account for variance in a dependent variable measured at the lowest levels of the nesting (i.e. individuals), while investigating at the same time information from all other levels of the analysis (i.e. waves of the survey and countries). There are both statistical and theoretical reasons behind the justification of using multilevel analysis in hierarchical datasets. The simplest to conceive and most crucial theoretical aspect is that since multilevel analysis' objective is to examine the relationships between individuals and their surroundings, one can assume that individuals that same the same surroundings will most probably be affected by them and therefore partly share same characteristics. Therefore observations that are close in space or time (individuals living in the same city or belong in the same generation) are more likely to be similar in some ways than observations apart. (Mehmetoglu and Jakobsen, 2016) these relationships are broadly unexplored without the use of multilevel analysis. Thus, not only is multilevel modelling used as a remedy for the robustness of pooled cross sections, but can also be thought of as the appropriate methodology if the variables under discussion present transmission mechanisms at multiple levels.

In addition to the theoretical reasoning, statistical reasons are implied by the bridge of the independence condition. Nested observations cause dependency among them because when the individual level dependent variable is affected by some country-level variables the observations at the lowest level are not independent and estimations are biased (Bartels, 1996).

Multilevel analysis can therefore, be conceived as a generalization of the ordinary least squares (OLS) regression which accommodates the breach of the independence condition and the complexities of estimating models with two or more levels. In a context with dependency among observations, this intra-unit correlation changes the error variance of OLS regression models, which represents the effect of the omitted variables plus the measurement errors, assuming that these errors are unrelated (Kreft et al., 1998). This complexity of the error terms invalidates the use of OLS regressions whilst multilevel modelling allows for the estimation of errors at all levels simultaneously with the linear coefficients (Ringdal, 1992). The dependency of the error terms in OLS regressions will bias the estimated standard errors causing them to be too low (Type I error) with very high t-statistics (Steenbergen and Jones, 2002). (Hox, 2010) additionally warns about the danger of interpreting aggregated data from the individual level and the possibility of ecological fallacy. These are two alternative ways of analyzing hierarchical data, although both of them have some problems. First, traditional statistical estimations can be used. One could disaggregate higher-order variables to the individual level, and thus conduct an analysis on this individual level (for example, assign class variables to the individual level).

The problem with this approach is that it would violate the assumption of independence, and thus could bias my results. This is known as atomistic fallacy (See (Alker Jr, 1969; Voss et al., 2004)). Technically, since the individual units are

considered in "vacuum" (isolated from their environments and settings), the context and the mechanisms formulating the relationship is not fully captured. Second, one could attempt to analyze the data using traditional statistical approaches by aggregating individual level variables to higher-order variables and then to conduct an analysis on this higher level. The problem with this approach is that it discards all within-group information (because it takes the average of the individual level variables). As much as 80–90% of the variance could be wasted, and the relationship between aggregated variables is inflated, and thus distorted. This is known as ecological fallacy, or the ecological aggregation bias, fand statistically, this type of analysis results in decreased power in addition to the loss of information (Jones and Duncan, 1996).

In a multilevel regression the standard errors of higher levels than the individuals (i.e. groups of years or countries) are estimated based on the N (population) of the corresponding level eliminating potential dangers of biased results or ecological fallacy. In that sense, multilevel analysis is a form of mixed modelling, a compromise between complete pooling and partial pooling. The former would imply ignoring differences between groups and pooling all data together whilst the latter would imply considering each group individually. This mixed aspect of the nature of multilevel analysis, defined as partial pooling, allows to examine at the same time both the variance at the individual level as well as the variance within and between group- similar to the use of mixed effects (both random and fixed) in a panel data setting (Gelman and Hill, 2007).

A level in multilevel analysis is the variable that identifies units sampled from a population (where statistical tests based on sampling theory are used), or which constitutes the whole population (Mehmetoglu and Jakobsen, 2016).

In mysample of the European Social Survey, individuals can be thought of as a random sample of individuals within each country, and the countries can be thought of as a random sample from a larger population of countries. This variable (country) is called an identifier variable. Multilevel analysis requires that there is an identifier at each level of the model except the first. Theoretically there is no limitation on how many levels can one model have. In mycase there are three levels of the model: Level-1 which are the individual observations, Level-2 which are the waves of the survey for each country (country year) and Level-3 which are the countries.

As mentioned previously, multilevel analysis is an extension to the multiple linear regression framework. It thus follows that all assumptions of the basic model follow through, in terms of linearity – rectilinearity in this case – of the parameters, homoskedasticity of the error term, no perfect multicollinearity, and normality of the error term (in finite samples). Nevertheless, while traditional frameworks further assume independence between the dependent variables, hierarchical modelling partially relaxes this assumption, by allowing correlation for residuals of the same hierarchical level (except for the highest level) to be correlated. With the normality assumption, statistical inference is conducted using the conventional t and F statistics, with the degrees of freedom differing based on the level of the regressor. In order to model relationships on a hierarchical basis, several functional forms could be adopted. One possibility is to use models with random intercepts. In this case, the hypothesis is that differing outcomes of the dependent variables, ceteris paribus, stem exclusively from differences in the intercept. In other words, the slopes (estimates of the different regressor coefficients) do not change across groups and the effects are the same. Another possibility is to use models with random slopes. In this case, the differences between distinct groups' outcomes arise because the regressors behave differently

between them; the same factor could have different effects on the outcomes, based on the group. Combining these two strategies yields the third and last possibility, which is the usage of a random intercept and random slope. In this case, the best fit lines are systematically different between groups. The best form to be used will depend on what makes the most sense intuitively, and by relying on statistical tests and standard econometric information criteria.

4.3 Multilevel Analysis in Social Sciences

Multilevel or hierarchical modelling has in fact been used extensively in the social sciences literature as a way to better draw conclusions from the data. This modelling strategy can have significant advantages over its counterpart individual-level modelling methods, especially in the politico-economic literature, whenever voting behavior or well-being are the subjects of discussion. This is because it can provide further insight in explaining the variations of the dependent variable. For instance, voting analysts in the UK have increasingly discussed the idea that not only the individual elector, but also major regions characteristics can play a vital role in determining voting patterns. Precisely, many have hypothesized that while much research focuses on individual level characteristics and then extend the discussion by examining regional effects, better modelling strategies consider all levels simultaneously, especially since individual behavior could be learned from institutions and spatial contexts – disaggregated levels are not simply "add ons" (Jones et al., 1992). The benefits of using hierarchical modelling could be substantial in these scenarios. The modelling strategy could overcome any omitted variable bias problem present with individual level modelling whenever fixed and random effects are used at the different levels (Aslam and Corrado, 2012). In fact, whenever conventional regression methods are used and different levels play a role

in explaining the data, autocorrelation prevails, and least squares performs poorly (Jones et al., 1992). Individual level modelling strategies should also be interpreted with care, as the effects could be overestimates, and inference procedures could be biased.

Koppen et al. (2020) examine the socioeconomic, cultural, and geographic determinants of the Anti-Political Establishment Parties' on their voting behavior. The paper also examines how political geography plays a role in affecting political geography. In order to conduct the study, the authors rely on multilevel modelling in order to examine whether these relationships arise due to compositional effects (a highly concentrated proportion of individuals sharing the same socio-economic and/or educational-cultural characteristics) or whether they arise because of spatial contextual factors (a pool of characteristics, such as unemployment and crime rates, that are shared by all individuals living in a specific area). The conclusions of the paper was that the observed effects can be attributed to both individual and regional characteristics (Köppen et al., 2020).

Similarly, Aslam and Corrado (2012) seek to assess on which hierarchical levels do economic and other determinants affect well-being, and how these characteristics differ across and between the levels. The results were strong: not only do regional factors affect the well-being of individuals, but these tend to dominate the positions of individuals with respect to their regions for certain characteristics. Hierarchical modelling is also used outside of political research (Aslam and Corrado, 2012). For instance, Neumann et al. (2011) used spatial multilevel analysis (on the national and sub-national levels) in order to test whether there exists any variability between the two levels with respect to the effects of socioeconomic and governance factors on the amount of lands suitable for irrigation. The need for this multi-level approach stemmed from the fact

that there is limited data on the sub-national level. The approach nevertheless provided further insight in predicting irrigation patterns (Neumann et al., 2011).

4.4 Metrics

4.5 Critiques for Multilevel Modelling

While providing more robust results, this modelling strategy is also prone to biases itself. These could stem from failing to account for spatial correlations and imposing a hierarchical structure that does not intuitively and practically model the relationship in question (Jones et al., 1992). Additionally, these models ought to be weak in detecting effects at the country level, especially when there are few countries only. This is because both the total number of individuals (group sizes) and the total number of groups (countries) should be large in order for the estimators to be consistent and possess the desirable large sample distributions. When this is not the case, parameters for variables that are fixed at the country-level could be imprecisely estimated, i.e. there could be a false claim that country effects exist. Further, standard errors for country-random characteristics will be overestimated. This issue will not only bias standard errors (and thus inference procedures) but also the estimates calculated, and these undesirable properties apply (although unequally) in both, linear and maximum likelihood mixed models (see for instance (Bell et al., 2014; Bryan and Jenkins, 2016; Stegmueller, 2013). Much of the literature has used Monte Carlo simulations in order to approximate what size of the country level group is enough to warranty that the problems from the different strategies are no longer problematic. Unfortunately, the needed numbers are often too high compared to data availability, and thus other solutions

are required for the model to be robust. In order to overcome this problem, one could:

- descriptively examine any country differences through exploratory data analysis and extensive robustness checks (Bowers and Drake, 2005)
- use other strategies that are robust to this issue, including statistical corrections and bootstrapping (Bryan and Jenkins, 2016)

4.6 Conclusion

While potentially causing some problems, the hierarchical modelling strategy can present major advantages over other methods that ignore level differences. Overall, if modelled properly, it has the power to estimate results for political characteristics using a model without having to compromise on the generalizations and complexities of real life, all the while overcoming a couple of econometric problems that lead to biased conclusions. Multilevel modelling will be used (in different forms) across all three empirical exercises of this theses.

5

Corruption and political trust in Europe

"A lack of transparency results in distrust and a deep sense of insecurity"

– Dalai Lama

5.1 Introduction

Over the past decade political stability in European democracies appears to be volatile. Cases of snap elections, coalition governments with weak majority, protest votes and the rise of populist parties became more frequent since the Financial Crisis of 2008. At the same time, the levels of trust European citizens report towards their political institutions and politics are in decline (Algan et al., 2017; Foster and Frieden, 2017; Hooghe, 2011; Torcal, 2014). It is unclear whether the drivers of this decline are solely socio-economic, political, or both. What seems to be evident though in most western democracies, is that the financial crisis uncovered a fomenting democratic deficit. The response to the crisis and its aftermaths, both at national and European level, did

not meet citizens' expectations. Whether that deviation between political actions and citizens' expectations accounts for the decline of political trust, remains to be explored. To do so, one must first discuss the nature of trust and how it is related to political institutions.

What drives people to trust and cooperate with each other, has been for millennia one of the main quests of philosophers and scientists. In the course of this journey, different determinants of trust were identified with some evidence suggesting that it might be partly determined through biology (Fehr, 2009), partly encoded in individuals cultural beliefs and norms (Tabellini, 2008) and transferred to us at an early age (Erikson, 1994) or that it is a continuous process of social learning (Glanville and Paxton, 2007). All of them however, implicitly suggest that trust is essentially a process of accumulation and evaluation of information. Information that are acquired with different mechanisms (e.g. genetics, norms, education) and are always subjectively assessed from the perspective of the individual attempting to make a trust decision.

Foster and Frieden (2017) using data from the Eurobarometer explored the socio-economic characteristics that could explain the decline in Europeans' confidence in political institutions. Their results suggest that the decline in trust in government varies across countries and occupational and educational groups and that residents of debtor countries with high unemployment rates are also much less likely to trust national government than those in creditor countries that have fared better during the economic crisis. At the same time, the authors hint in their results that institutional factors such as corruption could partly explain the acute decline in citizen trust observed over the last decade. They do, however, find little empirical support for that in their work.

The scope of this chapter is to examine empirically the potential institutional determinants (with a specific focus on corruption) of trust in national governments in the 28 member states of the European Union based on data from the Eurobarometer public opinion survey (2005-2018). This work brings together both analytical and empirical considerations about what determines political trust and how corruption influences

this process. The main hypothesis of this empirical exercise is that perceptions about corruption in European countries that adopted austerity measures can partly explain the acute decline of political trust.

In the next section, the relevant literature about political institutions, corruption and trust is reviewed, forming the basis for the analysis. The theoretical framework then is presented followed by the data, methodology and basic results at Section 5. The next Section proceeds with the robustness checks and conclusions follow on the last section.

5.2 Corruption

5.2.1 Definitions of Corruption

One of the main reasons behind the limited bibliography on corruption is the very nature of the term. Corruption is a complex phenomenon that could be thought of as an old and ambiguous concept. That vagueness makes it difficult to describe the term corruption under a unique, all-inclusive definition. Institutions across the globe try to define corruption in different ways, between which the most cited and efficient are those of the World-Bank[1], the OECD[2] and Transparency International[3].

[1]The World Bank is an international financial institution that provides loans to developing countries for capital programs. It comprises of two institutions: The International Bank for Reconstruction and Development (IBRD), and the International Development Association (IDA). The World Bank is a component of the World Bank Group, which is part of the United Nations system.

[2]The Organisation for Economic Co-operation and Development (OECD) is an intergovernmental economic organisation of 35 countries, founded in 1961 to stimulate economic progress and world trade. It is a forum of countries describing themselves as committed to democracy and the market economy, providing a platform to compare policy experiences, seeking answers to common problems, identify good practices and coordinate domestic and international policies of its members.

[3]Transparency international Transparency International e.V. (TI) is an international non-governmental organisation founded in 1993 and based in Berlin, Germany. Its non-profit purpose is to take action to combat corruption and prevent criminal activities arising from corruption. Its main activities include the publishing of the Global Corruption Barometer and the Corruption Perceptions Index.

The World Bank defines corruption as *"[...] the misuse of public office for private gain [...]"* (Shihata, 1997). The World Bank distinguishes public corruption from private corruption which is between individuals in the private sector. The primary activity of World Bank is to lend governments and support government policies, programs and projects, therefore its main concern regarding corruption is related to the public sector. In their work on how to help countries combat corruption, World Bank tried to identify the main activities that could cover the broad range of human actions that define the term. These activities include bribery, theft, political and bureaucratic corruption and fall in the categories of isolated and systemic corruption. Isolated corruption refers to cases of corruption that are not endemic to a system whilst systemic corruption refers to an environment that is corrupt to a certain degree in most of its activities.

On the other hand, the OECD as well as the Council of Europe[4] and the United Nations' conventions do not clearly define corruption. However, they tried to establish the offences for a range of corrupt behaviour instead. Hence according to the OECD glossary on corruption *"[...] the OECD Convention establishes the offence of bribery of foreign public officials [...]"*, while the Council of Europe Convention establishes offences such as trading in influence, and bribing domestic and foreign public officials. In addition to these types of conduct, the mandatory provisions of the UN Convention also include embezzlement, misappropriation or other diversion of property by a public official and obstruction of justice. The conventions therefore define international standards on the criminalisation of corruption by prescribing specific offences, rather than through a generic definition or offence of corruption.

According to Transparency International (hereby TI) corruption can be defined as *"the abuse of entrusted power for private gain"*. The organisation suggests that corruption could be classified as grand, petty and political, depending on the amount

[4]The Council of Europe (CoE) is an international organisation focused on promoting democracy, rule of law, human rights, economic development and integration of certain regulatory functions in Europe. Founded in 1949, it has 47 member states, covers approximately 820 million people and operates with an annual budget of approximately half a billion euros.

of money lost and the sector where it occurs. For these classes, TI gives the following descriptions (Transparency International, 2016):

- Grand corruption consists of acts committed at a high level of government that distort policies or the central functioning of the state, enabling leaders to benefit at the expense of the public good
- Petty corruption refers to everyday abuse of entrusted power by low- and mid-level public officials in their interactions with ordinary citizens, who often are trying to access basic goods or services in places like hospitals, schools, police departments and other agencies
- Political corruption is a manipulation of policies, institutions and rules of procedure in the allocation of resources and financing by political decision makers, who abuse their position to sustain their power, status and wealth

In contrast to these definitions, Rothstein and Varraich (2017) try to approach corruption through a different way. The authors hold that standard definitions of corruption fail to explain what counts as abuse and thus resulting a definition that lacks substantial content. Additionally, Rothstein and Varraich (2017) that these definitions imply relativism since what is considered abuse differs by environment and time. They attempt to address these issues by approaching the opposite state of corruption, that of *"Quality of Governance"*, as the *"[...] respect for the principle of impartiality in the implementation of public policies."*. This definition implies that corruption is not solely associated to bribes but to other forms of favouritism that appear in public life. In support of this definition of corruption, the Quality of Governance Institute at the University of Gothenburg produces data on ways to measure good governance and the absence of corruption (Teorell et al., 2019).

5.2.2 Origins of corruption

An important step to study corruption, its mechanisms and effects is to look the origins of corrupt behaviour. Roots of corruption lie deep in bureaucratic and political institutions. As Svensson (2005) suggests, corruption is the outcome or the reflection of a country's legal, economic, cultural and political institutions. A broad definition of such institutions was given by North (1990) who defines institutions as the *"humanly devised constraints that structure political, economic and social interactions in which consists of both formal and informal rules [...] throughout history, institutions have been devised by human beings to create order and reduce uncertainty in exchange [...]"*.

Economic institutions define basic structures of the economy and therefore they have a key role in shaping economy's direction towards growth or recessions. According to North, an important task is to create stability and in order to create stable institutions, governments have to develop and educate personnel, which in turn will lead to better institutions. In this context North suggests that a key role in the process of shaping the quality of institutions is placed on governments. Thus one could claim that the effectiveness of public authorities is an important aspect that determines corruption. In their work Van Rijckeghem and Weder (2001) show that in some regions corruption is higher where government intervention and restrictions are present, enhancing therefore the argument that institutions play a significant role in the processes that lead to corruption. These restrictions could have the form of import quotas, tariffs, tax reliefs and subsidies that favour particular sectors, companies or individuals (Mauro, 2004).

Institutions are also present in another possible root of corruption which is colonisation. Evidence show a significant relationship between corruption and colonisation, specifically for colonies that were created with inefficient/extractive institutions regarding property rights. Acemoglu et al. (2001a) described a case where large amounts of Europeans settled down in the same area, institutions were built only to benefit new settlers rather than indigenous populations. Over the years that evolved into an unequal

distribution of resources within the same spatial entity of a colony and they evidenced that these colonies suffer from higher levels of corruption today. Hence one could assume that these unequal property rights in colonies caused higher levels of corruption.

Another route to examine the causes of corruption is by looking at the incentives that drive corrupt behaviour. The key incentive that leads to corruption is gain as it a phenomenon that is only found in situations where one or more individuals or groups could profit from its outcome (Rose-Ackerman, 1975). Corruption is often confused with the behaviour of rent seeking. Rent-seeking is the use of the resources of a company, an organisation or an individual to obtain economic gain from others without reciprocating any benefits to society through wealth creation. An example of rent seeking could be when a company lobbies the government for loan subsidies, grants or tariff protection. These activities don't create any benefit for the society, they are just ways to redistribute resources from the taxpayers to the company. However, rent seeking behaviour in this context is not a form of corruption, but it could be thought as one of the reasons for engaging in activities such as corruption instead (Murphy et al., 1993). According to Lambsdorff (2002) the rent seeking theory was one of the first economic instruments developed to model corruption in the public sector.

These behaviours are often seen in regions with inefficient institutions, weak legislative systems, unstable governments and cultural norms related to outlaw activities. These cultural norms could have been embodied in societies' beliefs through different routes. Treisman (2000) argues that some of the roots through which corruption could be embodied in the cultural beliefs are religion, old traditions and colonies. For example, by examining the educational level in Catholic and Islamic countries, Landes (1998) associated religion and the educational level and suggested that in countries where religion has an important role in shaping society, politicians and public figures tend to be more corrupted than in countries with higher educational level. Seleim and Bontis (2009) conducted a cross-national study in which they tried to investigate the relationship between culture and corruption. Their findings provide empirical support

on a general theory of the cultural perspective of corruption. On the other hand, Barr and Serra (2010) conducted an experimental analysis on the relationship between culture and corruption and in their experiment, they found that corruption may be, in part, a cultural phenomenon, but corrupt activities tend to diminish subject to the level of education and time spent abroad.

An interesting research on the origins of corruption was conducted by Swamy et al. (2001) trying to associate corruption with gender. Using several independent data sets, they investigated the relationship between gender and corruption and showed that women are less involved in bribery, and are less likely to tolerate bribe-taking. Cross-country data show that corruption is less severe where women hold a larger share of parliamentary seats and senior positions in the government, and comprise a larger share of the labour force. Also, the gender system, which is used to justify women proclivity to less corrupt behaviour and subsequent integration into the public sector, could itself be the source of corruption as women attempt to fulfil their gender roles. Chaudhuri and Dastidar (2014) reviewing the literature on gender differences in corruption using economic decision making processes concludes that increased female participation in public life, both in governmental and bureaucratic positions, leads to reduced corruption.

5.2.3 Forms of corruption

Corruption is not homogeneous across place and time and embodies a wide range of activities. Different forms of corruption can be traced across different countries, cultures, sectors. Corruption can be found all over the world, in both developed and developing countries, large or small, as long as someone is able to make a profit out of these activities. In some cultures, some sort of corruption is accepted in a higher extent while in others the same act can be seen as a strong criminal offence. The same principal applies to time; what is probably considered as a corrupt activity today does

not necessarily mean that it fell under the same rule a century ago. For example, in some Balkan and Mediterranean countries in the 19th and early 20th century it was considered normal for a public servant, especially in education related professions, to accept small gifts and treats like chickens, eggs or olive oil, from students' parents in order to help students perform better at school. Nowadays this kind of situation could be considered as an ethically wrong and corrupt behaviour. An actual bribe itself also differs by culture, sector, and environment. As already mentioned in World Bank's definition of corruption, there can be both private and public corruption. Public corruption reduces the efficiency of as country´s government through actions which are against the law, whereas private corruption exploits private-own companies and individuals through organised crimes (Mauro, 2004). Furthermore, some examples of corruption are nepotism and bribery. Usually these forms of corruption emerge in the private sector but can also be found in the public sector. Nepotism involves favouritism to relatives and close friends. This is the same as poor recruitment and shortcuts in the selection procedures Fraud is another form of corruption that exists in both public and private sectors, which is also known as internal corruption. The most common instrument of corruption is bribery, i.e. offer money in exchange for benefits and this may be encountered in situations of securing private contracts.

As suggested by TI, there are also scholars that preferably divide corruption into 'Grand corruption' and 'Petty corruption'. Grand corruption is usually seen in higher levels of a government and involve important decisions or large amounts of money (Rose-Ackerman and Palifka, 2016). Transfers of large amount of money occur continuously, e.g. when companies are making investments. Petty corruption refers to bribes in smaller businesses and does often consist of smaller money value. However, it is important to understand that the effects of petty corruption can be as large as grand corruption since small bribes can accumulate over time (Scott, 1972). Barr and Serra (2010) conducted an experimental research on the effects of externalities on bribery in a petty corruption experiment. Using a simple one-shot bribery game simulating petty

corruption exchanges, they found evidence of a negative externality effect and a framing effect. They suggested that when the losses suffered by third parties due to a bribe being offered and accepted are high and the game is presented as a petty corruption scenario instead of in abstract terms, bribes are less likely to be offered.

5.2.4 Public governance

An important aspect of corruption is government corruption. Public governance can be defined as "a system by which an authority in a country is exercised for the common good", (Kaufmann et al., 1999). To ensure well-functioning public governance, the concepts of transparency and accountability are essential. That applies to both developed and developing countries. The public has to have the ability to access information easily and the government will in turn have the face of a reliable and transparent power mechanism.

As stated above the quality of public governance is correlated with the efficiency of its market. The Office for Drug Control and Crime Prevention of UN suggests that the amount of legitimate companies declines due to the fact that high corruption creates unfair competition. In situations where corruption is high in a country one could assume that legitimate companies are not always the most successful ones since companies that participate in corrupted activities could produce more wealth if the bypass governmental authorities through bribery. That supports the claim of (Mauro, 2004) that corruption exists where large amount of money is present and therefore corrupted companies will always engage in such activities and produce more wealth than the legitimate ones. This mechanism could be thought of as way through which countries, particularly developing, suffer from two significant consequences of corruption that of diminishing market quality as well as diminishing incoming flows of capital investments.

5.2.5 Measurements of corruption

Corruption has always been hard to measure and define. One of the reasons behind that difficulty is the numerous different forms of corruption presented above. In addition, as Svensson (2005) suggests the very nature of corruption is to be hidden and therefore difficult to be measured accurately. There have been many attempts to measure corruption that created different indices.

Nowadays, there are several measures of corruption including Transparency International which produces the Corruption Perception Index (CPI), the International Country Risk Group's index (ICRG), and Kaufmann et al. (1999) index, Control of Corruption, (CoC) which is provided by the World Bank under the World Governance Indicators. World Bank also provides indicators of corruption in their Enterprise microdata Surveys (ES). The Enterprise Surveys cover a broad range of business environment topics including access to finance, gender, corruption, infrastructure, innovation, competition, informality, and performance measures.[5]

Most of these measures use extensive surveys in multiple countries across the globe and use the data from the surveys to produce indices and rankings of the countries according to how corrupted they appear or perceived to be. More recently, a new measure of cross-national corruption was constructed based on the geographic distribution of public officials involved in cross-border corruption cases, the Public Administration Corruption Index (PACI) (Escresa and Picci, 2017). In order to determine whether it systematically differs from perception-based measures, (Escresa and Picci, 2017) incorporated an analysis to see the extent to which differences between them are driven by systematic factors, and concludes that they are not.

Corruption Perception Index of TI measures the perceived level of corruption for about 180 countries around the world. TI requires at least three different sources in order to be able to rank a country and to make reliable results. The index range in between

[5] https://microdata.worldbank.org/index.php/catalog/enterprise_surveys/about

0-100 with higher values are associated with less corrupt countries. The CPI draws upon multiple sources that capture the assessment of experts and business executives on a number of corrupt behaviours in the public sector such as bribery, diversion of public funds, use of public office for private gain, nepotism in the civil service and state capture. In addition to that, sources also look at the available mechanisms to prevent corruption such as the government's ability to enforce integrity mechanisms, effective prosecution of corrupt officials, red tape and excessive bureaucratic burden and the existence of adequate laws on financial disclosure, conflict of interests prevention and access to information on accountability.[6]

The International Country Risk Guide (ICRG) is another provider of a corruption index which is assembled by 22 variables divided into three areas; political, economic and financial. Investors, banks and companies are some of the users of ICRG and the model helps to determine the future risk in these three areas. Each of these categories has an index by itself and the accumulated score ranges from 0-6 where a higher score indicates of lower corruption. These data are sold upon request to the company, making this index inaccessible for this research.

The Kaufmann & Kraay Index is built on older research from the World Bank. Kaufmann et al. (2011) established an index they named 'Control of Corruption: Rank'. This index is commonly abbreviated KK after the two authors but in this research, will be used as COC. It includes more data than both the CPI index and the ICRG index and covers 213 countries and Ranks countries where higher values indicate less corruption. It reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. The index includes data on corruption among

[6]Details on the methodology of constructing the index can be found in the documentation in https://www.transparency.org/en/cpi/2020/index/nzl

public officials, public trust in politicians, diversion of public funds, irregular payments, levels of petty corruption and anti-corruption policies.[7]

5.2.6 Effects of corruption

Establishing the nature, forms and measurements of corruption, it is time to examine the consequences that corruption has to different economic outcomes including trust. This include the effects of corruption on GDP and GDP growth, on income inequalities, on investments and government spending as well as to some other economic variables.

Among the first empirical cross-country analyses of the consequences of corruption on economic development, was the seminal work of Mauro (1995) which focused on GDP per capita growth. The analysis suggested that more corrupt countries experience both statistically significant lower GDP growth and investment rates. From a macroeconomic point of view there are more evidence from Mauro's work proving that corruption has a negative relationship for both private investments and economic growth. Various studies used GDP per capita growth as the dependent variable in such models and confirmed Mauro's findings [Poirson (1998); Li et al. (2000); Mo (2001b); Abed and Davoodi (2000); Mauro (2004)]. Most of these studies find statistically significant results that support a negative impact of corruption on economic growth. Méon and Sekkat (2005) analysed how the interaction of corruption or good governance affect economic growth. Besides the significantly negative impact of corruption on GDP per capita growth, the interaction of corruption and the rule of law as well as corruption and government effectiveness negatively affect growth rates. This leads Méon and Sekkat to conclude that corruption will be even more harmful to growth in environments of weak rule of law and low government effectiveness. Additionally, according to Pellegrini and Gerlagh (2004), there is no statistically significant direct relationship once other relevant factors are controlled for. There are, however, indirect effects of corruption on

[7]Details on the methodology for the construction of the index can be found in http://info.worldbank.org/governance/wgi/Home/Documents

economic growth, as corruption negatively affects investment, schooling, trade policies and political stability.

Despite the fact that a major part of the literature agrees on the negative impact of corruption on GDP growth, there are many empirical studies that suggest otherwise. The positive aspects of corruption on economic development were considered very early in the literature by Leff (1964). It is evidenced that theoretically at least corruption can aid economic development in many ways. Firstly, one could think that corruption can provide an incentive for the public agent to work harder, in which context corruption should exist irrespective of the institutional framework of countries. A second possible path through which corruption could aid economic growth is if it is thought of as an act of "speed money" in which case corruption could make public goods and services more efficient. This type of corruption theoretically would be associated in countries that present high levels of bureaucratic red tape [Mauro (1995); Barreto (2001)]. Additionally, to the evidence on economic growth, the impact of corruption on the level of GDP has also been frequently investigated over the past decades. Most of these papers find a negative impact of corruption on the level of GDP and GDP per capita [Ehrlich and Lui (1999); Kaufmann et al. (1999); Neeman et al. (2008); Welsch (2008)].

An important aspect of corruption is how it affects poverty and inequality. Most major empirical works find a strongly positive relationship between corruption and income inequality [Barreto (2001); Gupta et al. (2002); Gyimah-Brempong and de Gyimah-Brempong (2006)]. Foellmi and Oechslin (2007) show that more corruption is significantly related to an increase of the income share of the richest 20 percent. Li et al. (2000) estimated a nonlinear relationship including the squared corruption index and find that the initial negative increase in inequality due to corruption is eventually reversed. An increase in corruption results in an increase of income inequality up to an index of 2.9 on a scale between 0 and 6 and in a decreasing effect afterwards.

Jong-Sung and Khagram (2005) conducted an interesting comparative study of inequality and corruption trying to find bidirectional causality between income

inequality and corruption suggesting that not only the latter affects income distribution as perceived. The authors also found a significant interaction effect between inequality and democracy, as well as evidence that inequality affects norms and perception of corruption. They also suggest that because corruption contributes to income inequality, societies often fall into vicious circles of inequality and corruption. Gyimah-Brempong and de Gyimah-Brempong (2006) tried to explore regional differences in corruption, growth and income distribution finding that there are statistically significant regional differences in the growth and distributional impacts of corruption. Dincer and Gunalp (2012) examined the relation of corruption and income inequalities in the United States and found robust results that an increase in corruption increases income inequalities.

Mandal and Marjit (2010) on the other hand, trying to answer the question on whether corruption aggravates wage-inequality, found that lower degrees of corruption may increase wage inequality. Spinesi (2009) developed a Schumpeterian growth model in which institutional quality matters for inequality and growth which results agreed with literature suggesting that corruption affects negatively economic growth and inequality. Uslaner (2008b) suggested that the link between inequality and corruption seems compelling, that corruption *"flouts rules of fairness and gives some people advantages that others don't have"*. He argues that corruption is a persistent phenomenon since there is little evidence that countries can escape the curse of corruption. Supporting the view of Mandal and Marjit, Uslaner (2008b) suggests that economic inequality provides a fertile breeding ground for corruption and, in turn, it leads to further inequalities.

Another important effect of corruption which as the same time is an important transmission channel through which corruption can affect economic development is investments. In the seminal work of Mauro (1995), the share of investment in GDP is employed as dependent variable and according to his results, more corrupt countries experience significantly lower investment rates. An extensive part of the literature which focuses on the ratio of gross investment to GDP supports Mauro's results [Brunetti

et al. (1998); Campos et al. (1999); Mo (2001a); Lambsdorff (2002); Pellegrini and Gerlagh (2004)].

Additionally, it has been shown that corruption lowers the quality of public infrastructure, biases state expenditures via military expenditures and lowers expenditures on education and health. The issue of public infrastructure quality was analysed by Tanzi and Davoodi (2000), suggesting that corruption lowers the quality of roads and increases the number of electricity interruptions in the examined sample as well as that there is a significantly negative impact of corruption on public revenues. Most of the actions associated with corruption such as bribery includes transactions that are categorised in the shadow economy suggesting that these transactions reduce tax revenues.

5.3 Corruption and trust

Both trust and corruption have long been recognised as important topics by social scientists, empirical studies on their relationship though were scarce until the mid-1990s mainly due to the lack of available data.

Trust, as presented in detail in Chapter 3 of this thesis, is based on an individual's belief or expectations of others trustworthiness. There are two distinct, probably complementary, ways to see trust. Some argue that it is learned early in life (Erikson, 1994) while others believe that it is a process of social learning over the course of an individual's life (Glanville and Paxton, 2007). According to the latter view the decision to trust a stranger will largely depend on one's expected trustworthiness of average people based on one's own experiences. The only way to assess though other people's trustworthiness is through repeated interactions, making accounts every time of whether the other actor reciprocates your expectations or not. In the case of political trust or trust in institutions it is usually implied not only confidence on the integrity and

fairness of the political/institutional actor but also in its competence to behave in a particular way under specific circumstances.

Corruption on the other hand can be considered as a form of untrustworthy behaviour. Particularly in the case of public corruption, when a bureaucrat engages in corruption by abusing the power entrusted in him/her, he is betraying the trust each individual citizen has on his/her integrity. In that sense corruption is a form of untrustworthy behaviour that affects individuals with direct experiences or direct interests. Even in the assumption that individuals of the same society have homogeneous views (personal ethics) in regards to corruption, it will be impossible for them to know the exact levels of corruption (You, 2018) due to corruption's hidden nature.

The relationship between different forms trust and corruption has seen unprecedented interest since the seminal work of Putnam et al. (1994) and the development ways to measure corruption in the mid-1990s. There are evidence supporting both a causal effect of trust on corruption similar to the one Putnam et al. (1994) described when correlating lower levels of social trust and higher levels of political corruption in Italy. La Porta et al. (1997) tested Putnam's hypothesis with data from the World Values Survey to find robust evidence of positive effects of trust in corruption control, bureaucratic quality and tax compliance. Subsequent cross sectional studies also confirm these results (Bjørnskov (2010); Graeff and Svendsen (2013); Uslaner (2004, 2008a)). Uslaner (2004) finds that changes in social trust can explain changes in the perceived levels of corruption whilst the reverse effect is insignificant. Uslaner (2008a) describes a causal chain of vicious circle, the "inequality trap", where high inequality causes low social trust which in turn causes higher levels of corruption that lead to more inequalities. Bjørnskov (2010) connects social trust to good governance through two distinct mechanisms. The bureaucratic mechanism results a moral cost to corrupt bureaucrats which is higher in more trusting societies, whilst the electoral mechanism through which social trust affect corruption results costs due to the demand for punishment of corrupt actors. The

argument for both mechanisms is that trusting citizens are more civic-minded than non trusting ones.

These studies support the hypothesis that there is a causal effect running from social trust to corruption. However this causality direction is hard to establish robustly due to endogeneity and reverse causality issues. Without micro level evidence suggesting that trusting public officials engage in corruption less frequently than non trusting ones, the causal chain is subject to spurious circles (Serritzlew et al., 2014).

A number of studies on the other hand, have explored the effect of institutional quality and corruption on social and political trust. Rothstein and Stolle (2008) when considering institutional trust, distinguish between partisan institutions (parliament, government, political parties), neutral and order institutions (army, police) and power controlling institutions (press). Uslaner (2008b) using instrumental variables attempts to identify a causal effect of perceived corruption on trust in Estonia.Using data from the National Elections Survey (NES) Richey (2010) also supports the effect of corruption on generalised trust. Herreros and Criado (2008) describe a trust game where state efficacy fosters social trust and they support that claim using a multilevel analysis of data from the European Social Survey. Using the same hierarchical structure of analysis Freitag and Bulham (2009) find that corruption among other factors are affecting trust, a result later also supported by You (2012).

You (2018) suggests that through the variety of methods (panel data, experimental studies, multilevel analysis, instrumental variables) as well as the wide coverage of data (Europe, US, country specific), there is very strong and robust empirical evidence of the causal effect of corruption on trust.

Recent studies investigating the relationship in the context of the post-2008 European countries have found conflicting results. Hooghe (2011) showed significant robust results between institutional quality (and corruption) and trust in national and European institutions. Their results were supported by Torcal (2014). Foster and Frieden

(2017) on the other hand, using a similar sample to this study (Eurobarometer 2004-2017), claim that there is no detectable relationship between a change in institutional quality at the national level and trust in European institutions. Their analysis claim that previous authors' robust results might be stemming from the use of subjective individual level perceptions of corruption rather than "objective" aggregate measures.

Foster and Frieden (2017) however, do not explicitly tackle the corruption to political trust relationship, focusing rather on the socio-economic dimensions that explain political trust, their claim regarding institutional quality appears counter intuitive when considering their empirical strategy. Authors claim that they opted to not use a not use a multilevel model because they are interested in estimating a global effect rather than individual country estimates. Institutional quality and corruption, are not however a homogeneous pan-European phenomenon and therefore it would be counter intuitive to hypothesise that a null "global" effect infers that they do not affect trust in national governments. Such effects are expected to be heterogeneous across different individual countries based on their institutional framework and corruption levels. In response to that, this chapter will look at the corruption-trust relationship, taking into account the socio-economic aspects Foster and Frieden (2017) explored, using a multilevel model in order to understand the role of individual country estimates.

5.4 Hypotheses

Considering the literature and insights from Mishler and Rose (2001) the probability (T_{ij} that an individual (i) will trust (T) the national government (j) can be thought of as a function of:

- a vector of personal, social and demographic characteristics that define an individual's personality and therefore his/her preferences towards risk and trust.

These characteristics vary across individuals but remain the same irrespective of the institution that is under judgement

- the individual's set of information about the underlying institution's quality (beliefs and evaluation of past performance)
- country specific characteristics

This probability could be explored by rational choice theory which allows us to understand the theoretical micro foundations of political activities, yielding at the same time testable hypotheses. Farrell (2009) suggests that rational choice institutionalism might be the more holistic theoretical tool to explore the mechanisms of institutional trust. According to Hudson (2006) trust decisions are expected to vary depending on individuals' income, education, employment status and family background. One would a expect a positive association between income and trust in government as individuals use differences in their income as their primary mean of evaluating the state of the economy and therefore the performance of the government in the previous period. Foster and Frieden (2017) find that more educated tend to trust more national and European institutions, so a positive relationship can also be hypothesised. Employment status can also impact on an individual's opinion about the performance of the government. Hudson (2006) suggests that people tend to blame others instead of themselves for adverse events in their life and one such case could be the event of sudden unemployment with the government taking the blame.

In addition to that individual characteristics that affect one's propensity to trust, such as living with others (household composition or marriage), trusting strangers or living in large communities can indirectly affect political trust. One could hypothesise that direct social relations (living with more people) might positively affect trust while indirect non-personal social interactions (such as living in large cities) might have a negative effect.

In terms of institutional and country specific factors, the main hypothesis of this research is that the level of perceived corruption negatively affects trust in the government. Other political factors might also have a role in this process such as the stability, ideology and tenure of each government. More stable governments are an indication of better performance and more support by the public. Additionally, the state of the economy is important in such a process, as one would expect that weaker economies with high levels of unemployment and under austerity programs to be associated with lower levels of trust in government.

5.5 Data and methodology

For this chapter the main estimation results are derived using data from 35 waves of the Eurobarometer survey between 2005-2018.[8]. Eurobarometer is uniquely positioned among other pan-european attitudinal surveys for this study as surveys are conducted frequently and ask consistent questions, that cover all members of the EU, and indicate how much Europeans' trust their national governments and the institutions of the EU. In contrast, the European Social Survey is only run every two years, not all countries are covered in each wave and there is no specific question on trust in national governments which would make the analysis difficult. The dates of surveys (2005-2018) reflect the latest EU expansion (EU28) which was made in 2004 and brought major institutional changes to many countries in the sample. Therefore, to allow homogeneity in legal and constitutional frameworks, the sample starts in 2005 and ends with the last available data (at the time of writing) in 2018. The sample excluding non-responses, missing values and "Don't know" answers is roughly 785.000 individual observations, depending the variables included in the specification.[9]

[8]Eurobarometer is a public opinion survey conducted biannually by the European Commission across Europe in independent samples since 1974

[9]Non responses, missing values and Don't know are very minimal for the main specification of the model and therefore it is assumed that their exclusion would not significantly bias the results. Roughly 47.000 cases were not included in the sample. An additional control for the missing at random assumption taken here, might be offered through the robustness checks section of the

The main dependent variable of focus here is trust in the national government. The answers in this survey question are binary (0-1) and correspond to how much the respondent trusts the country's government (0=Tend not to trust, 1=Tend to trust). As 6.8 of the Appendix shows, in only three countries (Finland, Luxembourg and Malta) citizens tend to trust the government on average. In 8 countries the percentage of responses on both categories is close to 50% (Austria, Belgium, Cyprus, Denmark, Estonia, Germany, Netherlands and Sweden), whilst in the remaining 17 countries the citizens clearly tend not to trust their government. In the Appendix a similar graph (5.4 on the evolution of these responses over time is available. The map in Figure 5.1 depicts the average levels of trust in national governments over the sample period in every country.

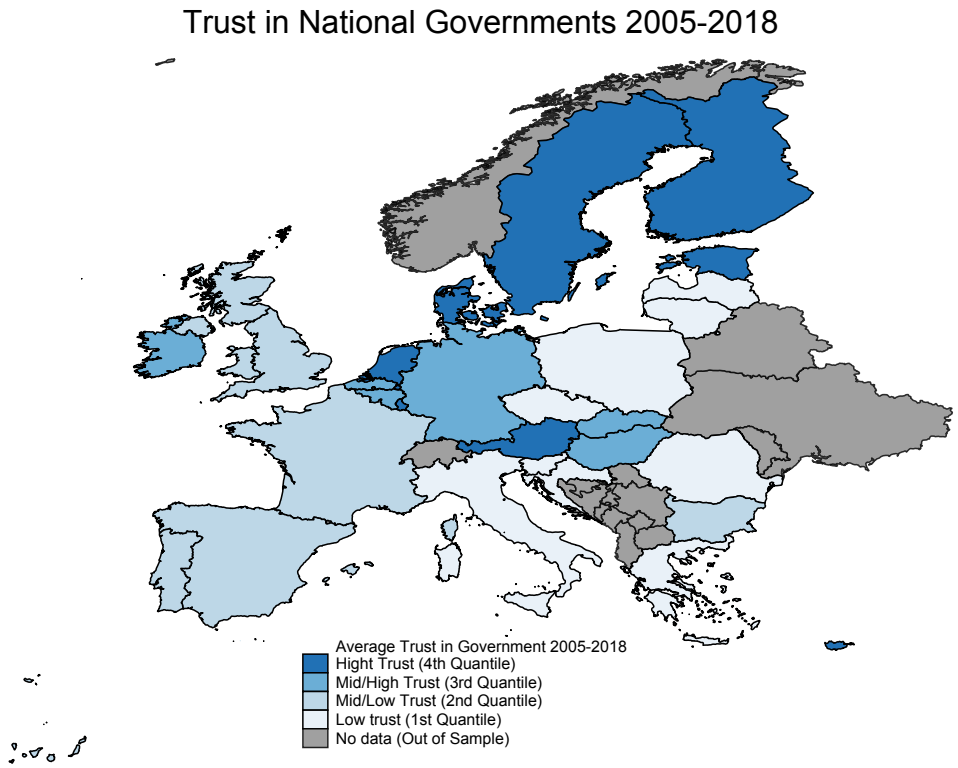

Figure 5.1 Trust in the European Union 28 countries between 2005-2018. Average Trust in National Governments. Data: Eurobarometer

chapter which looks at sub samples of specific variables and their inclusion/exclusion impact on the results.

Control variables are chosen based on factors found to be important determinants of trust according to the literature including different individual level characteristics that are considered important in determining the levels of trust such as education, employment, marriage, political ideology and household composition *(see Appendix for a complete account of variables, summary statistics & sources).*

In order to examine the effects of corruption on political trust, country level data for perceived corruption were also collected. Due to the hidden nature of corruption, accurate data are impossible to collect and therefore there is no unified or general known method used in the literature. In this research the Corruption Perception Index (CPI) is being used as a measure of corruption in the first part of the estimation as provided by Transparency International. The index ranges between 0-100 with higher values associated with better outcomes (less corruption). As a robustness check further on in order to investigate potential effects of measurement error, a different corruption measure is used, the Control of Corruption Index (CoC).

Socio-economic factors are also found to be drivers of trust in institutions and therefore aggregate data on country specific economic factors are used such as per capita GDP and the level of unemployment. Lastly using World Bank's "Database in Political Institutions", [10] which provides data on institutional and electoral results as well as measures of stability, tenure and ideology of government, data on political cycles are collected.

5.6 Results

Given the structure of the Eurobarometer survey the analysis is based on a sample of pooled repeated cross sections, taking into account potential nested observations. In such a setting, ordinary regressions become problematic due to shared dependency of individuals belonging to the same group Barrels (1996). To overcome dependency among

[10] https://datacatalog.worldbank.org/dataset/wps2283-database-political-institutions

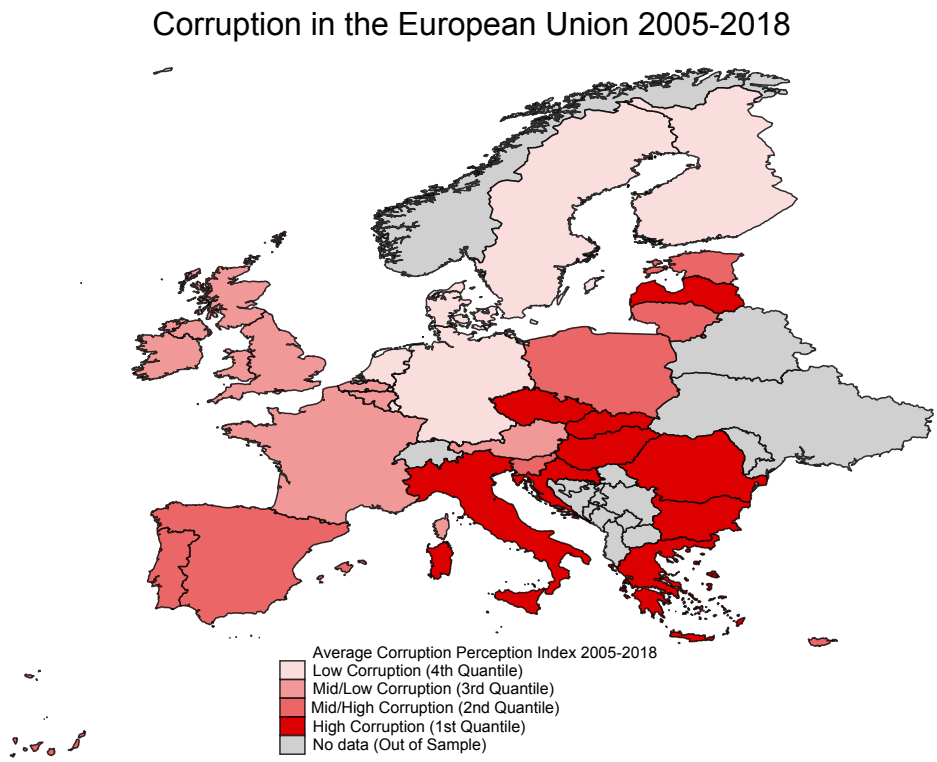

Figure 5.2 Corruption in the European Union 28 countries between 2005-2018. Average Corruption Perception Index.

them, a multilevel analysis of the data is deployed since they are in an hierarchical form (individuals nested into survey waves nested into countries). In that way, both cross sectional and across time effects can be explored in order to account for the variance in a dependent variable measured at the lowest level by analysing information from all levels of the analysis.[11]

Control variables are chosen based on the hypotheses presented above, supplemented by additional variables found to be important determinants of trust according to the literature. Following Foster and Frieden (2017) and Hudson (2006) socio-economic

[11]Eurobarometer uses extensive post-stratification weights to correct for major differences across waves. See "Weighting Overview," Eurobarometer Data Service. http://www.gesis.org/eurobarometer-data-service/survey-series/standard-special-eb/weighting-overview/. Analyzing the entire population of respondents allows us to account for the different size and distribution of the population within each country, while country and survey fixed effects allow us to control for any homogeneity within each survey wave or country. I prefer the use of a multi-level model because I am interested in the effect of individual countries (groups) rather than estimating a global effect.

variables found to be important in explaining levels of political trust are included at the individual level as well as macro-level variables on economic and political characteristics of the country. The main quest of this research is to explore what drives political trust in the European Union and whether perceptions of corruption are an important determinant. In addition to that, this research explores whether the effect of corruption on political trust is homogeneous across countries, time and social subgroups.

Given that the variable on trust in national government in the Eurobarometer survey is dichotomous, it is appropriate to use a logit multilevel model which assumes that there is a latent variable $Y^* \in (-\infty, \infty)$ that captures the levels of political trust and that it is represented (with incomplete information) through an observed variable Y.

When the latent variable crosses a cut-point, the observed category changes and the following specification is used to estimate empirical results:

$$L = lnP(Y \leq m) = \tau_m + \beta_n \times X_{ijk} + e_{ijk} + v_{0jk} + v_{00k} \tag{5.1}$$

Where:

- L is the total logit
- X_{ijk} are the explanatory variables in all 3 levels- (i & j can be 0)
- e_{ijk} is the error term in Level 1 (individuals)
- u_{0jk} is the error term in Level 2 (survey years)
- v_{00k} the error term in Level 3 (countries) [12]

At first, as shown in Table 5.1 the above model is estimated using a baseline specification including only socio-economic characteristics without corruption and other

[12]Typically the residuals in hierarchical models are assumed to be normally distributed: $v_{00k} \sim N(0, \sigma^2_{v(T)}), u_{0jk} \sim N(0, \sigma^2_{u(T)})$ and $e_{ijk} \sim N(0, \sigma^2_{e(T)})$. i=individuals, j=countries, k=survey years

political factors. Columns 1-4 refers to different estimation techniques, namely pooled OLS (2), logit (3), multilevel (4), multilevel logit (5 & 6). Based on the reported variance decomposition, variance in the individuals level mainly explains heterogeneity ($\sim 84\%$). Additionally, country characteristics seem to explain a significant proportion of the variance ($\sim 15\%$) whilst time contributes less than 1%. As discussed in the methodology (Chapter 4), the use of multilevel models is adequate to address data of pooled cross-sections such as the Eurobarometer since ordinary regressions (OLS and/or logistic regressions) would provide biased results when not accounting for nesting (even with adequate clustering). Therefore in Table 5.1 estimates with OLS and Logit are presented for reference, a strategy followed throughout the results section.

Socio-economic characteristics in the baseline model appear to follow the results of previous studies such as Torcal (2014) and Foster and Frieden (2017). Increased education and skills are positively associated with higher levels of trust, even though with lower magnitude than Foster and Frieden (2017). Individual level as well as aggregate levels of unemployment are associated with lower levels of trust, an intuitive result since unemployment was one of the most observable effects of the 2008 financial crisis that could be attributed to national governments and their policies, particularly for countries of the European periphery. The effect seems to be more prominent, and statistically significant for people that are employed in sectors that require low or medium level skills.

Skills are measured through three (3) dummy variables created based on Eurobarometer questions that reflect different occupational categories: professional, owner, supervisor, skilled blue collar, unskilled blue collar, farmer or fisher, service job, white collar sales and desk job. For those indicating that they are out of the work force due to retirement, student status, or temporary unemployment, I use their last reported job.

As hypothesised, and in line with Hudson (2006) results, living in larger households increases one's propensity to trust national governments. There two potential and probably complementary explanations for this. Living with familiar people might

increase an individuals' general level of trusts, as he/she interacts a lot with people that have a higher probability to be benevolent than strangers. In addition to that, living in large families tends to be associated with a form of security with the status quo and therefore individuals' might be less inclined to report distrust in government that might result political instability and insecurity. Lastly, an interesting result from the baseline model arises from the baseline model in relation to GDP. OLS and logit models that do not capture individuals nesting into countries show a positive relation to political trust where multilevel specifications provide evidence on a negative association. This negative sign is somewhat puzzling but in line with similar previous exercises (Foster and Frieden, 2017).

In Table 5.2 the main estimation follows including as determinants of trust in the national government indicators of corruption, political characteristics of the country, political cycles and interaction terms. Columns 2 & 3 show estimation results including corruption with a simple logit with clustered errors and a multilevel logit respectively. In the fourth column variables related to political characteristics of each individual are included. These include a variable that captures individuals' interest in politics by measuring the frequency of interactions that include political discussion, a variable on individuals' expectations about the future of the national economy as well as a variable on the self-identification of individuals in the left-right placement of the political spectrum. Column 5 includes similar political characteristics measured in the country level now. A variable that measures the stability of the government is included which captures the % of votes the government had in the last national elections, a measure of polarisation between political parties as well as a dummy variable that captures whether an national election took place in the last between the wave the individual is questioned and the previous one. Lastly column 6 includes a dummy variable that captures whether the country was under a Structural Adjustment Program which is an indication of severe

Table 5.1 Baseline model estimation of trust in government

	OLS	Logit	Multilevel	ML Logit	ML Logit
Education	0.020***	0.075***	0.015***	0.067***	0.069***
	(5.87)	(5.89)	(68.04)	(65.21)	(67.12)
Gender	-0.021**	-0.061*	-0.015***	-0.058***	-0.067***
	(-3.05)	(-2.46)	(-13.66)	(-11.61)	(-13.29)
Age	0.003***	0.010***	0.002***	0.009***	0.009***
	(7.09)	(7.62)	(41.27)	(39.84)	(40.35)
Community	-0.012	-0.027	-0.001*	-0.004	-0.006
	(-1.71)	(-1.05)	(-2.13)	(-1.31)	(-1.78)
Household	0.001	0.036**	0.009***	0.045***	0.043***
	(0.44)	(2.88)	(19.34)	(19.99)	(18.87)
Employed	0.019	0.092	0.027***	0.146***	0.130***
	(1.33)	(1.28)	(13.15)	(15.14)	(13.34)
High skills	0.027	0.064	0.004	0.016	0.016
	(1.96)	(1.04)	(1.60)	(1.40)	(1.43)
Mid skills	0.020	-0.020	-0.011***	-0.048***	-0.051***
	(1.56)	(-0.49)	(-6.14)	(-5.70)	(-5.98)
Low skills	-0.032**	-0.137***	-0.035***	-0.163***	-0.170***
	(-3.65)	(-3.62)	(-17.90)	(-17.39)	(-18.09)
GDP (ln)		0.450***	-0.076***		-0.386***
		(4.37)	(-9.80)		(-10.06)
Unemployment		-0.069***	-0.018***		-0.091***
		(-6.22)	(-84.17)		(-85.90)
Country FE	Yes	Yes	Yes	Yes	Yes
Politic. Cycles	Yes	Yes	Yes	Yes	Yes
N	785,496	785,496	785,496	785,496	785,496

Notes: 1)* p<0.05, ** p<0.01 and *** p<0.001". 2) All standard errors are clustered by country (28 clusters) 3) ML in columns 5 & 6 stands for multilevel, 4) In the parentheses t and z statistics are included

austerity measures being adopted by the national government which could affect people's levels of trust.[13]

In order to interpret the results and compare different specifications of the model, predicted logits need to be changed into probabilities. The reported probabilities for each of the specifications are available at Tables 5.1 & 5.2. The reported numbers refer to the change in probability for Y=1 instead of Y=0 for 1 point change of each variable while keeping all other variables at their mean. When using that method in multilevel modelling, the mean for every variable is taken from the mean value of the group that each individual belongs to and not the overall population mean. To understand the magnitude of each effect, it is important to take into account the measure used for every variable.

For the main variable of interest in this paper, corruption, the coefficient is statistically significant in all specifications of Table 5.2 and the reported probabilities change reported in column 6 is 0.7%. That means that 1 point increase in the Corruption Perception Index (lower corruption) will increase the probability of trusting a government by 0.7% keeping everything else at the mean. This effect might seem low at first but looking at differences in the Corruption Perception Index (CPI) over the sample the magnitude of the effect becomes clearer. For example if Greece recovered from its lowest point (36/100 in 2009) to its highest CPI values (48/100 in 2006) the probability of trusting the government would increase by 8,4%. That would be of equal magnitude to the effect of a 0.7% change in the overall unemployment rate on the probability of trusting the national government or a 5.8% in GDP per capita. Immediately it is obvious that according to the results the effects of corruption on the probability to trust a national government are significant both statistically and in nominal terms.

Looking at other control variables in both Tables 1 & 2, results are in line with previous literature [ie Hooghe (2011); Torcal (2014); Foster and Frieden (2017)] and education, age, family and employment are associated with higher probabilities of

[13]For further information in regards with these variables please refer to the Appendix

Table 5.2 Trust in Government including corruption and political factors

	Logit	ML Logit	ML Logit	ML Logit	ML Logit
Education	0.068***	0.070***	0.057***	0.060***	0.060***
	(-5.48)	(-67.26)	(-39.79)	(-37.84)	(-37.7)
Gender	-0.060*	-0.068***	-0.047***	-0.053***	-0.054**
	(-2.48)	(-13.33)	(-6.79)	(-6.85)	(-6.93)
Age	0.010***	0.009***	0.010***	0.011***	0.011***
	(-6.88)	(-40.42)	(-33.96)	(-32.02)	(-31.84)
Community	-0.023	-0.006	-0.009*	0.003	0.003
	(-0.87)	(-1.78)	(-2.11)	(-0.6)	(-0.68)
Household	0.047***	0.043***	0.039***	0.043***	0.043***
	(-5.08)	(-18.87)	(-12.94)	(-12.69)	(-12.57)
Employed	0.072	0.131***	0.125***	0.111***	0.110***
	(-1)	(-13.44)	(-9.25)	(-7.4)	(-7.36)
High Skills	0.061	0.016	-0.012	-0.010	-0.010
	(-1.03)	(-1.37)	(-0.79)	(-0.57)	(-0.60)
Mid Skills	-0.011	-0.052***	-0.035**	-0.025*	-0.026*
	(-0.27)	(-6.08)	(-3.07)	(-1.96)	(-2.01)
Low skills	-0.124***	-0.171***	-0.134***	-0.124***	-0.125***
	(-3.53)	(-18.18)	(-10.44)	(-8.55)	(-8.63)
GDP (ln)	0.110	-0.491***	-1.094***	-1.674***	-1.521***
	(-0.59)	(-12.35)	(-21.05)	(-23.09)	(-20.77)
Unemployment %	-0.057***	-0.090***	-0.106***	-0.133***	-0.120***
	(-4.60)	(-85.14)	(-69.71)	(-67.70)	(-54.80)
Corruption	0.016*	0.007***	0.010***	0.004***	0.005***
	(-2.26)	(-10.13)	(-10.89)	(-3.79)	(-4.32)
Ideology			0.113***	0.113***	0.113***
			(-34.96)	(-30.68)	(-30.64)
Expect. Econ.			0.677***	0.663***	0.661***
			(-143.86)	(-125.42)	(-125)
Polit. Interest			0.032**	0.008	0.009
			(-2.95)	(-0.62)	(-0.73)
Gov. votes %				-0.001	-0.000
				(-0.85)	(-0.41)
Polarization				0.023***	0.021**
				(-3.35)	(-3.03)
Elections				0.083***	0.086***
				(-4.8)	(-4.98)
S.A.P					-0.307***
					(-13.94)
Country FE	Yes	Yes	Yes	Yes	Yes
Politic. Cycles	Yes	Yes	Yes	Yes	Yes
N	785,496	785,496	434,284	340,399	340,399

Notes: 1)* p<0.05, ** p<0.01 and *** p<0.001". 2) All standard errors are clustered by country (28 clusters) 3) ML in columns 4 & 5 & 6 stands for multilevel, 4) In the parentheses t and z statistics are included

trusting the national government. In contrast to Mishler and Rose (2001) findings, in this sample individuals living in large towns appear to be more trusting towards the national government than individuals in smaller towns or rural areas. That could be explained partly because citizens of urban areas are closer to the places of decision-making processes and therefore feel a higher level of involvement. The level of overall unemployment rate of the economy seems to have negative impacts on the probability of trusting the government as it is considered an indication of instability in the economy and insecurity about the future. As seen from the variable on expectations about the future of the economy, feeling more secure about the future increases one's probability to trust the government. The effect of income, approximated by the ln of per capita GDP, paradoxically but in accordance with the existing literature appears to negatively affect trust. Foster and Frieden (2017) in a similar sample of countries and time frame hold that in countries with higher levels of income per capita individuals tend to view institutions less positively, because of the higher expectations for better governance that come from socio-economic development.

In regards to factors related to political cycles polarisation and electoral events appear to have significant results in levels of political trust. Less polarised parliaments are correlated with higher probabilities of trusting the government. That could be explained by the fact that in less polarised environments, consensus on legislation can be achieved with more ease and therefore governmental efficacy increases. In addition to that, newly elected governments, less than 12 month of tenure at the time of questionnaire, seem to be associated with higher levels of trust. That can be an indication that individuals mediate their expectations during each government tenure and that expectations in the first period are higher.

5.7 Robustness Checks

In order to test the validity and robustness of these results, a set of robustness checks are employed. At first, it is necessary to see if any particular subset of the sample is driving the results. As corruption is mostly a phenomenon that varies across countries, the tests begin by removing one country by one from the sample and re-estimate the results. Following that, to take into account whether unobserved macroeconomic fluctuations or other random effects of time are affecting this process, years of the sample are removed one by one. Results following on Tables 5.3 & 5.4 suggest that in the full specification of the model, as in Table 5.2, corruption remains robustly significant in all subsets both in regards to countries and years.

In Table 5.4, some outlier values on the coefficients of corruption appear in 2005, 2010, 2017 where the effect of corruption appears to be larger. That is that in these three dates major political and economic events took place in the year prior to the survey and therefore trust levels experiences decreases. Immediately before 2005, in 2004, the first signs of an global economic downfall started to show with an increase of unemployment rates. Additionally, particularly for the European Countries the "Treaty establishing a Constitution for Europe" was signed in 2004 that raised dissatisfaction with national governments in countries where the public was against the treaty. The next outlier, 2010, coincides with the collapse of Lehman Brothers and the outburst of the global financial crisis and the European debt crisis of 2010, events that lead to a significant decrease in the levels of political trust. Finally, 2017 answers follow the 2016 referendum on Brexit and the subsequent negotiations between European Union and the UK government which were associated with lower levels of trust in political institutions.

Following the check of subsets related to aggregate characteristics, the focus now shifts on individual characteristics. As data of each individual's income are not included in the Eurobarometer questionnaire other subsets of individual characteristics

are explored beginning with different educational levels. Following that, the sample is explored in subsets of personal characteristics such as gender, age group and the size of the community in which individuals live in. In terms of political individuals characteristics the subsets of political ideology and interest in politics are explored. Results are presented in Table 5.5.

Table 5.3 Effect of Corruption Perception Index excluding country by country

Excluded Country	Logit	Multilevel	ML logit	ML logit	Obs. 2-3	Obs. 4-5	CPI	CCR
Austria	0.019**	0.006***	0.008***	0.008***	772,409	450,981	77.543	92.075
Belgium	0.016*	0.007***	0.009***	0.008***	755,312	439,090	74.117	90.989
Bulgaria	0.016*	0.008***	0.009***	0.009***	758,108	444,163	39.724	52.036
Croatia	0.016*	0.005***	0.008***	0.008***	758,018	441,935	44.171	60.442
Cyprus	0.018*	0.008***	0.009***	0.007***	771,150	451,323	60.743	81.061
Czech Rep.	0.014	0.008***	0.011***	0.010***	754,948	439,491	50.105	67.439
Denmark	0.017*	0.006***	0.008***	0.007***	755,608	438,993	92.193	99.499
Estonia	0.012	0.007***	0.009***	0.009***	757,869	443,872	66.866	83.430
Finland	0.013	0.005***	0.007***	0.006***	755,907	439,766	90.867	98.980
France	0.016*	0.007***	0.008***	0.008***	757,038	441,346	70.613	89.780
Germany	0.017*	0.007***	0.009***	0.008***	740,965	429,982	79.864	93.688
Greece	0.019**	0.006***	0.009***	0.010***	754,745	440,906	41.989	58.138
Hungary	0.017*	0.009***	0.009***	0.009***	756,134	441,282	50.447	66.618
Ireland	0.016*	0.007***	0.009***	0.009***	757,643	442,461	74.890	92.093
Italy	0.014	0.007***	0.009***	0.010***	758,018	444,254	45.395	62.458
Latvia	0.017*	0.007***	0.008***	0.008***	756,667	442,860	49.657	66.551
Lithuania	0.016*	0.004***	0.006***	0.005***	757,164	445,110	52.918	67.245
Luxembourg	0.019**	0.006***	0.008***	0.008***	772,409	450,981	82.792	95.745
Malta	0.017*	0.008***	0.009***	0.008***	772,925	453,094	57.177	77.834
Netherlands	0.016*	0.007***	0.009***	0.008***	755,412	438,398	85.675	96.204
Poland	0.017*	0.007***	0.009***	0.008***	758,486	44,385	52.420	70.847
Portugal	0.016*	0.007***	0.009***	0.008***	756,712	443,329	62.466	81.479
Romania	0.016*	0.007***	0.010***	0.009***	756,711	443,728	42.069	53.102
Slovakia	0.018*	0.008***	0.010***	0.008***	755,729	440,474	47.053	64.471
Slovenia	0.016*	0.004***	0.006***	0.005***	755,438	443,067	61.753	78.633
Spain	0.016*	0.005***	0.006***	0.005***	757,344	442,661	62.037	78.500
Sweden	0.015*	0.008***	0.011***	0.010***	755,423	438,841	90.009	98.405
UK	0.018**	0.007***	0.009***	0.008***	748,869	436,948	79.690	93.222
Personal Charact.	Yes	Yes	Yes	Yes	Yes	Yes	-	-
Country Charact.	Yes	Yes	Yes	Yes	Yes	Yes	-	-
Political Identity	No	No	Yes	Yes	No	Yes	-	-
Political Climate	No	No	Yes	Yes	No	Yes	-	-
SAP	No	No	Yes	Yes	No	Yes	-	-

Notes: 1) All standard errors are clustered by country (28 clusters) and time (14 years) 3) ML in columns 4 & 4 stands for multilevel

5.7.1 Control for Corruption Index

In this subsection, the specifications of Table 5.2 are re-estimated using a different index for corruption to test whether results are driven by that choice. To do so, the Control

Table 5.4 Effect of Corruption Perception Index excluding year by year

Excluded Year	Logit	Multilevel	ML Logit	ML Logit
2005	0.018*	0.014***	0.016***	0.015***
2006	0.017*	0.007***	0.009***	0.008***
2007	0.017*	0.005***	0.006***	0.006***
2008	0.016*	0.005***	0.006***	0.005***
2009	0.017*	0.005***	0.007***	0.007***
2010	0.016*	0.011***	0.011***	0.011***
2011	0.015*	0.005***	0.009***	0.008***
2012	0.016*	0.006***	0.009***	0.008***
2013	0.016*	0.005***	0.009***	0.008***
2014	0.016*	0.006***	0.006***	0.006***
2015	0.016*	0.004***	0.006***	0.005***
2016	0.016*	0.006***	0.007***	0.006***
2017	0.016*	0.009***	0.012***	0.011***
2018	0.016*	0.008***	0.010***	0.009***
Personal Charact.	Yes	Yes	Yes	Yes
Country Charact.	Yes	Yes	Yes	Yes
Political Identity	No	No	Yes	Yes
Political Climate	No	No	Yes	Yes
SAP	No	No	Yes	Yes

Notes: 1) All standard errors are clustered by country (28 clusters) 2) ML in columns 4 & 4 stands for multilevel, 3) Minimum observations when including political identity variables are 398,820 in 2014 and maximum 458,676 in 2013

for Corruption Index by Kaufmann et al. (2011) is employed. This index captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as the levels of how *"captured the state"* is by elites and private interests. The index is in the form of percentile rank which indicates the country's rank among all countries covered by the aggregate indicator, with 0 corresponding to lowest rank, and 100 to highest rank (Kaufmann et al., 2011). Results shown in Table 5.6 suggest that the effect of corruption on trust in national government is persistently significant and robust across indices used. To compare the magnitude of the two indices, using the same example of Greece, the change of corruption from the lowest point to the highest one of the sample will result a 9% increase in the probability of trusting the national government. The two indicators of corruption are highly correlated and therefore statistically testing the efficiency of both indexes in

Table 5.5 Effect of Corruption Perception Index on subsets of personal characteristics

	Logit	Multilevel	ML Logit	ML Logit	Obs. 2-3	Obs. 4-5
Females	0.015	0.006***	0.008***	0.007***	426,141	242,876
Males	0.018**	0.008***	0.009***	0.009***	359,355	215,800
High Education	0.011	0.006***	0.010***	0.009***	529,637	302,439
Mid Education	0.019**	0.006***	0.007***	0.006***	391,972	231,632
Low Education	0.005	0.0004	0.008**	0.006*	96,450	51,438
Rural	0.018**	0.007***	0.009***	0.008***	513,861	304,006
Small Town	0.015	0.007***	0.008***	0.007***	485,780	280,572
Large Town	0.015*	0.006***	0.009***	0.009***	571,351	332,774
Left	0.005***	0.006***	0.005***	0.005***	620,287	324,541
Centre	0.007***	0.007***	0.008***	0.008***	562,682	278,074
Right	0.015	0.009***	0.011***	0.011***	637,530	339,129
Interested Pol.	0.007***	0.007***	0.008***	0.008***	562,682	278,074
Not Interested Pol.	0.015	0.009***	0.011***	0.011***	637,530	339,129
Personal Charact.	Yes	Yes	Yes	Yes	-	-
Country Charact.	Yes	Yes	Yes	Yes	-	-
Political Identity	No	No	Yes	Yes	-	-
Political Climate	No	No	Yes	Yes	-	-
SAP	No	No	Yes	Yes	-	-

this context will not provide clear results. In normative terms, the use of the CPI is preferred by the author as the main index as it might be closer to the actual perceptions of the average citizen (or median voter) for each country. As described in the subsection 5.2.5, CPI measures perceptions about corruption from international surveys on experts and business executives, which are less objective measures of corruption but in this case might be closer to what individuals would report in a survey setting than the more "objective" control of corruption index.

5.7.2 Reverse causality

One of the main problems that needs to be addressed in regards with the relationship of political trust and corruption is the possibility of reverse causality. Part of the literature suggests that political trust can affect the formation of institutions and its quality (Uslaner, 2008a). The ideal way to deal with this issue would be to observe a representative sample of the same individuals over time, record their views on trust and

Table 5.6 Trust in National Governments using Control of Corruption Percentile Rank

	Logit	Multilevel	Multilevel	ML Logit	ML Logit
Education	0.015***	0.069***	0.070***	0.057***	0.057***
	-69.13	-67.12	-67.59	-40.98	-40.89
Gender	-0.014***	-0.067***	-0.069***	-0.056***	-0.057***
	(-14.04)	(-13.29)	(-13.53)	(-8.34)	(-8.41)
Age	0.002***	0.009***	0.009***	0.010***	0.010***
	-42.64	-40.35	-40.76	-35	-34.87
Community	-0.001	-0.006	-0.006	-0.014***	-0.014**
	(-1.41)	(-1.78)	(-1.79)	(-3.30)	(-3.19)
Household	0.008***	0.043***	0.042***	0.041***	0.041***
	-17.29	-18.87	-18.6	-13.82	-13.64
Employed	0.025***	0.130***	0.128***	0.129***	0.129***
	-12.69	-13.34	-13.17	-9.76	-9.76
High Skills	0.004	0.016	0.018	-0.007	-0.007
	-1.73	-1.43	-1.56	(-0.49)	(-0.49)
Mid Skills	-0.011***	-0.051***	-0.048***	-0.041***	-0.042***
	(-5.88)	(-5.98)	(-5.67)	(-3.64)	(-3.69)
Low Skills	-0.034***	-0.170***	-0.167***	-0.134***	-0.136***
	(-17.44)	(-18.09)	(-17.74)	(-10.74)	(-10.84)
GDP (ln)	0.079**	-0.386***	-0.414***	-1.133***	-1.114***
	-3.03	(-10.06)	(-11.04)	(-23.34)	(-22.60)
Unemployment	-0.016***	-0.091***	-0.083***	-0.099***	-0.091***
	(-11.33)	(-85.90)	(-75.85)	(-63.11)	(-54.45)
Corruption			0.0280***	0.035***	0.035***
			-29.63	-28.59	-28.32
Ideology				-0.001	-0.002
				(-0.34)	(-1.00)
Expect. Econ.				0.692***	0.691***
				-149.84	-149.47
Polit. Interest				0.024***	0.025***
				-4.53	-4.73
Gov. votes %					0.002**
					-3.05
S.A.P					-0.250***
					(-13.78)
N	785,496	785,496	785,496	458,676	458,676

Notes: 1) All standard errors are clustered by country (28 clusters) and time (14 years) 3) ML in columns 4-6 stands for multilevel

corruption, and the frequency of their interactions with the public sector. Then one could investigate whether trusting the government can result more corruption and a form of clientelistic relationship between individuals and governments. Since there is a lack of such data, a different methodology is employed.

For political trust to be able to affect corruption levels it has to be transformed to a form of active support to the government, which is mostly demonstrated through elections. In that case, each individual's decision to trust a government is important, but the most crucial role lies with the aggregation of individual decisions that form a government. Therefore, one could claim that the aggregate levels of political trust towards the national government matter rather than individual ones in determining the quality of governance. To explore that, the levels of political trust are aggregated for each year, and their lagged values for 3 years ($t-1$, $t-2$, $t-3$) are computed. These lagged variables are then regressed in a panel data setting on the levels of perceived corruption accounting for country fixed effects. The residuals of this regression account for the amount of corruption that exists in each country at each time point, that is not correlated to public support. Three lagged values were chosen as the Akaike Information Criterion test suggested that corruption is an AR(3) process. Results when regressing the newly created variable for corruption, shown in Table 5.7, suggest that the effect of corruption on individual decisions remains robustly significant.

5.8 Conclusions

This chapter explores what are the determinants of trust in government in Europe and what is the role of corruption in this process. Motivated by the declining levels of political trust in European countries in the era of austerity, data from the Eurobarometer (2005-2018) were used to see which factors affect the decision to trust a national government. Foster and Frieden (2017) showed in a similar sample that socio-economic factors are the key drivers for these decisions whilst Torcal (2014) holds that the observed decline

Table 5.7 Effect of corruption when accounting for reverse causality

	Logit	Multilevel	ML Logit	ML logit
Education	0.015***	0.064***	0.058***	0.012***
	(69.30)	(8.63)	(41.35)	(41.80)
Gender	-0.014***	-0.066**	-0.052***	-0.011***
	(-13.48)	(-3.07)	(-7.66)	(-8.16)
Age	0.002***	0.009***	0.012***	0.002***
	(42.69)	(8.69)	(35.96)	(36.69)
Community	-0.001*	-0.006	-0.015***	-0.003***
	(-2.03)	(-0.34)	(-3.49)	(-3.64)
Household	0.009***	0.040***	0.0407***	0.00832***
	(19.20)	(6.25)	(13.58)	(13.73)
Employed	0.0260***	0.107**	0.128***	0.0247***
	(12.90)	(2.68)	(9.68)	(9.32)
High skills	0.00449	0.0461	-0.00432	-0.000769
	(1.86)	(1.14)	(-0.29)	(-0.25)
Mid skills	-0.0102***	-0.0308	-0.0359**	-0.00759***
	(-5.70)	(-1.06)	(-3.18)	(-3.30)
Low skills	-0.0337***	-0.151***	-0.130***	-0.0259***
	(-17.31)	(-4.93)	(-10.38)	(-10.25)
GDP (ln)	-0.000	0.063	-0.536***	-0.103***
	(-0.03)	(1.92)	(-10.26)	(-10.90)
Unemployment	-0.010***	-0.029***	-0.048***	-0.007***
	(-40.55)	(-6.08)	(-25.90)	(-20.62)
Corruption	0.007***	0.053***	0.050***	0.010***
	(62.01)	(20.93)	(62.40)	(64.03)
Ideology			0.006**	0.001**
			(3.18)	(3.03)
Expect. Econ.			0.711***	0.147***
			(152.68)	(159.70)
Polit. Interest			0.019***	0.004***
			(3.47)	(4.12)
Gov. Votes %				0.000
				(1.04)
SAP				-0.025***
				(-7.27)
N	785,496	785,496	458,676	458,676

of political trust in some European Countries (Spain and Portugal) is primarily due to political responsiveness rather than to responses on economic performance.

Taking the analysis a step forward this work provides empirical evidence suggesting that this response to political outcomes does not stem from a significant institutional change (structural break) but rather is a realisation of citizens of a fomenting problem of institutional quality. Results suggest that under all specifications, the levels of perceived corruption negatively affect the probability of reporting trust in the national government. The impact of corruption is considered significant and remains robust across all specifications as a 10% change in the Corruption Perception Index has the same effect on the probability of trusting the government with a 4.83% change in GDP per capita.

The limitations of this research are centred around the fact that due to the lack of genuine panel data tracking the same individuals over time, it is not possible to address issues of endogeneity and indirect effects of corruption on political trust. However, through the use of multilevel analysis that allows to capture country and time specific effects, potential biases are reduced to a minimum. The chapter adds to an increasing body of the literature of comparative political economy on what determines trust in political institutions and whether political factors are as important factors as socio-economic ones.

Appendix

Data Description

Tables 5.8 & 5.9 include data description and sources as well as summary statistics for the variables used in this paper.

Table 5.8 Variables descriptions and sources

Variable	Description
Expectecon	Individuals' responses to a question on their expectations about the future of economy.- Source: Eurobarometer / Worse (1)- Same (2) - Better (3)
Politdisc	Frequency of political discussions. - Source: Eurobarometer / Freq (1)- Occasionally (2) - Never (3)
Trust in Government	Reported trust in the national government. (O-1) - Source: Eurobarometer / Responses at the individual level
Trust in Parliament	Reported trust in the national parliament. (O-1)- Source: Eurobarometer / Responses at the individual level
Left-Right	Self positioning in a 5 level left-right scale of political attitudes. - Source: Eurobarometer / 1 (Left) - 5 (Right)
Education	Years of education- Source: Eurobarometer / 1=up to 14 years, 15-22 years, 10=23 or more years
Gender	Respondents' sex (Female (2)/ Male (1)) - Source: Eurobarometer / Responses at the individual level
Age	Age of respondents in years - Source: Eurobarometer / Responses at the individual level
Community	Size of the community respondents' live in (Rural, Small or Large town) - Source: Eurobarometer / Responses at the individual level
Household	Household members (in numbers) - Source: Eurobarometer / Responses at the individual level
Employed	Dummy created to account on whether respondent is currently employed - Source: Eurobarometer / Responses at the individual level
Skill dummies	Three dummies that classify the level of skills needed for respondents' current or past employment - Source: Eurobarometer / Responses at the individual level
GDP	Per capita GDP on constant 2010 USD - Source: World Bank / Responses at the country level
Unemployment	% of total unemployment in the country of residence for each respondent - Source: World Bank / Responses at the country level
Corruption (CPI)	Perceived levels of corruption in the country - Source: Transparency International / Responses at the country level - (0-100 with higher values associated to less corruption)
Corruption (CoC)	Control of corruption Index - Source: World Bank / Responses at the country level (0-100 with higher values associated to less corruption)
SAP dummy	Dummy that accounts on whether country of residence of respondents is under a Structural Adjustment Program - Source: Author coded / Responses at the individual level

Table 5.9 Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Political Interest	673,522	2.04	0.71	1	3
Expect. Economy	729,031	2.22	0.80	1	3
Trust in Gov.	785,496	0.37	0.48	0	1
Left-Right Scale	562,251	3.23	1.65	1	5
Education	785,496	5.61	2.92	0	10
Gender	785,496	1.54	0.50	1	2
Age	785,496	49.09	18.09	15	99
Community	785,496	1.93	0.78	1	3
Household Memb.	785,496	2.58	1.25	1	7
Employed	785,496	0.78	0.41	0	1
Corruption CPI	785,496	64.20	17.10	30	96
Corruption CCR	785,496	79.17	15.31	48	100
GDP per capita	785,496	31,926	18,608	5,561	111,968

In the following European countries, loans were provided on the condition that certain policy reforms will be implemented as described in a Memorandum of Understanding. For more information about the terms and lengths of these programs, see European's Commission reports[14]

Table 5.10 Countries with Structural Adjustment Programs

Country	Years
Cyprus	2013-2015
Greece	2010-2017
Hungary	2009-2010
Ireland	2011-2013
Latvia	2009-2011
Portugal	2010-2016
Spain	2012-2014
Romania	2009-2011

[14]https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-financial-assistance/which-eu-countries-have-received-assistance_en.

Table 5.11 Individuals reporting trust in the national goverment by country

Country	%
Austria	53.13%
Belgium	43.07%
Bulgaria	27.01%
Croatia	18.65%
Cyprus (	46.19%
Czech Re	24.29%
Denmark	54.39%
Estonia	52.62%
Finland	60.29%
France	28.04%
Germany	43.05%
Greece	24.88%
Hungary	34.29%
Ireland	32.37%
Italy	24.27%
Latvia	22.80%
Lithuania	24.49%
Luxembourg	69.46%
Malta	55.63%
Netherlands	54.80%
Poland	24.06%
Portugal	30.58%
Roumania	25.18%
Slovakia	36.02%
Slovenia	25.58%
Spain	27.06%
Sweden	57.71%
UK	30.79%

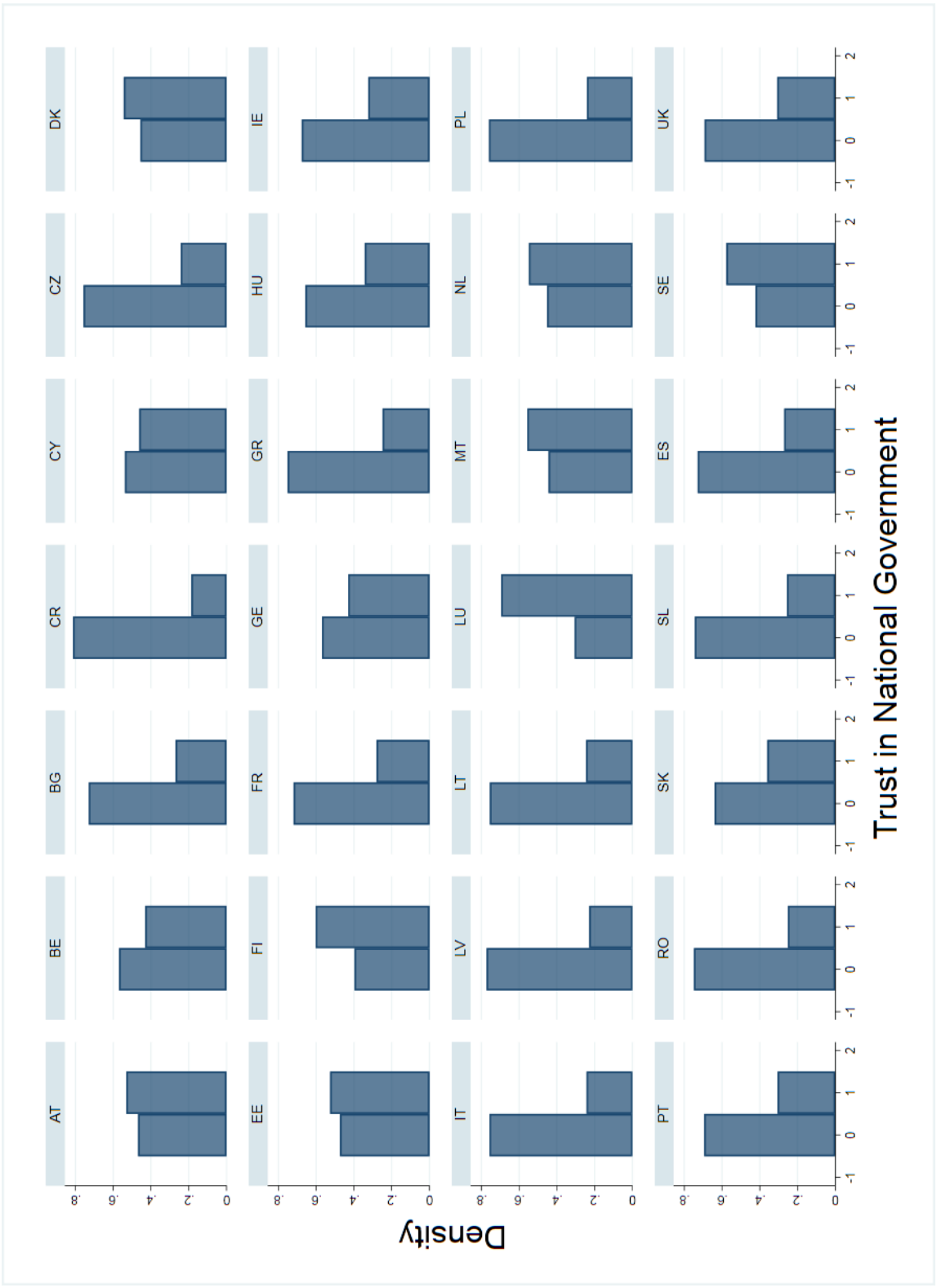

Figure 5.3 Density of responses on trust in National Government by country

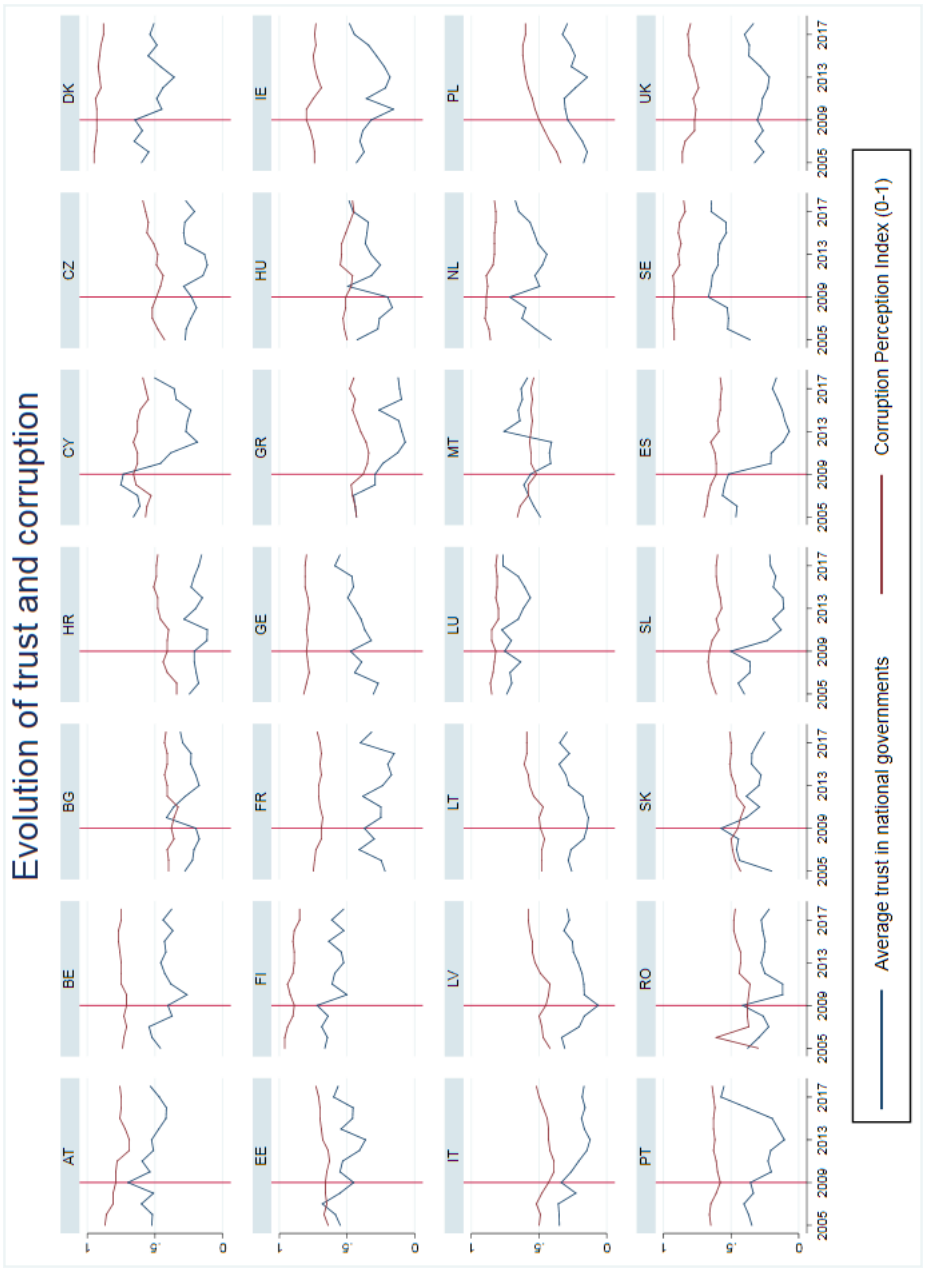

Figure 5.4 Evolution of trust and normalised index of corruption over the sample period country by country

Table 5.12 Correlation table of the main variables used in the empirical analysis

	Trust	Lag	Educ.	Gender	Age	Comm.	Househ.	Empl.	GDP	Unempl.	Ideol.	Corr.	Votes
Trust	1.000												
Lag Trust	0.986	1.000											
Education	0.088	0.074	1.000										
Gender	-0.025	-0.021	-0.026	1.000									
Age	0.072	0.062	-0.375	0.006	1.000								
Community	0.004	0.009	0.152	0.010	-0.047	1.000							
Household	-0.041	-0.027	0.136	-0.005	-0.436	-0.073	1.000						
Employed	0.058	0.049	-0.116	-0.106	0.370	-0.005	-0.179	1.000					
GDP (ln)	0.168	0.086	0.050	-0.046	0.078	-0.022	-0.101	0.023	1.000				
Unempl.	-0.165	-0.095	-0.064	0.006	-0.054	0.012	0.084	-0.115	-0.221	1.000			
Ideology	-0.023	-0.012	-0.028	0.029	-0.023	-0.018	0.021	-0.022	-0.106	-0.005	1.000		
Corruption	0.220	0.121	0.115	-0.039	0.107	-0.013	-0.149	0.068	0.828	-0.394	-0.099	1.000	
Gov. Votes	-0.09	-0.052	-0.181	-0.000	-0.038	-0.013	0.069	-0.054	-0.240	0.132	0.023	-0.373	1.000

6

Ethnic legacies and political attitudes in Africa

"Our ability to reach unity in diversity will be the beauty and the test of our civilisation"

– Mahatma Gandhi

"Ex Africa semper aliquid novi - From Africa always something new"

– Pliny the Elder, Naturalis Historia, VIII. xviii

6.1 Introduction

Historical events have been widely recognised to play a significant role in determining contemporary economic outcomes. In this process a significant part of the literature focuses on how history explains or affects economic development or how large historical events such as colonisation affected different nations [Acemoglu et al. (2001a); Michalopoulos and Papaioannou (2014)]. Following the seminal work of Braudel and

Mayne (1995) on the progress of civilisation, social scientists increasingly started to see the processes under which history affects economic outcomes under the spectrum of long durée and slow change [i.e. Nunn and Wantchekon (2011)].

Michalopoulos et al. (2019) hold that there are two important channels through which history can explain the variations in standards of living among people, that is through examining the history of the places individuals reside in as well as the history of one's own lineage. Individuals' history of lineages and origin have been widely studied in economics and social sciences, particularly focusing on past location and characteristics and their persistent effect. The focus on the effects of a given location and geography can be, in large parts, attributed to two factors. At first, it is computationally easier to map locations of historical events to contemporary geographies and borders through geographical information systems (GIS). In addition to that, this methodology has proven to be very effective in examining the role of institutions on economic outcomes, as institutions tend to stick in physical locations [see Acemoglu et al. (2001a); Banerjee and Iyer (2005); Dell (2012); Michalopoulos and Papaioannou (2014). Another approach to quantifying the effect of history on contemporary outcomes is through looking at the heterogeneity of these outcomes within populations, countries or specific groups. In this strand of the literature, the focus shifts to an individual's own lineage and how that contributes to his/her current outcomes through inter-generational transmission of cultural traits or beliefs.

The goal of this chapter is to use the latter approach in order to link individuals; contemporary beliefs and attitudes towards governance and institutions with information about the social structure of their lineages. Thus, I explore the interplay of culture and institutions by identifying whether cultural trait of different ethnic groups transmitted through generations affect systematically attitudes towards political institutions. This is the first work to the author's knowledge that focuses on political outcomes rather than economic ones (see Michalopoulos et al. (2019) for a summary of previous results). Even though Michalopoulos et al. (2019) uses variables on trust as a potentially interesting

outcome of ancestral influence, the authors do not explicitly tackle issues of political trust and corruption.

This empirical exercise builds on the works of Nunn (2007) and Nunn and Wantchekon (2011) which describe how pre-colonial characteristics affect outcomes in African states in the long run through slave-trade. The hypothesis of this chapter tests the theoretical predictions of Nunn (2007) who suggested that individuals descending from ethnicities that had more complex jurisdictional structures, were more susceptible to slave trade, will be less trusting towards institutions today and will perceive high levels of corruption and bribery in their countries. For the purpose of this study, I follow North (1990) distinguishing between informal institutions (e.g. culture) and formal institutions (e.g. governance). Thus, institutions here are seen as formal governance and politics, while culture is viewed as a set of preferences that are endogenously transmitted thorough inter-generational traits [see Bisin and Verdier (2001)].

Using data from the latest of Afrobarometer (2019) - Round 7, which was conducted between 2018 and 2019, two different methodologies are employed to match individuals across 34 countries to their ancestors, seeking to link pre-colonial social structures to the attitudes individuals have towards governance and institutions today. The idea is that these characteristics of ancestral societies shape the values and norms of individuals and are transmitted inter-generationally through family and social interactions. Using a mixed hierarchical model, I identify both across and within ethnic group variations of political attitudes. By this, I intend to test to what extent, deep-rooted pre-colonial ethnic characteristics and events can explain contemporary trust towards state leaders and attitudes towards political corruption in the present states.

6.2 Culture and Institutions

Before proceeding with the theoretical framework of this research and with an overview of the literature, it is important to provide some definitions for terms that will be used throughout this chapter and might have different meanings in different disciplines.

Culture has been widely studied in the economics literature as an attempt to explain various economic outcomes. According to Guiso et al. (2006), culture is seen as a collection of beliefs and preferences of certain groups of individuals (e.g. groups by ethnicity, religion, social capital) that remain unchanged over time and can explain economic outcomes and institutions. This definition has been widely used by a number of empirical works within the context of beliefs and values, where culture is treated as an exogenous factor which is transmitted from one generation to the other. However, a number of theoretical models have emphasised on cultural traits being endogenously dependent on a number of factors such as experience, technological changes. For instance, Guiso et al. (2009) show that while cultural norms are initially transmitted from one generation to the other, over time, transmitted values and beliefs are likely to change according to individuals' experience through life. Bisin and Verdier (2001) have studied population dynamics of cultural traits presenting a model of preference evolution. They present culture as a set of preferences and common beliefs that are shared within a group and can be endogenously transmitted through inter-generational traits.

Referring to institutions, North (1991b) definition consists of formal and informal rules and structures that shape economic interactions. That is, he distinguishes between formal institutions which consist of statutory laws and constitutions, and informal institutions which are mainly driven by social norms. Acemoglu et al. (2005) make an important distinction between political institutions and economic institutions. However, Alesina and Giuliano (2015) point out that culture and institutions are closely related as both are somehow related to "norms" and "conventions". Thus, while they agree that

formal and informal institutions are interrelated, they argue that culture can only be distinguished by formal institutions.

Hodgson (2006b) however, argues that North's work in defining formal rules and informal restrictions has been subject to confusion in the literature as formal tends to be interpreted as 'legal', while informal may be seen as 'illegal' which is not entirely true. Another interpretation of formal versus informal institutions commonly used in the literature is following Carl Merger's distinction between pragmatic and organic institutions. By this, formal is considered to be linked with designed institutions, while informal is linked with spontaneous institutions. In addition to this, as pointed out by Hodgson (2006b), another interpretation is to see formal rules as the *"explicit rules"* and informal rules as the *"unspoken rules"*. Moreover Hodgson emphasised that there is the unclear distinction between institutions and organisations. He argues that distinguishing between organisations and institutions might be subject to confusion in the literature as to whether those two are independent to one another. He emphasises that organisations are in fact a special type of institutions that consist of additional characteristics such as political parties, businesses and universities. Lastly, Hogdson also supports that formal and informal institutions are generally linked to one another. That is, since formal institutions will always depend on informal and non-explicit social rules. Thus, formal institutions without informal interventions are considered to have no effective social rules and can therefore not be considered as real institutions (Hodgson, 2006b).

Chang (2011) explores the co-evolution of institutions and economic development by examining and criticising existing dominant views on the matter. His findings suggest that there are no optima institutions that can be implemented in all countries and that further investigation is needed in order to explain how institutions evolve over time. His work was criticised by De Jong (2011) who suggests that Chang fails to account for the plausible interactions of culture, institutions and economic performance. In addition, Alesina and Giuliano (2015) point out that culture and institutions are closely related as both are somehow related to "norms" and "conventions". Thus, while they agree that

formal and informal institutions are interrelated, they argue that culture can only be distinguished by formal institutions and not informal ones.

Acemoglu et al. (2005) distinguish between economic institutions and political institutions which determine social decisions according to different groups of people. They emphasise that political institutions are mechanisms that distribute political power, while economic institutions determine social decisions of economic actors which are determined by political powers.

While a number of studies have studied the relationship between culture and institutions in a variety of different aspects and different definitions with their relationship being still unclear, a consensus has been made in the literature that their interrelation and interpretation varies according to what type of institutions are considered as well as the different cultural traits [see Tabellini (2008); Alesina and Giuliano (2015); Acemoglu and Jackson (2017)].

Following the definition by North (1990) of institutions and Bisin's and Verdier's (2001) view of culture, I explore the relationship of informal institutions (culture) to formal institutions (governance) where the focus of this empirical work is on attitudes towards political institutions and more specifically about the head of states, traditional leaders, National Assemblies/ Parliaments and courts of law. In regard to political attitudes and beliefs, in the framework of this analysis, I am referring to reported perceptions of individuals about corruption and bribery as well as reported trust in the aforementioned institutions (similarly to Michalopoulos et al. (2019).

6.2.1 Lineages

Historical factors (i.e. lineages, cultural characteristics) have been widely studied in economics and social sciences as they have been recognised to be important determinants in explaining the variations of contemporary economic outcomes and their persistence.

A strand of literature emphasised on the importance of bio-geographic endowment and agricultural transitions on higher income levels, institutions and state formations in the contemporary economy across countries. For example, Hibbs and Olsson (2004) studied the Neolithic transition from "a nomadic hunter-gatherer lifestyle to sedentary agriculture" and found that early agricultural transition plays a significant role on income levels in the modern era. Similar results were found by Olsson and Hibbs Jr (2005),Putterman (2008) and Borcan et al. (2018). Besides, developed and developing countries, Iliev and Putterman (2007) used Communist countries to examine the effect of previous agricultural development on growth and income levels in the 20th Century and found a positive correlation.

On the contrary, a number of studies argue that during the colonial era, pre-1500 economic advantages were observed to have adverse effects among colonised countries. For instance, Olsson and Paik (2020) found a negative relationship between the transition of Neolithic agriculture and contemporary income levels within the Western agricultural core (Europe, North Africa, the Middle East and Southwest Asia). In fact, their results reveal that early agriculture leads to less advanced institutions and lower economic performance today which were shown before the era of European colonisation. In addition, Acemoglu et al. (2001a) studied colonial experience and differences in European mortality rates in order to examine institutional effects on economic outcomes. Their results reveal that individuals who live in places with high mortality rates were unable to settle, leading to extractive institutions which were persistent until today.

Using a *"world migration matrix"*, Putterman and Weil (2010) analyse the effect of state history using post-1500 migration to predict current macroeconomic outcomes. They find migration to correlate with higher GDP and income when taking into account the individuals' ancestors rather than the history of the country's territory. They argue that in large migration movements, individuals moving from one territory to another are likely to take with them any human capital acquired in their origin country (e.g.

culture or institutions). Similar conclusions were made by Abramitzky et al. (2014) who found that over time, immigrants assimilated with the host country are climbing up the occupational ladder, while this is likely to persist in the second generation. In addition to this, Kyriacou et al. (2015) argue that income inequality has a negative effect on cultural traits which are in return less effective towards better institutions and development.

Furthermore, the heterogeneous outcomes within a population may play a crucial role in explaining the economic development in the modern era [see Ashraf and Galor (2018); Michalopoulos et al. (2019)]. That is, individuals' ancestry or lineage can play a significant role in shaping economic outcomes, institutions and cultural traits at present times. Using data from Africa, Fenske (2013) show that today's African institutional outcomes such as land transactions, polygamy and public goods can be predicted by pre-colonial institutions.

Alesina et al. (2013) investigate the effect of changes in traditional agricultural practices (hoe cultivation vs. plough agriculture) on the evolution of gender norms and the performance of women in the present society and labour market. Their results reveal that individuals whose ancestors were working in plough agriculture regardless of ethnicity or country of origin, belief in higher gender inequalities and are in favour of women being less actively participating in the labour market or politics. They furthermore show that this belief is culturally persistent where second generation migrants whose ancestors originate from plough agricultural practices share equal beliefs with their ancestors.

A few papers have extended the current literature on linkages between previous generation persistency on present economic outcomes by examining social and inter-generational mobility of the long run, that is, studying the effect of several generations back on current economic performance and well-being. For instance, Güell et al. (2015) proposed a new method in measuring inter-generational mobility in using surnames as proxies for past family generations and observe that lineage mobility has decreased over

several generations. Using data from sub-Saharan Africa, Michalopoulos et al. (2019) studied the way of living of ancestors in the pre-modern industrial era, in particular, agricultural and farming, and its effect on the economic well-being of the current modern world. They found that individuals originating from ethnicities whose ancestors were engaged in agricultural practices in the precolonial era are found to have higher levels of education and be wealthier today. Similar effects were observed when restricting the analysis to those who live outside their ancestral homelands as well as those living in urban places and those working in non-agricultural occupations.

A number of studies have attempted to study Africa in explaining the slow economic growth and underdevelopment by examining its historical origins and political economy. Important empirical works shed light on Africa's slow economic performance and stress the importance of its past history in explaining African development today. Empirical evidence suggests that Africa's development and economic performance today can be, to a large extent, explained by the three periods of the colonial rule in Africa. Works by La Porta et al. (1997); Acemoglu et al. (2001b) and Michalopoulos and Papaioannou (2014) focused on the effect during the period of colonisation and found that contractual institutions (i.e. powered by Europe) during the era of colonisation had a persistent effect on the modern economic era. While a number of studies examined historical effects in Africa during the colonial era. Michalopoulos and Papaioannou (2013) examined the relationship between *"deeply-rooted"* ethnic institutional traits of individuals in the pre-colonial era and their effect on regional development in Africa, with a particular emphasis on political centralisation. Several studies on the other hand shed light on the role of slave trades in explaining African development today. For instance, using data from shipping records and historical documents on slave ethnicities, Nunn (2008) found negative effects between the number of slaves and current economic development in Africa. Their results remain robust when controlling for selection into slave trades.

6.2.2 Trust

Before proceeding with the analysis on why individuals report a particular level of trust and the role of lineages, one must first attempt to understand the broader phenomenon of trust. Uslaner (2018) claims that we can observe two broad categories of trust: generalised and particularised. The first is broadly related to the probability that an individual will show general signs of trust to anyone or anything, whilst the latter refers to the probability that an individual will trust something or someone specific. Whilst these concepts appear to be similar and probably interlinked, the fundamental difference between them is that particularised trust requires the acquisition and evaluation of additional information about the subject to be deemed as trustworthy or not. One could claim that particularised trust encompasses generalised in the sense that generalised trust reflects the individual's perception about how the world works and particularised trust reflects the additional case specific information required for the trust decision. In other words, one could see the notion of generalised trust as one's moral compass used as a benchmark upon which people acquire and compare further information to decide whether someone/something is worth trusting.

One of the main subcategories of particularised trust is that of trust in political institutions. Brought to the agenda by the political protests in the 1960' s political trust is a key area of research in the field. Analytical and empirical works on the subject attempted to answer explicitly or implicitly whether political trust is just another form of trust or if its characteristics are distinctive. Do people trust all institutions the same way? Does the level of governance play a role? Is political trust an outcome driven solely by aggregate economic outcomes such as GDP or do institutional and political processes affect it as well? (see Uslaner (2018) for an analytical overview of the literature).

The relationship between institutions, trust and cooperation is important for many avenues of inquiry in social and political sciences (Farrell, 2009). In order to understand it though, one must first try to set out important questions about the

political economy of institutions as well as that of trust. For example, what implications do informal and formal institutions have for the workings of the economy? How can one best understand the sources and consequences of trust and cooperation? Bringing these questions together, what effects do institutions have on the way that individuals decide to trust and cooperate (or not) with each other?

The empirical observations in regard to these questions are limited and Acemoglu et al. (2002) argues that the main reason for the poor accounts of the relationship between institutions and trust is because of the weakness of the underlying theories of this relationship. Thus, one can argue that a more coherent theoretical account for the institutions-trust relationship is a necessary initial step towards a better empirical understanding.

For now, the most sophisticated accounts of trust have very little room for institutions, stressing instead personal relationships as the key source of information underlying trusting beliefs. However, institutional literature suggests not only that institutions are relevant and can be modelled in this relationship, but also that different kinds of institutions are likely to have quite different consequences for trust and cooperation (Uslaner, 2018). Based on this and Tabellini (2008), this chapter investigates the inter-generational transmission of cultural traits such as the pre-colonial societal structures of different ethnicities on contemporary levels of reported political trust.

6.2.3 Hypothesis

In their seminal work on slave-trade and trust in Africa, Nunn and Wantchekon (2011) hold that current differences in trust levels within Africa can be traced back to the slave trades and that individuals whose ancestors were heavily raided during the slave trade are now less trusting. Through various identification strategies, authors claim the relationship to be causal and that the causality mechanisms are internal to each individual such as culture, beliefs and values. In addition to that historical evidence

suggest that slave trade had two unique characteristics. On the one hand individuals could partially protect themselves by turning against others in their community and on the other that slaves were partly taken and traded by local kidnappers or community members for weapons or wealth (Nunn and Wantchekon, 2011).

The bases for the main hypothesis around this chapter lies on the theoretical predictions of Nunn (2007). The author developed a model, exhibiting path dependence, which provides one explanation for why past events and lineages may have lasting impacts on contemporary outcomes in the African continent. The model predictions show that external extraction through slave trade, when severe enough, causes a society initially in the high production equilibrium to move to a low production equilibrium. Because of the stability of low production equilibria, the society remains trapped in this suboptimal equilibrium even after the period of external extraction ends. The model provides one explanation why Africa's past events continue to matter today. In this setup Nunn (2007), Nunn shows that pre-contact (pre-colonial) societies that were in high production equilibria had a higher probability to experience more extractive colonialism.

This chapter hypothesises that pre-colonial communities that had strong hierarchical structures, as measured by the levels of jurisdictional authorities, had a higher propensity to experience higher levels of slave trade for three key reasons. At first, such societies tend to rely heavily on agricultural production and therefore are more stationary in comparison to hunter-gatherers or nomadic ethnicities and being stationary makes them more vulnerable to both Europeans' attacks and local kidnappers. In addition to that, more complicated jurisdictional structures in these pre-colonial societies made enforcement of law and power more indirect in the case a community member turned against its community (Nunn, 2007). Lastly, Europeans and slave merchants had a higher incentive to promote internal conflict in these societies in order to destabilise state power and enforce colonial rules for resources extraction. Therefore, the hypothesis of this chapter is that individuals descending from ethnicities that had more complex

jurisdictional structures will be - ceteris paribus - less trusting towards institutions today and will perceive high levels of corruption and bribery.

6.3 Data, matching and methodology

6.3.1 Data

The starting point of this analysis is the data from the Afrobarometer wave 7 that was conducted in 34 African states between 2018 and 2019 . The Afrobarometer survey is a non-partisan, pan-African cross-national series of data collection which is mainly designed to map public and political attitudes on a range of issues concerning democracy, governance, economic outcomes and society in sub-Saharan Africa. For the purpose of this chapter the sample varies between 25.000 and 17.000 individuals depending on the method of matching and the dependent variables used. The key dependent variables used are based on questions about trust in political institutions (formal and informal), perceptions of frequency of bribery in different institutions and perceptions about the level of corruption in the country. These are complemented by data on demographic information of participants, their socio-economic status and geolocation.[1]

In addition to the Afrobarometer two more sets of data are used in this analysis, the one captures contemporary country characteristics such as state of the economy and geography and the other captures characteristics of pre-colonial characteristics of different ethnicities. The latter is comprised of two different datasets that are used as different ways to match individuals with their ethnic background. These are the Murdock (1967) Ethnographic Atlas and the data constructed by Giuliano and Nunn (2018) on ancestral characteristics of modern populations. A detailed description of the data used can be found in the Appendix.

[1]Wave 7 was used solely and not in combination with waves 1-6 as it is the only one for which the author was provided with geolocated data from the owners of the data (Afrobarometer.

6.3.2 Matching

Using the data from the Afrobarometer, I have matched individuals to their ethnic legacies in two ways. The first methodology builds on Giuliano and Nunn (2018) who created a database measuring cultural, economic, political and environmental characteristics of individuals' pre-industrial ancestors. In order to do so, they combine pre-industrial ethnographic information for around 1,300 ethnic groups using information of approximately 7,500 language groups from the 16th edition of the Ethnologue: Languages of the World (Gordon Jr, 2009). Then they use data on each contemporary African state and they calculate the percentage of each country's population that would have a specific ancestral characteristic. For example, for the variable of interest of this chapter which is jurisdictional structures, they calculate how much of the population of a country (in %) would be a descendant of any ethnicity that would have complex jurisdictional structures (more than 3 levels of hierarchy).

The second matching method is more granular and uses geolocation information on respondents (longitude and latitude at the time of interview) in combination to ethnic borders of pre-colonial societies to match individuals to ethnic ancestries. Using GIS, current location of respondents is overlayed on ancestral locations and then individuals are matched to the ethnicity's jurisdictional structure that corresponds to their location. Jurisdictions are measured in the same way as in matching method 1. This second matching method assumes that internal or external migration is largely random which is a partly strict assumption. This assumption is later on relaxed by taking into account proxies of migration, which even though incomplete due to lack of data, provide some information on how migration would impact on this matching method.[2]

[2]Correlation between two methods is 0.68

6.3.3 Methodology

The Afrobarometer, as most public opinion surveys, lack a genuine panel dataset that records the same respondents over time, therefore the analysis of this chapter is based on a sample of pooled cross sections, taking into account potential nested observations and clustering. In such a setting and considering that interviews happened across two different years (2018, 2019) where time effects might be important, ordinary regressions become problematic due to the shared dependency of individuals belonging to the same group(s).

To overcome such dependency, I use a hierarchical multilevel model to analyse the data in order to capture and explore individuals nested into different groups. The multilevel model is comprised of four levels that are nested from bottom to top. The lowest level is that of individuals which nest at the next level that of each ethnic, the third one is contemporary states where more than one ethnic group nest and the last one is year of interview where more than one country nest. Using a multilevel analysis allows to explore both within and across levels variation and to decompose the variance of outcomes across different levels.

Control variables are chosen based on factors found to be important determinants of political attitudes and beliefs about corruption in the literature. The main explanatory variable of interest in this chapter is that of jurisdictional structures of pre-colonial societies across different ethnicities. This is measured through the Giuliano and Nunn (2018) database which divides pre-colonial societies in five (5) categories from no to little jurisdictional authorities (i.e. just one leader of a hunter-gatherer society) to societies with established rules and multiple levels of jurisdictions. According to the authors, only ethnicities with 3 or more jurisdictional levels have the characteristics we would need in order to fit the hypothesis of this chapter (settled, mostly agricultural and therefore susceptible to extraction and slave trade). Therefore, since the interest of this study is to explore whether such extraction mechanisms (both through extractive

institutions and slave trade) have long lasted effect, I create a dummy that captures whether an ethnicity belongs to this group or not.

In addition to that, control variables include both individual level and country level characteristics that are found to be important determinants of political attitudes (see Michalopoulos et al. (2019) for a comprehensive review of the literature). Individual level characteristics are age, trust in others, education, employment status and a control about income/financial situation explored through the frequency the individual was out of food over the past 12 months[3]. Moreover, two variables that are related to the main assumption of both matching methods (migration) are included in all specifications namely whether the individual has ever lived abroad and whether he is considering migrating (both capture an individual's propensity to migrate). Lastly an important individual-level control is that of how close the individual is feeling to his/her ethnicity which might provide some evidence on the intensity of the mechanism explored.

In terms of country level characteristics all specifications include variables about geographical characteristics of the country (distance to sea and ruggedness that might proxy intensity of access to slave trade) as well as country fixed effects.

The main hypothesis of this research is to explore whether pre-colonial societal structures affect contemporary individuals' political trust and beliefs about corruption. Given the ordinal form of the dependent variables in the Afrobarometer a multilevel ordered probit model is used. This assumes that there is a latent variable Y* (-∞,∞) that captures the true levels of political trust and beliefs of individuals that this is represented (with incomplete information) through the observed variables Y_i. When the observed variable crosses a cut-point, the observed category changes and the following specification is used to estimate the relationship:

$$Y_{ikjt} = \beta_1 X_{ikjt} + \beta_2 W_{jt} + \beta_3 Z_k + \epsilon_{ijt} + u_{jt} + v_k \tag{6.1}$$

[3]Details on the variables of interests and their measures are provided in the appendix.

Where:

- Y is the measure of political trust and beliefs in each specification for each individual i, that belongs in ethnic group j, in country k at time t
- Vector X contains all the individual level control variables such as socio-economic characteristics
- Vector W contains all country level characteristics such as economic conditions, ancestral characteristics by country and geography
- Vector Z contains the main variable of interest which represents the ancestral characteristic and is measured at the ethnicity level
- ϵ, u and v are error terms for the different levels of the multilevel analysis

6.4 Results

Empirical results are presented in two subsections following the two methods of matching individuals with their ancestry. The first subsection reports the estimates using Giuliano and Nunn (2018) data on the percentage (%) of individuals in each country that belonged to a pre-colonial ethnic group with a societal structure of three or more jurisdictional levels. The second one presents results using the second matching method of spatial join where individuals are matched to their ancestral characteristics through geographical information systems using their geolocation and the ethnicities borders as described in the Murdock Ethnographic Atlas.

6.4.1 Ancestral Lifeways matching

At first, as shown in Table 6.1, I use the above specification to estimate the effect of ancestral societal structures on contemporary reported political trust. Columns 1 & 4

	President	Leader	Parliament	President	Leader	Parliament
Age	0.003***	0.001***	0.002***	0.003***	0.001***	0.002***
Migrate	-0.066***	-0.056***	-0.048***	-0.058***	-0.051***	-0.041***
Education	-0.054***	-0.087***	-0.058***	-0.057***	-0.086***	-0.060***
Employed	0.020	0.001	0.017	0.004	-0.004	0.007
Ethnic feel.	0.016***	-0.008	-0.006	0.009	-0.011	-0.011*
Gender	-0.019	-0.040***	-0.013	-0.036***	-0.047***	-0.026*
Out of food	0.018***	0.010***	0.023***	0.014***	0.008***	0.019***
Abroad	-0.008	-0.019	-0.027	-0.005	-0.016	-0.024
Ancestral	-1.917***	-1.439***	-1.788***	-1.940***	-0.964***	-1.789***
Ruggedness	-	-	-	-9.659	-39.812	23.830
Living cond.	-	-	-	0.107***	0.028***	0.080***
Distance coast	-	-	-	0.000	0.000***	0.000
Corruption	-	-	-	0.151***	0.073***	0.120***
Trust gen.	0.089***	0.075***	0.088***	0.073***	0.067***	0.074***
Ethnicity FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20.113	20.113	20.113	20.113	20.113	20.113

Table 6.1 Political trust using ancestral characteristics by country

Notes: 1)* p<0.1, ** p<0.05 and *** p<0.01, 2) All standard errors are clustered by country and ethnicity

report trust in the president or state leader, columns 2 & 5 report trust in traditional leaders and columns 3 & 6 report trust in parliaments. Results suggest that ethnic legacies are a significant negative determinant of political trust in all three institutions nowadays under all specifications [4]. Ethnic legacies are measured as the percentage (%) of individuals in each country that belonged to a pre-colonial ethnic group with a societal structure of three or more jurisdictional levels. These results go hand in hand with Nunn (2007) predictions and the hypothesis of this chapter that ethnicities with more complex structures had characteristics (i.e. established in a specific location, spectrum for more within-ethnicity exploitation) that lead to higher levels of slave trade. These characteristics negatively affect contemporary reported political trust of individuals descending from such societies.

[4]Model fit statistics on multilevel models are not very informative except of variance decomposition and therefore not reported across different.

	Registry	Courts	Taxes	Registry	Courts	Taxes
Age	0.002***	0.000**	0.000***	0.002***	0.001***	0.000**
Migrate	0.047***	-0.056***	-0.048***	-0.058***	-0.051***	0.032***
Education	0.03***	-0.087***	-0.058***	-0.057***	-0.086***	0.037***
Employed	0.027	0.001	0.017	0.004	-0.004	0.032
Ethnic feel.	0.013***	-0.008	-0.006	0.009	-0.011	0.002**
Gender	-0.035**	-0.051***	-0.056*	-0.033**	-0.049***	-0.054*
Out of food	-0.019***	-0.017***	-0.016***	-0.020***	-0.017***	-0.016***
Abroad	0.062	0.061	0.040	0.058	0.057	0.035
Ancestral	0.273***	0.405***	0.466***	0.253***	0.185***	0.493***
Ruggedness	-	-	-	15.024	103.497	-7.775
Living cond.	-	-	-	0.029***	0.042***	0.033***
Distance coast	-	-	-	0.000	0.000***	0.000
Trust gen.	-	-	-	-0.04***	-0.038***	-0.038***
Ethnicity FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20.113	20.113	20.113	20.113	20.113	20.113

Table 6.2 Perceptions of bribery using ancestral characteristics by country

Notes: 1)* p<0.1, ** p<0.05 and *** p<0.01, 2) All standard errors are clustered by country and ethnicity

In 6.2, results regarding beliefs about bribery in different institutions are presented. Columns 1 & 4 report perceptions of bribery in the process of registering land, columns 2 & 5 report perceptions of bribery in order to not go to court and columns 3 & 6 report perceptions of bribery in regard to avoid paying taxes. Results suggest that ethnic legacies are a significant negative determinant of perceptions about bribery nowadays under all specifications. Ethnic legacies are measured as the percentage (%) of individuals in each country that belonged to a pre-colonial ethnic group with a societal structure of three or more jurisdictional levels. The positive effect of ethnic legacies can be interpreted so that individuals descending from more complex societies that are hypothesised to be more susceptible to slave trade, report that they perceive bribery levels to be high.

In Table 6.3, results regarding perceptions of whether overall corruption increased over the past year are presented in both columns. Results suggest that ethnic legacies are a significant negative determinant of perceptions about corruption nowadays under all specifications. Ethnic legacies are measured as the percentage (%) of individuals

in each country that belonged to a pre-colonial ethnic group with a societal structure of three or more jurisdictional levels. The positive effect of ethnic legacies can be interpreted so that individuals descending from more complex societies report that they perceive corruption to have increased over the past year.

	Corruption	Corruption
Age	-0.002***	-0.001***
Migrate	-0.046***	-0.044***
Education	-0.011***	-0.019***
Employed	0.024	0.009
Ethnic feel.	0.015***	0.014***
Gender	-0.029**	-0.033**
Out of food	0.007**	0.004**
Abroad	0.003	-0.003
Ancestral	0.179***	0.923***
Ruggedness	-	-322.672
Living cond.	-	0.105
Distance coast	-	0.000
Ethnicity FE	Yes	Yes
Country FE	Yes	Yes
Year FE	Yes	Yes
Observations	19.599	19.599

Table 6.3 Perceptions of corruption using ancestral lifeways

Notes: 1)* p<0.1, ** p<0.05 and *** p<0.01, 2) All standard errors are clustered by country and ethnicity

Under all specifications in all dependent variables the effect of ethnic legacies as measured by the percentage (%) of individuals in each country that belonged to a pre-colonial ethnic group with a societal structure of three or more jurisdictional levels on contemporary political trust and beliefs appears to be very consistent.

6.4.2 Geo-location matching

In order to test the robustness of the results with a different matching method, I am using a spatial join in order to match the geolocation details of the Afrobarometer respondents and the borders of pre-colonial ethnicities as depicted in the Murdock Ethnographic Atlas. Results of the merge can be found in Figure 1 below. In the new

dataset there are data for 15 of the initial 34 countries and sample sizes vary between 13.527 to 16.650 observations. Therefore, this methodology yields lower percentage (%) of matched observations in comparison to the previous one but higher accuracy.

Figure 6.1 Matching ethnicities' borders to contemporary Afrobarometer respondents.

At first, as shown in Table 6.4, I use the above specification to estimate the effect of ancestral societal structures on contemporary reported political trust. Columns 1 & 4 report trust in the president or state leader, columns 2 & 5 report trust in traditional leaders and columns 3 & 6 report trust in parliaments. Results suggest that ethnic legacies as measured by the percentage (%) of individuals in each country that belonged to a pre-colonial ethnic group with a societal structure of three or more jurisdictional levels are a significant negative determinant of political trust in all three institutions nowadays under all specifications.

These results go hand in hand with the previous matching method as well as with Nunn's (2007) predictions and the hypothesis of this chapter that ethnicities with more

complex structures had characteristics that lead to higher levels of slave trade. These characteristics negatively affect contemporary reported political trust of individuals descending from such societies. Significance appears to be at 90% but this might be due to the reduction of the sample and countries under this methodology.

	President	Leader	Parliament	President	Leader	Parliament
Age	0.006***	0.001**	0.003***	0.006***	0.001**	0.003***
Migrate	-0.049***	-0.028***	-0.034***	-0.043***	-0.025***	-0.029***
Education	-0.053***	-0.096***	-0.057***	-0.055***	-0.096***	-0.059***
Employed	-0.011	-0.023	-0.012	-0.024	-0.026	-0.020
Ethnic feel.	0.041***	0.014*	0.011	0.034***	0.011	0.004
Gender	-0.069***	-0.062***	-0.059***	-0.084***	-0.065***	-0.070***
Out of food	0.019***	0.002	0.020***	0.016***	0.001	0.017***
Abroad	-0.023	-0.047**	-0.027	-0.025	-0.045**	-0.028
Ancestral	-0.025**	-0.049**	-0.025*	-0.023**	-0.048**	-0.023*
Ruggedness	-	-	-	-123.100	-226.435	131.768
Living cond.	-	-	-	0.094***	0.028***	0.071***
Distance coast	-	-	-	0.000	0.000**	0.000
Corruption	-	-	-	0.129***	0.059***	0.103***
Trust gen.	0.137***	0.132***	0.161***	0.117***	0.125***	0.144***
Ethnicity FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16.270	13.527	15.962	16.270	13.527	15.962

Table 6.4 Trust in institutions using GIS matching

Notes: 1)* p<0.1, ** p<0.05 and *** p<0.01, 2) All standard errors are clustered by country and ethnicity

In Table 6.5, results regarding beliefs about bribery in different institutions are presented. As in the previous matching method Columns 1 & 4 report perceptions of bribery in the process of registering land, columns 2 & 5 report perceptions of bribery in order to not go to court and columns 3 & 6 report perceptions of bribery in regard to avoid paying taxes. Results suggest that ethnic legacies as measured by the percentage (%) of individuals in each country that belonged to a pre-colonial ethnic group with a societal structure of three or more jurisdictional levels are a significant determinant of perceptions about bribes.

The positive effect of ethnic legacies can be interpreted so that individuals descending from more complex societies that are hypothesised to be more susceptible to slave trade, report that they perceive bribery levels to be quite high.

	Land registry	Courts	Taxes	Land registry	Courts	Taxes
Age	0.001*	0.000	-0.001	0.001**	0.001	0.000
Migrate	0.031***	0.019***	0.025***	0.030***	0.018**	0.024***
Education	0.030***	0.025***	0.037***	0.026***	0.020***	0.032***
Employed	0.009	-0.036**	0.011***	0.004	-0.043**	0.005
Ethnic feel.	-0.015**	-0.016***	-0.020***	-0.013**	-0.015**	-0.019**
Gender	-0.045***	-0.065***	-0.063***	-0.042***	-0.063***	-0.059***
Out of food	-0.021***	-0.018***	-0.020***	-0.022***	-0.020***	-0.021***
Abroad	0.083***	0.068***	0.077***	0.080***	0.065***	0.073***
Ancestral	0.055***	0.057	0.072***	0.055***	0.058***	0.073***
Ruggedness	-	-	-	176.632**	302.190***	240.448*
Living cond.	-	-	-	0.026***	0.041***	0.033***
Distance coast	-	-	-	0.000	0.000**	0.000
Trust gen.	-	-	-	-0.035***	-0.036***	-0.041***
Ethnicity FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16.650	16.650	16.650	16.650	16.650	16.650

Table 6.5 Perceptions of bribery using geolocation matching

Notes: 1)* p<0.1, ** p<0.05 and *** p<0.01, 2) All standard errors are clustered by country and ethnicity

In Table 6.6, as with Table 3, results regarding perceptions of whether overall corruption increased over the past year are presented in both columns. Results suggest that ethnic legacies as measured by the percentage (%) of individuals in each country that belonged to a pre-colonial ethnic group with a societal structure of three or more jurisdictional levels are a significant determinant of perceptions about corruption. The positive effect of ethnic legacies can be interpreted so that individuals descending from more complex societies report that they perceive corruption to have increased over the past year.

Following Michalopoulos et al. (2019) one of the main concerns with both of these methods of matching is that both do not account for "movers". In contrast to their dataset, the Afrobarometer does not allow to identify whether an individual has selected into migrating from his/her ancestral homeland. That is a natural worry with the strategies employed above to estimate these results in that individuals who reside outside their homelands are not randomly selected and in particular this migration might be correlated with the ancestral life-way associated with the individual's ethnic group. Michalopoulos et al. (2019) find that even though there is a strong predictive power of

	Corruption	Corruption
Age	0.001	0.001
Migrate	-0.031***	-0.030***
Education	-0.020***	-0.026***
Employed	-0.029	-0.043**
Ethnic feel.	0.043***	0.041***
Gender	0.016	0.015
Out of food	0.001	-0.002
Abroad	-0.037**	-0.043**
Ancestral	0.004*	0.008*
Ruggedness		-235.312
Living cond.		0.094***
Distance coast		0.000
Ethnicity FE	Yes	Yes
Country FE	Yes	Yes
Year FE	Yes	Yes
Observations	13.527	13.527

Table 6.6 Perceptions of corruption using GIS matching

Notes: 1)* p<0.1, ** p<0.05 and *** p<0.01, 2) All standard errors are clustered by country and ethnicity

ancestral lifeways for being a "mover", their results show that in regard to agricultural and pastoral societies "movers" were not systematically different and therefore do not affect significantly their result.

In order to account for that, I use three variables in all specifications that are assumed to be correlated with whether an individual is a "mover". The first one is whether the individual reports that he/she is considering to migrate in the future, the second one is whether the individual has lived abroad over the past 3 years and the last one is included in the ethnicity fixed effects and includes a measure of whether the ancestral ethnicity was nomadic or semi-nomadic. This is of course a somewhat imperfect way to account for selection into migration but given the nature of the data available in the Afrobarometer it is the best possible one to my knowledge.[5]

[5]This is in no way a complete way to account for neither inter-generational migration (both external or internal) nor for contemporary migration. It is however a way to mitigate the issue. Considering that the societies I am looking at are overall generally stationary (in the precolonial era), accounting for current individuals' propensity to migrate, mitigates the issues created by the two matching methods.

6.5 Conclusions

Historical events have been widely recognised to play a significant role in determining contemporary economic outcomes. During the late 19th century, on the eve of the "Scramble of Africa", the continent comprised of numerous ethnic groups that varied from hunter-gatherers to intensive agricultural states. The ethnic legacies of these groups affect individual outcomes even now, five generations later. Following North (1990), I explored the relationship of informal institutions (culture) and formal institutions (governance) and link individuals' contemporary beliefs and attitudes towards governance and institutions with information about the societal structure of their lineages. Using data from the latest wave of the Afrobarometer (2018-2019), two different methodologies are employed to match individuals across 34 countries to their ancestors, seeking to link pre-colonial social structures to the attitudes individuals have towards governance and institutions today. I show that cultural trait of different ethnic groups transmitted through generations systematically affect attitudes towards political institutions. The idea is that these characteristics of ancestral societies shape the values and norms of individuals and are transmitted inter-generationally through family and social interactions. Using a mixed hierarchical model, I identify both across and within ethnic group variations of political attitudes.

This empirical evidence builds on Nunn (2007), Nunn (2008) and Nunn and Wantchekon (2011) which describe how pre-colonial characteristics affect outcomes in African states in the long run through slave-trade. Results suggest that individuals descending from ethnicities that had more complex jurisdictional structures and were more susceptible to slave trade, are less trusting towards institutions today and perceive high levels of corruption and bribery in their countries. While data do not allow for the investigation of selection into migration, results remain robust under all specifications and matching methods including proxies of migration.

Results bear comparison with previous evidence on the effect of ethnic legacies on contemporary outcomes, but they may constitute the first that are doing so focusing on the persistence of these effects in regard to all political outcomes, using at the same time the latest available data on the region. The chapter joins in this respect a growing literature on culture, norms, institutions and the economy. Understanding these deeply-rooted factors of economic outcomes can provide useful insights into the challenges of deriving policies to integrate economically and politically disadvantaged groups of the continent in the future.

Appendix

The appendix provides information regarding the data used for this chapter. The following tables provide information regarding the main variables used in the paper, summary statistics as well as lists of the countries included in each matching method. Tables are followed by density plots of the seven (7) dependent variables. Regarding the sample of the study, less individuals responded to the bribes question. In order to test whether that affects the sampling, I tested the distributions of other variables of interest (Trust variables) with full N and bribes N and distributions are almost identical.

Table 6.7 Variables descriptions and sources

Variable	Description
Age	Respondents' age in years - Source: Afrobarometer / Responses at the individual level
Migrate	Respondents' consideration to migrate. - Source: Afrobarometer / Responses at the individual level
Education	Highest level of education attained by the respondent. - Source: Afrobarometer / Responses at the individual level
Employed	Dummy created to account on whether respondent is employed - Source: Afrobarometer / Responses at the individual level
Ethnic feel.	Respondents feel closer to ethnicity/ nationality. - Source: Afrobarometer / Responses at the individual level
Gender	Respondents' sex (Female/ Male) - Source: Afrobarometer / Responses at the individual level
Out of food	How often respondent has been out of food in the past 12 years - Source: Afrobarometer / Responses at the individual level
Abroad	Responses on whether individuals have lived abroad of country of birth. - Source: Afrobarometer / Responses at the individual level
Ancestral	Dummy on whether ancestral ethnicity had 4 or more levels of jurisdiction - Source: Giuliano and Nunn (2018) / Responses at the country level
Ruggedness	Geographic characteristic of where individuals live. - Source: Afrobarometer / Responses at the individual level
Living conditions	Respondents' rate of their living conditions in comparison to others - Source: Afrobarometer / Responses at the individual level
Distance coast	Respondents distance to non-icy coast. - Source: Afrobarometer / Responses at the individual level
Trust gen.	Responses on whether individuals generally trust others regarding buying a kg of grain and be given back the correct amount. - Source: Afrobarometer / Responses at the individual level
Bribes Land Registry	Respondents think that people pay bribes to register a property that does not belong to them. - Source: Afrobarometer / Responses at the individual level
Bribes Courts	Respondents think that people pay bribes to avoid going to court. - Source: Afrobarometer / Responses at the individual level
Bribes Taxes	Respondents think that people pay bribes to avoid paying taxes. - Source: Afrobarometer / Responses at the individual level
Trust President	Respondents' reported trust for the President/Head of State. - Source: Afrobarometer / Responses at the individual level
Trust Parliament	Respondents' reported trust for the national Parliament/Assembly - Source: Afrobarometer / Responses at the individual level
Trust Traditional Leader	Respondents' reported trust for traditional leader of ethnicity. - Source: Afrobarometer / Responses at the individual level
Corruption	Respondents' think that the state of corruption has increased in the past year - Source: Afrobarometer / Responses at the individual level

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	28,271	36.94871	14.80079	18	99
Migrate	28,271	.8474472	1.236065	0	3
Education	28,271	3.102823	2.265662	0	9
Employed	28,271	.7278109	.4450973	0	1
Ethnic feel.	28,271	3.56176	1.199037	1	5
Gender	28,271	1.486849	.5013294	1	2
Out of food	28,271	4.483471	1.862674	0	9
Abroad	28,271	.3052477	.4605232	0	1
Ancestral	28,271	.1367787	.242076	0	1
Ruggedness	28,271	.0006628	.0007385	.0002062	.0037146
Living Cond.	28,271	2.911054	1.009521	1	5
Distance coast	28,271	450461.7	225282.5	70910.67	1001436
Trust gen.	28,271	.9291465	.7740524	0	2
Bribes Land	21,114	1.315667	1.580758	0	3
Bribes Court	21,114	1.311547	1.503885	0	3
Bribes Tax	21,114	1.305958	1.582591	0	3
Trust President	27,626	1.829734	1.160474	0	3
Trust Parliament	27,626	1.583831	1.130941	0	3
Trust trad. leader	27,626	1.920195	1.115601	0	3
Corruption	28,271	2.5999	1.77094	1	5

Table 6.8 Summary statistics

Countries Ancestral matching	Countries GIS matching
Benin	Benin
Botswana	Botswana
Burkina Faso	Cameroon
Cote d' Ivoire	Cote d' Ivoire
Cameroon	Ghana
Cape Verde	Guinea
Gabon	Liberia
Ghana	Malawi
Guinea	Mali
Kenya	Namimbia
Lesotho	Senegale
Liberia	Sierra Leone
Madagascar	South Africa
Malawi	Tanzania
Mali	
Mauritious	
Morocco	
Mozambique	
Namibia	
Niger	
Nigeria	
Sao Tome and Principe	
Senegal	
Sierra Leone	
South Africa	
Sudan	
Tanzania	
Togo	
Tunisia	
Uganda	
Zambai	
Zimbabwe	

Table 6.9 List of countries per matching method

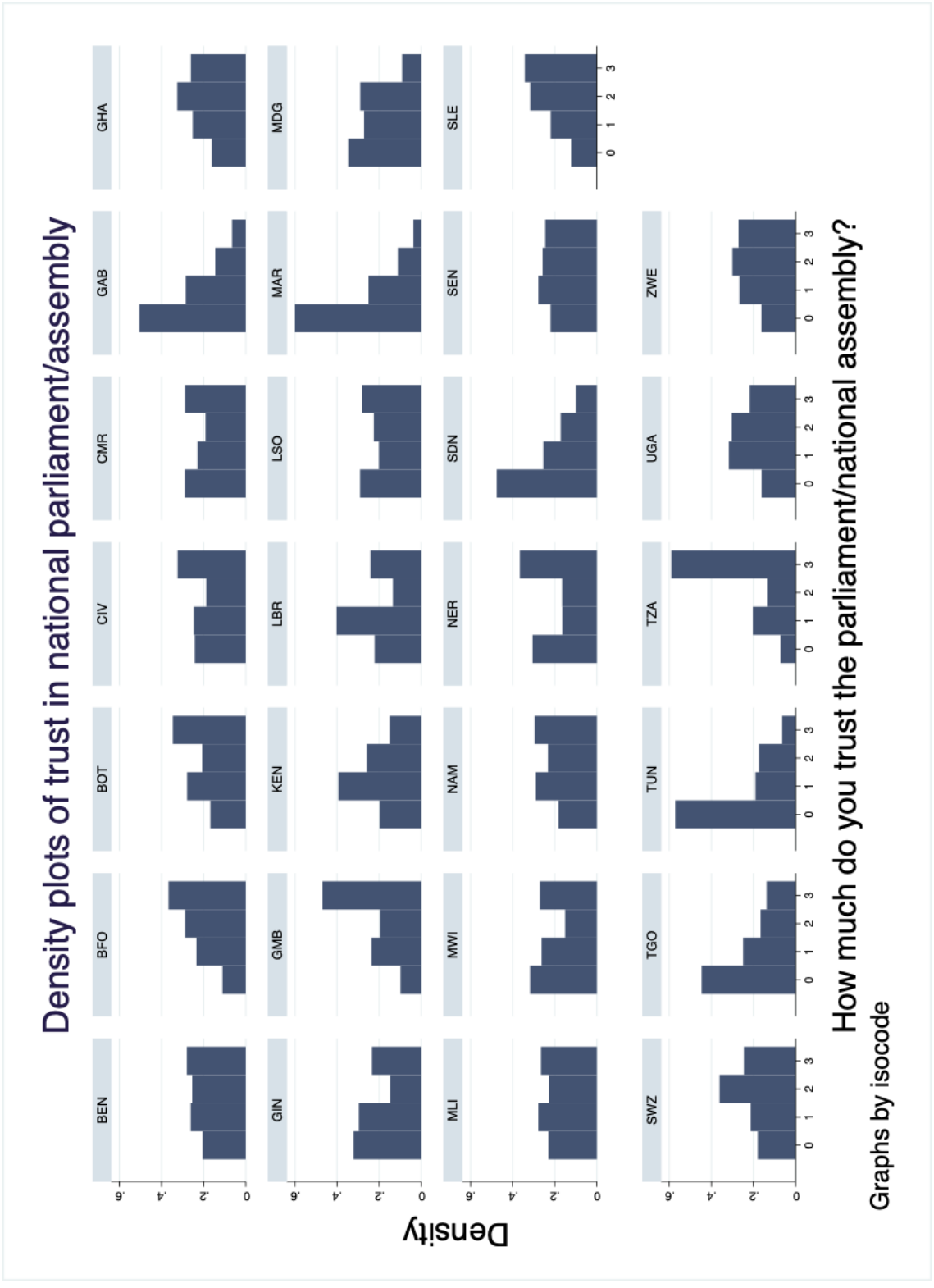

Figure 6.2 Density of responses on trust in national parliaments by country

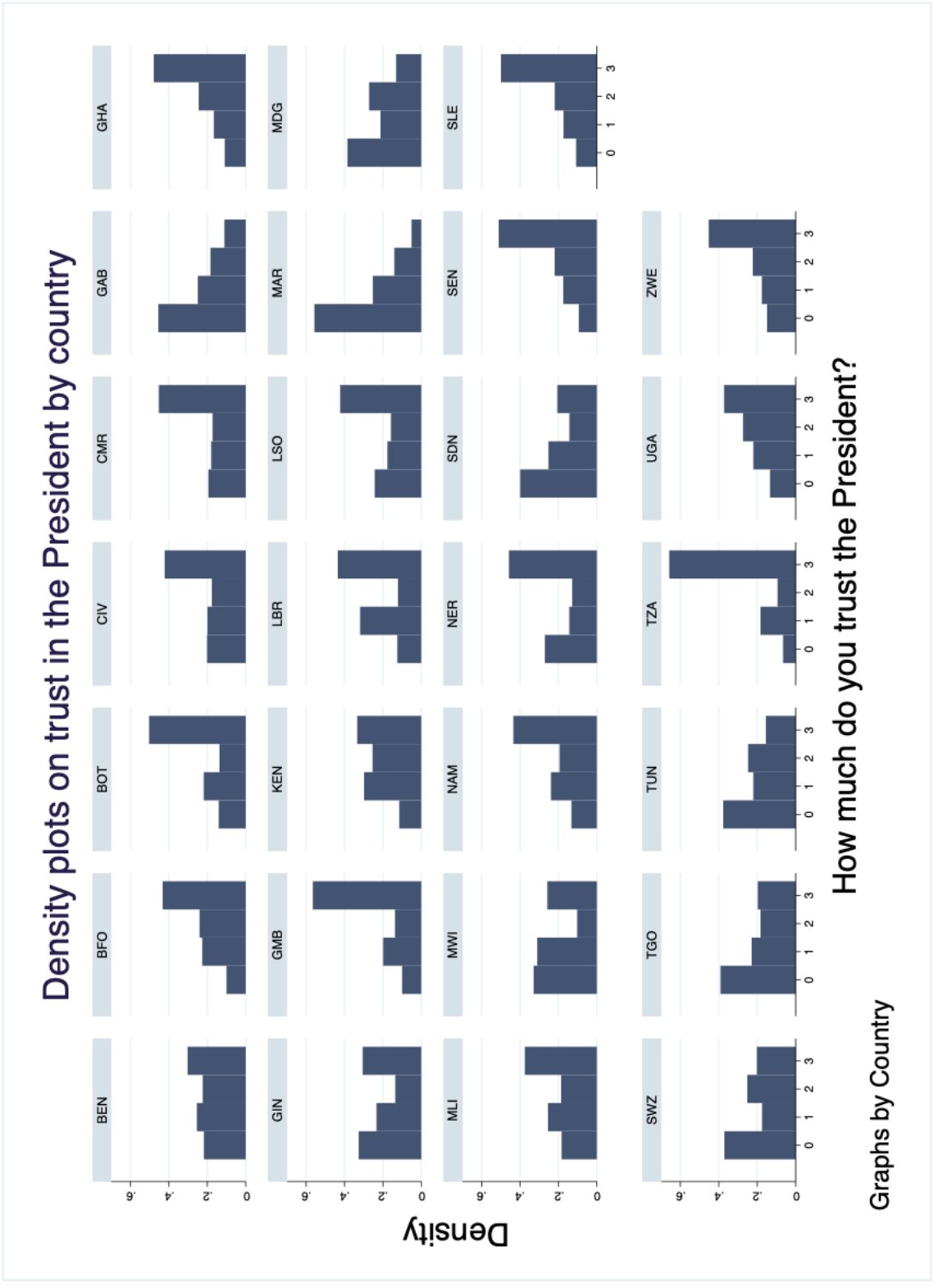

Figure 6.3 Density of responses on trust in presidents by country

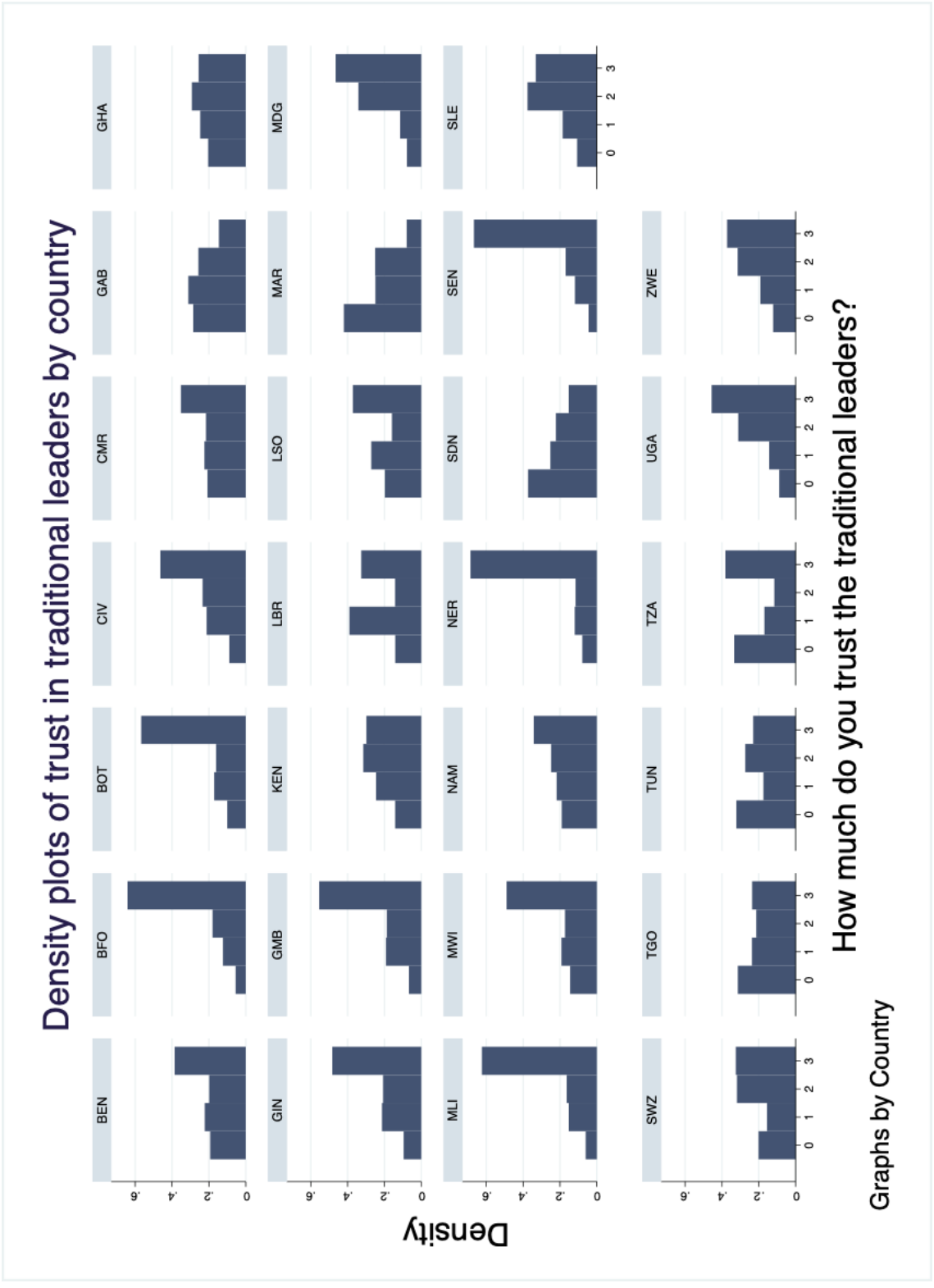

Figure 6.4 Density of responses on trust in traditional leaders by country

Figure 6.5 Density of responses on perceptions about bribes to avoid court by country

Figure 6.6 Density of responses on perceptions about bribes in land registry by country

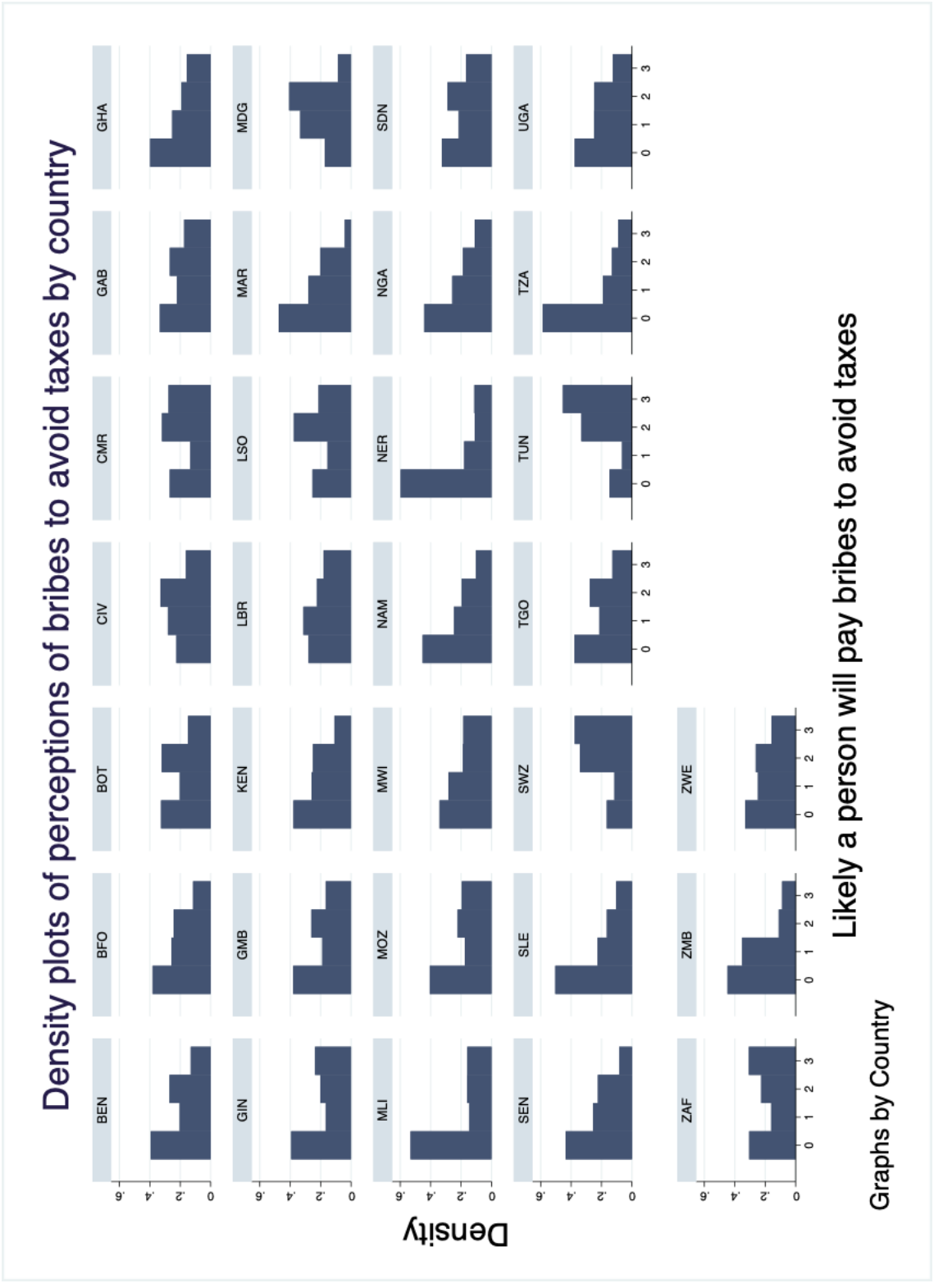

Figure 6.7 Density of responses on perceptions about bribes to avoid taxes by country

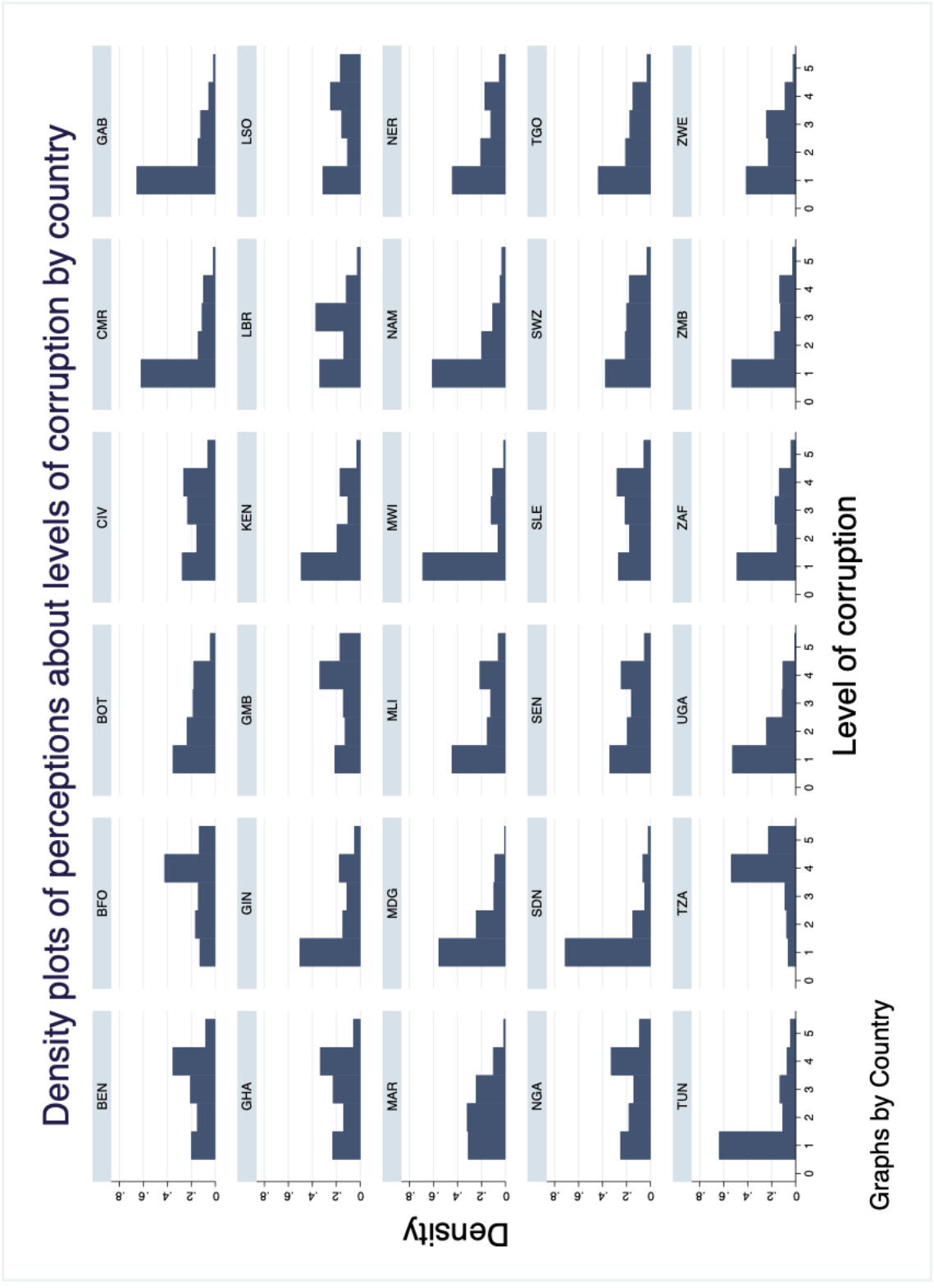

Figure 6.8 Density of responses on perceptions about increase/decreased levels of corruption in comparison to previous year

7

Political trust and wellbeing in Europe

7.1 Introduction

Over the past decades, questions about what constitutes subjective wellbeing, which factors affect it both at the individual and societal level, how can scientists accurately measure it and its policy relevance have been at the centre of both researchers and policy makers. These questions follow a quest that has been ongoing for millennia on what constitutes a good life and whether specific components that contribute for a good life are/should be the ultimate goal of democratic societies.

Multidisciplinary research on the subject of wellbeing has provided evidence that both individual factors (i.e. employment status, marital status, health) and aggregate factors (i.e. state of the economy, level of unemployment, environmental quality) affect individuals' wellbeing. One of the key categories of factors that have been identified as relevant for this process is the polity and quality of governance in a country Frey and Stutzer (2010). It appears rational for a citizen to feel more satisfied with his/her life

when living under a democratic regime where one can exercise all his/her freedoms in comparison to an autocratic one. But is polity or "good governance" enough to account for citizens' wellbeing and if so through which mechanism?

The scope of this chapter is to examine empirically the determinants of subjective wellbeing in European Countries while at the same time focusing on one of the mechanisms through which institutions affect it, that of trust in political institutions. Individuals' perceptions about the quality of these institutions, as depicted through political trust, are hypothesised to be more efficient as they provide information about the feeling of "(in)security" citizens feel towards these institutions. Following the financial crisis of 2008 (which started impacting EU in 2009 onwards), and as showed in Chapter 5 of this thesis, European countries experienced a significant crisis of trust that citizens report in regard to political institutions at the national and European level. This phenomenon of declining trust provides an interesting framework upon which one could test Hudson (2006) hypotheses on how such levels of political trust affect individuals' wellbeing directly.

The direct results of political trust, in such a crisis context and a comparative framework, have not been carefully examined since Hudson (2006) and Frey and Stutzer (2010). Using data from the European Social Survey on 25 European Countries between 2002-2016 and building on Hudson (2006), this analysis provides new evidence on this direct relationship between political trust in times of crisis and subjective wellbeing.

The chapter is divided in six sections. In the next section, the relevant literature about wellbeing and trust is reviewed, forming the basis for the analysis. The theoretical framework then is presented followed by the data, methodology and basic results at Section 5. Then, Section 6 proceeds with the robustness checks and conclusions follow on the last section.

7.2 Wellbeing

7.2.1 Nature of wellbeing across time

Before proceeding on with the analysis of the determinants of wellbeing, one must first attempt to define it, as well as to distinguish the epistemological and scientific differences of the term with those of the terms happiness and life-satisfaction.

Exploring the historical background and philosophical debates around wellbeing is necessary to define it. Amongst the first civilisations that managed to escape the starvation trap and concern themselves with a human-flourishing society were the Babylonians, Ancient Egyptians and Ancient Greeks. Whilst Babylonians and Egyptians were the first that moved towards a cultural tradition of healthy living and spirituality, the philosophical debate on what constitutes wellbeing started in the city-states of Ancient Greece. One of the earliest thinkers of the subject of happiness was the pre-Socratic philosopher Democritus[1] , who maintained that a happy life is enjoyable, not relatively to what the happy person possessed but to his reactions on his/her circumstances (Tatarkiewicz, 1976). Democritus ideas included disposition pleasure, satisfaction and subjectivity. Later on, particularly in the city state of Athens the two main approaches/schools of thought related to wellbeing emerged: the Hedonic school and the Eudaimonic one.

The conception of the hedonic approach is originated with the Greek (born in the colony of Libye) philosopher Aristippus[2]. From his perspective, a person's main objective in life is to experience as much pleasure as possible, avoiding at the same time any painful experiences. For instance, some people associate wellbeing with accumulating

[1]Democritus (460-370 BC) was an Ancient Greek pre-Socratic philosopher primarily remembered today for his formulation of an atomic theory of the universe as well as theories on truth and causality

[2]Aristippus(435-3356 BC) was the founder of the Cyrenaic school of Philosophy. He was a pupil of Socrates, but adopted a very different philosophical outlook, teaching that the goal of life was to seek pleasure by circumstances to oneself and by maintaining proper control over both adversity and prosperity - "ethical hedonism."

material wealth and spending it at will. For these people, higher levels of wellbeing can be achieved by continuous consumption of goods and services, avoiding at the same time unpleasant experiences such as work or boring tasks (i.e. household cleaning, volunteering). For the supporters of the hedonic approach, life is a trade-off between consumption and the painful necessity of means that lead to it, in other words a trade-off between leisure and work that is the necessary evil for more leisure. A guideline on the basics of the hedonic school can be approached by understanding the roots of the word hedonic, the Greek word *"Hedoni"* (ηδονή in Greeks) which means pleasure.

When it comes to a person's wellbeing though, some critics argue that the hedonic approach is a logical fallacy. The criticism is that a purely hedonic approach in life is associated more with accumulated momentary happy experiences rather than an individual's wellbeing. For instance, the momentary pleasure drawn by abusing alcohol or engaging in risky sexual activities might also be associated with negative long-run experiences (i.e. medical conditions) which lowers someone's overall wellbeing.

On this argument, almost simultaneously, the Greek philosopher Aristotle[3] offered an alternative to Aristippus' hedonic approach to a happy life, the eudaimonic one. Aristotle, as a student of the great philosopher Plato[4], found Aristippus' ideas on wellbeing to be a crass concept. From his perspective, a person's ability to engage in activities that lead to pleasure does not mean that the activity would necessarily contribute to its overall wellbeing. The eudaimonic school approached life in a way that the pursuit of personal fulfilment and realising a person's potential is the target rather

[3]Aristotle (384-322 BC) was a Greek philosopher and polymath during the Classical period in Ancient Greece. Taught by Plato, he was the founder of the Lyceum, the Peripatetic school of philosophy, and the Aristotelian tradition. His writings cover many subjects. including physics, biology, zoology, metaphysics, logic, ethics, esthetics, poetry, theatre, music, rhetoric, psychology, linguistics, economics, politics, and government. Aristotle provided a complex synthesis of the various philosophies existing prior to him. It was above all from his teachings that the West inherited its intellectual lexicon, as well as problems and methods of inquiry.

[4]Plato (427-347 BC) was an Athenian philosopher during the Classical period in Ancient Greece, founder of the Platonist school of thought, and the Academy, the first institution of higher learning in the Western world.He is widely considered the pivotal figure in the history of Ancient Greek and Western philosophy, along with his teacher, Socrates, and his most famous student, Aristotle.

than momentary pleasure. In that sense, wellbeing is not a static goal that people can gain by aspiring to it, it is rather the dynamic pattern of motives that moves people forward. A goal that individuals most probably would never reach, but in their path to reach it they realise their potentials and become better people.

At this point, it is important to understand two things. First of all, these ancient philosophical debates are important in this analysis because they formed the stepping stone upon which modern philosophers and later on economists developed their ideas and theories on wellbeing. Additionally, it is important to notice that on this debate a crucial dynamic rest upon the philosophical origins of these schools. Arististippus was a student of the philosopher Socrates[5] whose school was mostly concerned with humans' function in life rather than in afterlife. Socrates believed that any part of the human body serves a purpose and that the human body as a whole serves the purposes of a single life. That was his main philosophical difference with Plato who was more concerned about the possibilities of existence, nature and importance of the human soul rather than body. As one can see, the two schools of thought on wellbeing depict the views of their teachers about afterlife on their theories.

In the mid-19th century, Charles Darwin[6] formulated the scientific theory of evolution by natural selection which was later on published in his book *"On the origin of species"* in 1859 (Darwin, 2004). Based on his work new ideas on wellbeing emerged. According to evolution theories homo sapiens evolved over time to survive and reproduce and not to be happy [Camerer (2007); Rayo and Becker (2007b)]. The idea behind evolution by natural selection is that more offsprings are produced than can possibly survive and thus humanity's evolution over the past 200,000 years was driven by the fear of extinction and survival instincts rather than instincts to introduce flourishing

[5]Socrates (470-399 BC) was a classical Greek (Athenian) philosopher credited as one of the founders of Western philosophy, and as being the first moral philosopher of the Western ethical tradition of thought.

[6]Charles Darwin (1809–1882) was an English naturalist, geologist and biologist, best known for his contributions to the science of evolution. His proposition that all species of life have descended over time from common ancestors is now widely accepted, and considered a foundational concept in science.

societies. The dominant paradigm of Victorian anthropologists/ethnologists in the generations before and after Charles Darwin was evolutionist. However, this was an evolutionism that owed little to the great biologist and much more to older philosophies positing stages through which all societies must pass, analogous to the stages of the human life course (Hann, 2014). For centuries after Aristippus and Aristotle, wellbeing has been a central theme of multidisciplinary research. Philosophy was the first field to deal with happiness with major works of Bentham, Mill, Kant and others, which followed either the hedonic or the eudaimonic schools.

Jeremy Betham[7] contributed much on this debate mainly through his moral philosophy and ethical theory which is grounded in a largely empiricist account of human nature. He held a hedonistic account of both motivation and value according to which what is fundamentally valuable and what ultimately motivates us is pleasure and pain. Therefore, happiness, according to Bentham, is a matter of experiencing more pleasure and less pain. On the other hand, J. S. Mill[8], another English philosopher and political economist and follower of the utilitarianism school that Bentham started, rejects Bentham's quantitative hedonism on happiness. In chapter two of his book *"Utilitarianism"* Mill follows a hedonic rhetoric on happiness to describe though, unlike most hedonists, a sense of wellbeing not unlike Aristotle's initial definition of the ultimate end of action, *Eudaimonia*. However, Mill is still considered by most a follower of the hedonic school (Kreider, 2010). I. Kant[9], in an unusually non-technical way, defined happiness as getting what one wants (Kant, 1999). His views on happiness are closer to the eudaimonic approach. In his book *"The Metaphysical Principles of Virtue"* Kant described happiness as *"[...] continuous wellbeing, enjoyment of life,*

[7]Jeremy Bentham (1748-1832) was an English philosopher, jurist, and social reformer regarded as the founder of modern utilitarianism. Bentham defined as the "fundamental axiom" of his philosophy the principle that *"it is the greatest happiness of the greatest number that is the measure of right and wrong."*

[8]John Stuart Mill (1806 -1873) was a British philosopher, political economist, and civil servant. He is considered one of the most influential thinkers in the history of classical liberalism and he contributed widely to social theory, political theory, and political economy.

[9]Immanuel Kant(1724-1804) was an influential German philosopher in the Age of Enlightenment. In his doctrine of transcendental idealism, he argued that space, time, and causation are mere sensibilities; "things-in-themselves" exist, but their nature is unknowable.

complete satisfaction with one's condition" (Kant, 1964). More recently,following the utilitarian philosophers, notable economists have worked on the essence of utility and welfare [Stigler (1950); Bernoulli (1954)]. To summarise, the eudaimonic approaches are closer to describing the essence of overall wellbeing whilst the hedonic ones closer to that of happiness.

7.2.2 Determinants of wellbeing

Both ancient and contemporary views on wellbeing use as a starting point the fact that any discussion on wellbeing follows the escape from the starvation trap. In other words, people consider wellbeing only after covering their basic needs for food and shelter. Therefore, in a modern society the starting point for the analysis should be income, as the main mean through which these needs are covered. The theoretical expectation is that happiness is an increasing function of income. At first thought people with higher income might have more access to achieve what they desire, particularly by spending it for more goods or services. Moreover, these higher incomes might be associated with higher social status. That would imply that income does indeed "buy happiness", at least to a certain degree. However, literature suggests that there is a declining marginal impact of income; a concept very similar to that of a diminishing marginal utility; implying that additional income does not increase happiness *"ad infinitum"*.

At the aggregate level, amongst countries with per capita income above a certain level there seems little correlation with higher income and average happiness (Frey and Stutzer, 2002a). There appears to be such a link below 1995 US$ 10,000, although as Frey and Stutzer (2002a) point out it is not clear whether this is due to rising income or other facets of a country, such as the rule of law and stable government which tend to increase with income up to a certain level. When one turns to relative incomes within a country, there is some evidence that this does impact on happiness but not that strongly. One reason for the weak impact of income *per se* is the possible importance

of an aspirational level with which people compare their living standard. Increases in aspirations which match increases in income then result in no increase in happiness (Easterlin, 2001). Fahey and Smyth (2004) have examined the impact of a different indicator of living standards, namely GDP per capita, on happiness for a range of 33 European countries finding a nonlinear relationship and suggesting that it peaked at approximately $24,000 at 1997 prices.

Another important factor linked to relative income is work environment. In modern societies, work tends not to be just a means to an end (monetary income) but also a vehicle for higher social status and more satisfaction with one's life. Therefore, both theoretically and empirically individuals' satisfaction with their job contributes to their overall wellbeing. Warr (2002) contributed an early summary of the related literature. This extended importance of work in individuals' lives leads to the conclusion that unemployment has an even more crucial role to play in determining people's wellbeing. As a phenomenon that deteriorates personal income and job satisfaction, unemployment might lead to significant lower levels of wellbeing. This hypothesis is clearly illustrated in the works of Di Tella et al. (2001) and Clark and Oswald (1994). The significance of unemployment per se may be explained by a combination of psychological and social costs. The former involves loss of self-esteem and the latter is related to social norms. However, there is another possibility, again related to an aspirational living standards which regardless of their income whilst unemployed, it will have fallen compared to what it was when the individual was in work. It will be the latter which will, unless the spell in unemployment is prolonged, influence the individual's lifestyle, and thus given their income whilst unemployed they will be further from their aspirations than others on a similar income who are not unemployed.

Happiness is also found to vary with respect to other socio-economic variables. Socio-economic and demographic determinants and effects associated to wellbeing are important for setting up the framework of this chapter as they will form the hypotheses regarding control variables included in the empirical exercise. Individual and country

level determinants on employment status and overall unemployment, as well as age, gender, income, marital status and household composition are hypothesised to be important for this study.

A U-shaped relationship between age and happiness has been found for many countries and Clark and Oswald (1996) report it at a minimum for people in their late 30s and early 40s with respect to job satisfaction.Scitovsky (1976) emphasised the importance of education in allowing people to take more advantage of activities which generate happiness, particularly music, painting, literature and history. Hayo and Seifert (2003) finds education to have a positive impact upon happiness in the transition countries of Eastern Europe. Even though, education is generally positively correlated with higher subjective wellbeing, there is a wide variation in evidence of this relationship. Veenhoven (2012) suggests that this is due to nature of education and subjective wellbeing which are largely determined by individual fixed effects such as motivation, abilities, family background and the returns of education that vary significantly across groups. Numerous studies using a variety of different data sets and methodologies have showed that the relationship between education and wellbeing might be non-linear [see Artés et al. (2014); Binder and Coad (2011); Clark et al. (2015)].

The evidence on gender differences is somewhat inconclusive and although Di Tella et al. (2001) conclude that females are happier than males, Frey and Stutzer (2002a) find small and declining differences. Marital status may also impact upon life satisfaction and has been included in work by Diener (2000). Married people are happier than both people who never marry and those who are divorced or separated. Frey and Stutzer (2002a) put forward two reasons why this should be the case. Firstly, marriage provides support in dealing with problems and secondly, married people suffer less from loneliness. However to counter the benefits of marriage, divorced people are unhappier than single people. The literature makes some distinction between factors termed *"life changes"* and more stable and unchanging factors. Thus, Ehrhardt et al. (2000) in a panel data analysis for Germany show that 30% of the initial variance is explained by life changes

and a similar proportion is explained by stable factors such as personal capabilities and social relations.

In relation to life changes, there is a substantial part of the literature of wellbeing focusing on the effects of health, subjective health and disability. This literature suggests that there is evidence of partial adaptation to the onset of disability and other health-related life changes [see Oswald and Powdthavee (2008); McNamee and Mendolia (2014)]. More recently, Jones et al. (2018) found that while individuals are found to recover rapidly and completely from a one-period disability, there is little evidence of recovery even after 10 years for those whose disability is chronic, defined as evident for three or more years post-onset, and severe.

7.3 Institutions and wellbeing

North (1990) defined institutions as *"the humanly devised constraints that structure political, economic and social interactions"* and stressed their important contribution in explaining a number of economic and social phenomena such as economic development, economic and political incentives and human interactions. Institutions have been widely studied by a number of development economists as an attempt to explain economic growth and prosperity and argue that among several factors such as cultural origins, geographical location and policy, institutions have been found to be the most powerful and important determinant of sustained economic development [Acemoglu et al. (2005); Economides and Egger (2009).

According to North (1990), institutions *"shape the subjective mental constructs that individuals use to interpret the world around them and make choices. Moreover, by structuring the interaction of human beings in certain ways, formal institutions affect the price we pay for our actions."* Thus, it is argued that institutions can reduce transaction costs which in turn influence motivation to long-run economic growth and development. While a growing literature emphasised on the importance of studying institutions linking

economic development to GDP growth and income levels, a consensus has been made that besides economic development, wellbeing has a multi-dimensional definition and other aspects and conditions play a crucial role and should not be neglected. These may range from civic engagement, community values, health, education, social networks to a number of emotional wellbeing factors such as life satisfaction.

However, while economic development can be highly correlated with wellbeing, a number of other characteristics should be taken into account as it mainly depends on from which perspective people's life satisfaction is viewed (Stiglitz et al., 2009). That is, while some countries may have high GDP levels per capita due to their natural resources (e.g. oil reserves), yet, factors that shape overall life quality and wellbeing such as basic education, health, safety and freedom may be absent. A number of economists have therefore studied the socio-economic progress of several countries and overall life quality in terms of living standards, work-life balance, health, life satisfaction and happiness. By that, understanding and studying the factors that form wellbeing is important for social progress and individual overall life satisfaction, which in turn may result in more active political participation leading to improved institutions in the long-run (Lipset, 1959). As Lochner (2011) suggested, countries with higher levels of education are more likely to have higher trust in their government, lower transaction costs and their population is likely to be more tolerant and more motivated to be more active in political participation.

Influenced by North's pioneering work on the relationship between institutions and wellbeing, a growing body of literature has studied the important role of institutions, public policy and law rules on economic performance and wellbeing. From classical economists such as Smith, Mill and Ricardo, socio-economic research on the effect of institutions in shaping economic development has much been studied since the 20th century where a vast literature focused on neo-classical growth models, the development of wellbeing as well as physical and human capital accumulation.

Besides this, a growing body of literature exists trying to examine the relationship between formal and informal institutions and a number of subjective social outcomes such as trust, tolerance, crime, poverty and wellbeing. For instance, Frey and Meier (2004) support that institutions, besides their impact on socio-economic outcomes, are likely to have a positive impact on psychological wellbeing, the so called "procedural utility". More precisely, as outlined in Frey and Stutzer (2002b)), individuals' satisfaction is more likely to be determined by the process of an outcome, rather than the outcome itself. Thus, individuals may be more interested in the way they are treated rather than the actual outcome, and as a result, their wellbeing is likely to increase if they feel that they are treated fair or just.

Bjørnskov et al. (2010) recently investigated how political and economic institutions are causally connected to subjective wellbeing and happiness. Their work builds on Frey and Stutzer (2002b) who found that individuals' right for political participation is positively correlated with subjective wellbeing. This finding is also supported by Nikolaev and Bennett (2016) who found that individuals in countries with economic freedom and institutions which are in line with these principles have a greater freedom of choice and control over their life and support that this is due to "the perception of procedural fairness and social mobility". These results are in line with a number of research works who focused on the relationship between formal institutions and subjective wellbeing and found a strong positive effect between the institutions of economic freedom and subjective wellbeing. Cheng et al. (2016) used subjective wellbeing data from China to find that house ownership and house property rights has a positive effect on life satisfaction, and thus, wellbeing.

7.4 Theoretical Framework

The scope of this chapter is to look at the determinants of subjective wellbeing in European Countries while at the same time focusing on one of the mechanisms through

which institutions affect it, that of trust in political institutions. Individuals' decisions to report trust in a political institution are hypothesised to be an important proxy to measure perceptions about the quality of institutions. Following the financial crisis of 2008 (which started impacting EU in 2009 onwards), and as showed in Chapter 5 of this thesis, European countries experienced a significant crisis of such trust at both the national and European level. This phenomenon of declining trust provides an interesting framework to examine how such individual perceptions directly impact one's wellbeing.

Following this review of literature on the socioeconomic and institutional determinants of wellbeing as well as Hudson (2006) in this section the theoretical framework of the analysis is laid. Following Mishler and Rose (2001), the i^{th} individual will trust the j^{th} institution, (T_{ij}), provided that the perceived probability from the perspective of individual i that the institution j (p_{ij}) is trustworthy is not less than a critical point (p^*_{ij}), given all available information.

$$T_{ij} = p_{ij} \Leftrightarrow p_{ij} \geq p^*_{ij} \tag{7.1}$$

Following the literature on the determinants of trust, one could hypothesise that this perceived probability $(T_{ij} = p_{ij})$ can be thought of as a function of:

- personal, social and demographic characteristics that define an individual's personality and therefore his/her preferences towards risk and trust. These characteristics vary across individuals but remain the same irrespective of the institution that is under judgement;
- the individual's set of information about the underlying institution (beliefs and evaluation of past performance);
- the individual's information set about the current agent representing the underlying institution.

A plausible approximation of this critical point p^*_{ij} could therefore be explored by rational choice theory which allows us to understand the theoretical micro foundations of political activities, yielding at the same time testable hypotheses. Farrell (2009) suggests that rational choice institutionalism might be the more holistic theoretical tool to explore the mechanisms of institutional trust.

Hudson (2006) suggests that both socio-economic characteristis and the quality of institutions might impact on people's trust in those institutions. Evidence on this claim are also supported by Chapter 3 of this thesis. One critical point about personal characteristics and political trust is that of information. Individuals accumulate information about the quality and efficiency of institutions through three (3) main ways:

- **Direct experiences:** Where an individual has personal experience in dealing with a specific institutions i.e. when an individual comes in contact with courts or justice in order to get a divorce
- **Norms and beliefs:** This relates to information about the workings of specific institutions that are transmitted either culturally on inter-generationally through family
- **Indirect experiences:** A different channel of acquiring information about the workings of an institutions is through life experiences that do not require direct contact with the institution. For example, through education or the news, individuals become more informed about the nature, workings and effects of different institutions. Additionally, through adverse experiences, such as sudden unemployment, individuals might blame institutions and lose their trust in them [see Ruggiero and Major (1998); Hudson (2006)].

Following the literature presented in Chapter 2 of this thesis, one would expect variables such as income, education, employment urban-rural location, and marital status to affect attitudes to specific institutions with which individuals may come into direct contact such as the law and the police. More specifically one would expect people

who live in large cities, the young, the poorly educated and those who are divorced to be less trusting of these institutions. Unemployed people may also blame the institution most readily identifiable as being to blame for i.e. the government or national parliament (Hudson, 2006).

Regarding institutional trust upon wellbeing (H_i) it is assumed that it is a function of socio-economic variables and institutions. Institutional quality, particularly with respect to governmental institutions, may be expected to impact on socio-economic variables such as income, employment status, and even education and marital status and thus it will also impact upon subjective wellbeing. In addition a direct effect is assumed. As Hudson (2006) suggests:

$$H_j = g(X_i, Q_j) \tag{7.2}$$

Where:

- H_i is individual's i subjective wellbeing
- X_i is individual's i socio-economic characteristics
- Q_j is the j'ths institution quality

As Chapter 3 of this thesis suggests there exists a functional relationship linking quality to trust:

$$Q_{ij} = w(T_{ij}, X_i) \tag{7.3}$$

Assuming seperability[10], Inserting equation 5.3 to equation 5.2 gives:

$$H_i = g(X_i, h(T_{ij}, X_i)) \tag{7.4}$$

[10] e.g. $f(X_i, Q_j) = m(X_i) + q(Q_j)$ and that q is a bijection with respect to $T_{ij} - m(X_i)$, then $h(T_{ij}, X_i) = q - 1(T_{ij} - m(X_i))$.

Following Hudson (2006) institutional trust, when conditioned by socio-economic variables, is a proxy for institutional quality. Thus happiness can be modeled as a function of socio-economic variables and institutional trust.

7.5 Data

The chapter uses data from the European Social Survey (ESS)[11]. In this chapter, the analysis is based in all (8) rounds of the ESS that were conducted between 2002-2016. The ESS is a cross-national survey with a primary goal to provide population data across different European countries. Interviews are conducted biannually with new, cross-sectional samples across countries. Each round includes approximately 40.000 individuals with a total of 330.891 and the average response rate by country per year is approximately 2.000. It provides substantial information about individuals' attitudes, believes, behaviour patterns, social and political views as well as covering a wide range of socio-economic and demographic characteristics among Europe. This allows for the examination of the effect of trust on overall life satisfaction[12] across selected countries using the following three key variables:

- "Satisfied with life", with the response ranging from 0 (extremely dissatisfied) to 10 (extremely satisfied);
- "Trust in country's parliament", with a response ranging from 0 (no trust at all) to 10 (complete trust);[13]

[11]Data derived from the ESS are available free of charge for non-commercial use and can be downloaded from the organisation's website.The aim of the survey is to measure the attitudes, beliefs and behaviour patterns of diverse populations in more than thirty nations.

[12]Life satisfaction is used as the primary metric of subjective wellbeing as in ESS it is the question that encompasses most of the aspects of subjective wellbeing in the way it is asked. Of course that does not fully encapsulate subjective wellbeing. In order to test how sensitive the metric is to the notion of wellbeing, I use a robustness check with happiness as dependent variable.

[13]This variable was chosen as the main variable of interest as it reflects an institution (the parliament) that changes with every election and therefore can proxy institutional change over time

- "Trust in people", ranging from 0 (you can't be too careful) to 10 (most people can be trusted).

7.5.1 Demographic and social characteristics

The sample of this analysis is comprised of 25 countries covered by the ESS [14]. After deleting missing values, the sample is restricted to 168.340 responses, with an average of 20.000 respondents in each year, while the average observations by country are around 1.000 respondents. Table 7.11 of the Appendix shows the response rate per year by country.

A unique characteristic of the European Social Survey that presents limitations for this analysis is that countries do not participate in all waves of the survey. Belgium, Germany, Spain, Great Britain, Netherlands, Poland, Sweden and Slovenia have a response rate in all years, while Denmark, Finland, Ireland, Portugal and Czech Republic are missing one year each, namely the year 2016, 2004, 2002, 2010 and 2006 respectively. France has a response rate in all year rounds except for the years 2002 and 2004. For Austria there are no responses in 2008, 2010 and 2012, while Hungary has no observations in the first three years (2002, 2004 and 2006). For Estonia no surveys were conducted in 2002, 2004, 2006 and 2014, while the years 2002, 2008, 2014 and 2016 are missing for Slovakia. Similarly, for Greece surveys were conducted in 2002, 2004, 2008 and 2010, while Lithuania has responses in years 2010, 2012, 2014 and 2016. For Italy, responses were collected in 2002, 2012 and 2016, while Bulgaria and Cyprus show a response rate for the years 2006, 2010 and 2012. Finally, Croatia and Luxembourg have the least response years where Croatia has only responses in years 2008 and 2010 and Luxembourg only in the first two years (2002 and 2004).

[14] Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Germany, Denmark, Estonia, Spain, Finland, France, Great Britain, Greece, Croatia, Hungary, Ireland, Italy, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Sweden, Slovenia and Slovakia

Table 7.12 of the Appendix reports the descriptive statistics of the three key variables of interest by country. It is noticeable that among Austria, Belgium, Cyprus, Germany, Spain, Finland, Denmark, Great Britain, Luxembourg, Netherlands and Sweden, the overall life satisfaction score is over 7 out of 10, with Denmark reporting the highest score of life satisfaction of 8.5/10. Bulgaria appears to have the lowest rate with a mean average of only 4.7, followed by Hungary, Lithuania and Portugal with a mean average score of 5.7. Regarding trust in others, Denmark has the highest average score of 7 out of 10, followed by Finland and Sweden with an average mean score of 6.6 and 6.3 respectively. Bulgaria, Greece, Cyprus and Portugal have the lowest trust score of less than 4 out of 10. Trust in the country's parliament has an overall lower score compared to trust in people and life satisfaction, where Denmark has the highest mean score of 6.3, while Bulgaria and Croatia have an average mean score of less than 3.

In addition to that, it is noticeable that overall life satisfaction is highly correlated with trust, particularly trust in the country's parliament, with noticeable differences among countries. In this sample, Bulgaria and Lithuania have the highest correlation where around 70 percent of those who report to have no trust in the country's parliament at all also report to be extremely dissatisfied in life. While Cyprus has the lowest link with only 22 percent reporting to be both, extremely dissatisfied and no trust in the parliament, it is noticed that life satisfaction is not highly linked to trust in the parliament in Denmark as over 30 percent of those who scored above average on trust in the parliament scored 0 in life satisfaction. Males' overall life satisfaction is more linked to trust in the parliament compared to the female sample, while females tend to have an overall lower trust in the country's government compared to the male sample.

Figures 7.1- 7.3 of the Appendix illustrate the kernel density functions by country for the key variables overall life satisfaction, trust in country's parliament and trust in people. It is noticeable that overall life satisfaction in Austria, Belgium, Denmark, Spain, Finland, Great Britain, Ireland, Netherlands and Sweden is denser towards the end, while life satisfaction for the remaining countries is skewed towards the lower range of the

density function. In addition, the highest peak of the distribution is observed for Belgium and Finland. Regarding the density functions for trust in the country's parliament, the highest peak is observed in Belgium and Finland, while trust in the country's parliament has a generally higher density compared to life satisfaction, implying that trust in the parliament is overall low. Similar results are observed for trust in others, though the peak of the distribution is placed higher for Denmark and Netherlands. In terms of whether individuals find other people to generally be trustworthy, the descriptive statistics of the sample appear to be in accordance with the literature suggesting that trust is pervasive, persistent across generations and heterogeneous across countries. Additionally, trust in other people appears to be quite sticky on average in most countries over time.

In terms of the general socio-demographic characteristics of the sample, household members vary from 2.1 to 3.5 on average between different countries and across waves, an indication that goes hand in hand with the question about living with a partner, where on average individuals tend to live with their partners on average (min country average 1.21 – max 1.49). In terms of the households' financial conditions, descriptive statistics are consistent with random sampling assumptions suggesting heterogeneity.

An interesting component of the ESS is that the income variable in the first 3 waves of the survey is different to the variable used in the subsequent waves. The main difference is on the scaling, where the first variable runs on a 1-12 scale where each number represented an income band and the second variable is calculated on 10 deciles based on the distribution of incomes in each country. For the majority of countries, the top 3 income bands (10, 11, 12) do not vary significantly from the representative decile, for some however it does. Therefore, a statistical imputation is used to create deciles for each country for each of the first 3 waves. The corresponding deciles are then combined with the variable for waves 4 to 7 creating an imputed new variable for income which is now consistent across the sample. The imputation is based on a combination of each country's income distribution and tax bands. Details on the code necessary to reproduce this process are available upon request.

7.6 Hypotheses and Methodology

7.6.1 Methodology

In many countries, there is a lack of panel data where specific individuals are followed over time being asked the same survey questions. There are however, repeated cross-sectional surveys where random samples are taken from the population at consecutive points in time allowing us not only to estimate models based on independent cross sections but also to compute models of pooled cross sections under certain conditions. Obviously, the limitation of that is that since individuals are not followed over time, the deduction about specific individuals' histories are limited. A modern tool that allows researchers to compute such models is multilevel analysis, a tool that allows us to investigate thoroughly not only how individual-level characteristics influence other individual-level characteristics but also how aggregate characteristics affect individual and vice versa. More details on hierarchical multilevel modelling are provided in the methodology discussion of Chapter 4.

European Social Survey team suggests that in all analyses including their data, the use of adequate weights is necessary. Based on their recommendation, in this chapter I use the analysis weights which corrects for differential selection probabilities within each country as specified by sample design, for nonresponses, for noncoverage, and for sampling error related, and takes into account differences in population size across countries.[15]

7.6.2 Model Specification

The main quest of this research is to explore the influence of declining political trust in individuals' levels of life satisfaction. Given that the respective variable of life

[15]See details in: https://www.europeansocialsurvey.org/methodology/ess_methodology/data_processing_archiving/weighting.html

satisfaction in the European Social Survey is ordinal, it is appropriate to use ordered probit regressions to estimate the regressions parameters.

In an ordered probit model it is assumed that there is a latent variable $Y^* \in (-\infty, \infty)$ that captures the levels of subjective wellbeing and that it is represented (with incomplete information) through the observed variable Y. In other words the latent variable is divided in j ordinal categories where $Y_i = m$ if $\tau_{m-1} \leq Y_i^* \leq \tau_m$. In this setting where the dependent observed variable $Y \in [0, 10]$ it holds that:

$$Y_i = \begin{cases} 0, \text{ if } & \tau_0 = -\infty \leq Y_i^* \leq \tau_1, \\ 1, \text{ if } & \tau_1 \leq Y_i^* \leq \tau_2, \\ \dots & \\ 10, \text{ if } & \tau_{10} \leq Y_i^* \leq \tau_{11} = \infty \end{cases}$$

When the observed variable crosses a cut-point, the observed category changes and through the following specification we can estimate the relationship:

$$Y_{ikj} = \beta_1 X_{ikj} + \beta_2 T_{ikj} + \epsilon_{ijt} + u_{jt} + v_k \tag{7.5}$$

Where:

- T_{ijk} is the trust variable on trust in national parliaments
- X_{ijk} are the explanatory variables in all 3 levels- (i & j can be 0)
- e_{ijk} is the error term in Level 1 (individuals)
- u_{0jk} is the error term in Level 2 (survey years)
- v_{00k} the error term in Level 3 (countries) [16]

[16] Typically the residuals in hierarchical models are assumed to be normally distributed: $v_{00k} \sim N(0, \sigma^2_{v(T)}), u_{0jk} \sim N(0, \sigma^2_{u(T)})$ and $e_{ijk} \sim N(0, \sigma^2_{e(T)})$.

7.7 Results

Control variables are chosen based on the assumptions of the model specification presented above, supplemented by additional variables found to be important determinants of subjective wellbeing according to the literature. The main quest of this research is to explore what determines subjective wellbeing considering at the same time the effects of political trust in the process.

At first, as shown in Table 7.1 the above model is estimated using a baseline specification including only socio-economic characteristics that affect wellbeing. Columns 2-4 refers to different estimation techniques, namely pooled ordered probit (2), Multilevel mixed effects model and Multilevel mixed effects ordered probit models (4 & 5). Based on the reported variance it is observed that the variance in the sample is mainly driven by the variance in the individuals level ($\tilde{8}9\%$). Additionally, country characteristics seem to explain a significant proportion of the variance ($\tilde{1}0\%$) whilst variance in time contribute less than 1%.

In Table 7.2 the main estimation follows including as a determinant of subjective wellbeing trust in the national parliament. Columns 2 includes results using a simple ordered probit estimation and column 3 shows estimation results using multilevel mixed effects for reference. As discussed in the methodology (Chapter 4), the use of multilevel models is adequate to address data of pooled cross-sections such as the Eurobarometer since ordinary regressions (OLS and/or ordered probit regressions) would provide biased results when not accounting for nesting (even with adequate clustering). In the 4th and 5th column the main multilevel mixed effects ordered probit estimations are shown including different controls.[17]

In order to interpret the results and compare different specifications of the model, predicted ordered probit coefficients were changed into predicted probabilities (marginal

[17]Model fit statistics on multilevel models are not very informative except of variance decomposition and therefore not reported across different.

Table 7.1 Baseline specification without political trust

Wellbeing	Ord. Probit	Multilevel	ML Ord. Probit	ML Ord. Probit
Age	0.005***	0.009***	0.008***	0.006***
	[0.000]	[0.000]	[0.000]	[0.000]
Born	0.091***	0.155***	0.157***	0.085***
	[0.013]	[0.022]	[0.022]	[0.013]
Education	0.004***	0.002	0.003**	0.005***
	[0.001]	[0.001]	[0.001]	[0.001]
Employment Rel.	0.051***	0.080***	0.079***	0.049***
	[0.007]	[0.011]	[0.011]	[0.007]
Father	0.062***	0.108***	0.110***	0.058***
	[0.011]	[0.019]	[0.019]	[0.011]
Gender	-0.069***	-0.126***	-0.126***	-0.077***
	[0.005]	[0.009]	[0.009]	[0.005]
Household	0.018***	0.003	0.003	0.006***
	[0.002]	[0.004]	[0.004]	[0.002]
Income	0.050***	0.100***	0.100***	0.053***
	[0.001]	[0.002]	[0.002]	[0.001]
Trust ppl.	0.051***	0.094***	0.094***	0.050***
	[0.001]	[0.002]	[0.002]	[0.001]
Religiosity	0.024***	0.043***	0.044***	0.026***
	[0.001]	[0.002]	[0.002]	[0.001]
Economy	0.140***	0.246***	0.247***	0.134***
	[0.001]	[0.002]	[0.002]	[0.001]
Voted	0.065***	0.116***	0.118***	0.051***
	[0.007]	[0.012]	[0.012]	[0.007]
Health	0.309***	0.552***	0.552***	0.317***
	[0.003]	[0.006]	[0.006]	[0.003]
Politics	-0.009***	-0.018***	-0.018***	-0.012***
	[0.003]	[0.006]	[0.006]	[0.003]
Party	0.033***	0.018	0.019	0.025**
	[0.012]	[0.022]	[0.022]	[0.012]
GDP	0.000***		0.000***	0.000***
	[0.000]		[0.000]	[0.000]
Unemployment %	0.013***		0.004**	0.003**
	[0.001]		[0.002]	[0.001]
Corruption	0.007***		-0.007***	-0.004***
	[0.000]		[0.001]	[0.001]
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
N	168,337	168,337	168,337	168,337

Standard errors in brackets

* p<0.10, ** p<0.05, *** p<0.01

Table 7.2 Full specification including Political Trust

Wellbeing	Ord. Probit	Multilevel	ML Ord. Probit	ML Ord. Probit
Age	0.005***	0.009***	0.008***	0.006***
	[0.000]	[0.000]	[0.000]	[0.000]
Born	0.094***	0.161***	0.163***	0.087***
	[0.013]	[0.022]	[0.022]	[0.013]
Education	0.004***	0.002*	0.003**	0.005***
	[0.001]	[0.001]	[0.001]	[0.001]
Employment Rel.	0.051***	0.081***	0.080***	0.049***
	[0.007]	[0.011]	[0.011]	[0.007]
Father	0.063***	0.109***	0.111***	0.058***
	[0.011]	[0.019]	[0.019]	[0.011]
Gender	-0.069***	-0.127***	-0.127***	-0.078***
	[0.005]	[0.009]	[0.009]	[0.005]
Household	0.018***	0.003	0.003	0.006***
	[0.002]	[0.004]	[0.004]	[0.002]
Income	0.049***	0.099***	0.099***	0.052***
	[0.001]	[0.002]	[0.002]	[0.001]
Trust Ppl.	0.049***	0.090***	0.089***	0.048***
	[0.001]	[0.002]	[0.002]	[0.001]
Religiosity	0.023***	0.042***	0.042***	0.026***
	[0.001]	[0.002]	[0.002]	[0.001]
Economy	0.136***	0.237***	0.238***	0.130***
	[0.001]	[0.002]	[0.002]	[0.001]
Voted	0.062***	0.109***	0.111***	0.049***
	[0.007]	[0.012]	[0.012]	[0.007]
Health	0.309***	0.550***	0.550***	0.317***
	[0.003]	[0.006]	[0.006]	[0.003]
Politics	-0.012***	-0.026***	-0.027***	-0.015***
	[0.003]	[0.006]	[0.006]	[0.003]
Party	0.031**	0.015	0.016	0.024*
	[0.012]	[0.022]	[0.022]	[0.012]
GDP	0.000***		0.000***	0.000***
	[0.000]		[0.000]	[0.000]
Unemployment %	0.013***		0.005**	0.003**
	[0.001]		[0.002]	[0.001]
Corruption	0.007***		-0.006***	-0.004***
	[0.000]		[0.001]	[0.001]
Trust Parl.	0.010***	0.024***	0.024***	0.009***
	[0.001]	[0.002]	[0.002]	[0.001]
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
N	168,337	168,337	168,337	168,337

Standard errors in brackets

* p<0.10, ** p<0.05, *** p<0.01

effects) of falling in any of the categories of the dependent variable. Reported coefficients in Tables 7.1 and 7.2 show that for an one unit increase in the predictor, the response variable level is expected to change by its respective regression coefficient in the ordered odds scale while the other variables in the model are held constant. Interpretation of the ordered probit estimates is not dependent on the ancillary parameters; the ancillary parameters are used to differentiate the adjacent levels of the response variable. When using that method in multilevel modelling, the mean for every variable is taken from the mean value of the group that each individual belongs to and not the overall population mean. To understand the magnitude of each effect, it is important to take into account the measure used for every variable.

For the main variable of interest in this paper, political trust as measured through trust in national parliaments, the coefficient is statistically significant in all specifications of Table 7.2. The effect show that that 1 point increase in the trust in national parliament variable will increase the probability of changing one ordinal scale in the subjective wellbeing variable by about 5% keeping every other variable at the mean.

Looking at other control variables, as evidenced by previous literature education, age, household and employment are associated with higher probabilities of increased subjective wellbeing. The level of overall unemployment rate of the economy appears with a significant positive coefficient to impact subjective wellbeing which opposes to the majority of existing literature. After consideration and different tests it appears that this result is mainly driven from the subgroup of the sample that is currently employed. This result seems plausible particularly considering the recent increases in unemployment rates across Europe. Individuals that are in employment may feel higher accomplishment and overall satisfaction when comparing themselves with the increasing unemployment of their countries. As indicated by the variable on expectations about the future of the economy, feeling more secure about the future positively affects respondents' probabilities to trust the government. The effect of income, is positive and significant.

In regards to factors related to politics, voting and working in a political party increases probabilities of increased subjective wellbeing. In contrast increased interest in politics and political discussions has a negative effect. Given the current climate in the European Union that followed the Financial Crisis of 2008 and the European Debt crisis that appears plausible as individuals interested in politics will have higher exposure to news and political debates that can cause worrying and anxiety.

7.8 Robustness Checks

In order to test the validity and robustness of these results, a set of robustness checks are employed. At first, it is necessary to see if any particular subset of the sample is driving the results. As variations of subjective wellbeing are systematically correlated with country characteristics, the tests begin by removing one country at a time from the sample and re-estimate the results. Following that, to take into account whether unobserved macroeconomic fluctuations or other random effects of time are affecting this process, European Social Survey waves of the sample are removed one by one. Results presented on Tables 7.3 & 7.4 suggest that in the full specification of the model, as in the last column of Table 7.2, political trust remains a robustly significant determinant of subjective wellbeing in all subsets both in regards to countries and years.

Following the check of subsets related to country and time characteristics, the focus now shifts on individual characteristics found as important determinants of subjective wellbeing in the literature (Frey and Stutzer, 2010). The first individual characteristic that is used for robustness is that of income, where the sample is split in deciles, removing one each time. Income is then followed by different educational levels, age and health. Following that, the sample is explored by gender and country of birth. Results are presented on Tables 7.5, 7.6, 7.7 and 7.8.

Table 7.3 Effect of trust in national parliaments on SWB excluding countries

Excluding	ML Ord. Probit	Observations
Austria	0.011***	163,097
Belgium	0.010***	157,966
Bulgaria	0.009***	164,967
Croatia	0.009***	163,854
Cyprus	0.009***	168,337
Czech Republic	0.009***	166,749
Denmark	0.007***	152,027
Estonia	0.010***	160,329
Finland	0.010***	160,420
France	0.010***	156,313
Germany	0.009***	161,069
Greece	0.008***	156,287
Hungary	0.009***	166,944
Ireland	0.009***	163,978
Italy	0.010***	159,109
Lithuania	0.010***	166,552
Luxembourg	0.009***	164170
Netherlands	0.009***	167,297
Poland	0.009***	157,268
Portugal	0.009***	159,682
Slovakia	0.010***	157,309
Slovenia	0.009***	162878
Spain	0.008***	163,017
Sweden	0.009***	168,337
UK	0.009***	159,184
Personal Charact.	Yes	
Country Charact.	Yes	
Political Identity	Yes	
Political Climate	Yes	

Notes: 1) All standard errors are clustered by country, 2) * p<0.10, ** p<0.05, *** p<0.01

Table 7.4 Effect of trust in national parliaments on SWB excluding waves

Excluding:	ML Ord. Probit
2002	0.010***
2004	0.009***
2006	0.009***
2008	0.008***
2010	0.008***
2012	0.009***
2014	0.010***
2016	0.011***
Personal Charact.	Yes
Country Charact.	Yes
Political Identity	Yes
Political Climate	Yes

Notes: 1) All standard errors are clustered by country, 2) Minimum observations when including political identity variables are 143,080 in 2012 and maximum 152,561 in 2004, 3) * p<0.10, ** p<0.05, *** p<0.01

Table 7.5 Effect of trust in national parliaments on wellbeing across subsets of personal income

Keeping:	1st Decile	2nd Decile	3rd Decile	4th Decile	5th decile	6th Decile	7th Decile	8th Decile	9th Decile	10th decile
Age	0.007***	0.008***	0.007***	0.006***	0.006***	0.005***	0.004***	0.004***	0.003***	0.003***
Born	0.085*	0.078*	0.124***	0.071*	0.116***	0.124***	0.053	0.114**	0.052	0.061
Education	-0.001	-0.005*	-0.003	-0.003	-0.006**	-0.009***	-0.006**	-0.005**	-0.001	-0.001
Empl. Rel.	0.067***	0.057**	-0.002	0.029	0.025	0.034	0.049**	0.005	0.028	0.117***
Father	0.050	0.087**	0.034	0.116***	0.049	0.079**	0.101***	0.118***	0.024	0.008
Gender	-0.102***	-0.092***	-0.033*	-0.068***	-0.082***	-0.087***	-0.068***	-0.084***	-0.071***	-0.109***
Household	0.029***	0.025***	0.010	0.011	0.016**	-0.003	-0.011	-0.008	-0.006	0.002
Trust Ppl.	0.051***	0.051***	0.049***	0.053***	0.046***	0.049***	0.049***	0.046***	0.051***	0.050***
Religiosity	0.034***	0.032***	0.032***	0.031***	0.030***	0.026***	0.021***	0.017***	0.022***	0.016***
Economy	0.147***	0.137***	0.125***	0.136***	0.128***	0.128***	0.119***	0.114***	0.120***	0.111***
Voted	0.042*	0.041*	0.020	0.056**	0.062***	0.021	0.084***	0.040	0.033	0.032
Health	0.324***	0.312***	0.300***	0.314***	0.319***	0.300***	0.275***	0.312***	0.333***	0.336***
Politics	-0.002	-0.002	-0.020*	-0.028***	-0.020*	-0.025**	-0.015	-0.015	0.004	0.010
Party	0.117**	-0.053	0.036	0.011	0.078*	-0.023	0.078*	0.042	-0.015	0.059
GDP	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
Unempl. %	0.004	0.006*	0.013***	0.006*	0.002	0.007*	0.000	0.004	0.013***	0.015***
Corruption	-0.001	0.001	0.001	0.002	-0.001	-0.001	-0.006***	0.000	-0.001	-0.004*
Trust in Parl.	0.013***	0.011**	0.010**	0.007*	0.011***	0.017***	0.005	0.019***	0.010**	0.016***
N	11,905	13,712	14,626	15,111	15,255	15,221	15,513	15,004	14,013	14,266
Personal Charact.	Yes									
Country Charact.	Yes									
Political Identity	Yes									
Political Climate	Yes									

Notes: 1) All standard errors are clustered by country, 2) * p<0.10, ** p<0.05, *** p<0.01

Table 7.6 Effect of trust in national parliaments on wellbeing across subsets of age

Keeping ages:	<25	25-49	50-69	>70
Age	-0.038***	-0.008***	0.022***	0.006***
Born	0.039	0.063***	0.079***	0.004
Education	0.012**	0.001	-0.007***	-0.003
Employment. Rel	0.048	0.054***	0.045***	0.046***
Father	0.103**	0.088***	0.005	0.021
Gender	-0.073***	-0.083***	-0.100***	-0.028*
Household	-0.000	0.035***	0.004	0.036***
Income	0.032***	0.064***	0.061***	0.034***
Trust Ppl.	0.047***	0.046***	0.053***	0.052***
Religiosity	0.027***	0.022***	0.027***	0.036***
Economy	0.114***	0.130***	0.125***	0.108***
Voted	0.058**	0.061***	0.099***	0.125***
Health	0.304***	0.299***	0.317***	0.320***
Politics	-0.027*	-0.033***	-0.014**	0.026***
Party	-0.017	0.019	0.072***	-0.045
GDP	0.000***	0.000***	0.000***	0.000***
Unemployment %	0.001	0.004**	0.005**	0.019***
Corruption	-0.005*	-0.002**	-0.002*	-0.001
Trust in Parl.	0.015***	0.007***	0.011***	0.016***
N	9,827	66,292	50,009	18,498
Personal Charact.	Yes			
Country Charact.	Yes			
Political Identity	Yes			
Political Climate	Yes			

Notes: 1) All standard errors are clustered by country, 2) * p<0.10, ** p<0.05, *** p<0.01

Results suggest that in most specifications and subsets of the sample trust in national parliaments is a significant determinant of subjective wellbeing. Interesting results arise from the sub samples of educational levels that reveal a U-shaped relationship between political trust and wellbeing conditional on the education distribution where the effect appears to be significantly larger in the tails of the distribution (low and high levels of education).

Table 7.7 Subjective Health levels

Keeping Health=	Very bad	Bad	Fair	Good	Very Good
Age	0.006***	0.005***	0.008***	0.008***	0.008***
Born	0.071**	0.099***	0.096***	0.109*	-0.098
Education	-0.007***	-0.006***	-0.002	-0.001	0.005
Employment rel.	0.040***	0.042***	0.047***	0.065**	0.176**
Father	0.095***	0.080***	0.021	0.017	0.136
Gender	-0.087***	-0.090***	-0.069***	-0.079***	-0.003
Household	0.003	0.006	0.013***	0.026**	-0.006
Income	0.042***	0.051***	0.058***	0.065***	0.051***
Trust Ppl	0.039***	0.052***	0.050***	0.056***	0.061***
Religiosity	0.023***	0.029***	0.029***	0.021***	0.031***
Economy	0.110***	0.128***	0.135***	0.141***	0.124***
Voted	0.005	0.052***	0.042***	0.114***	0.165***
Politics	-0.009	-0.019***	-0.001	-0.015	0.000
Party	-0.012	0.073***	-0.001	-0.013	-0.056
GDP	0.000***	0.000***	0.000***	0.000*	0.000
Unemployment %	0.003	0.004**	0.005**	0.017***	0.003
Corruption	-0.004**	-0.005***	-0.001	0.003	0.008**
Trust in Parl.	0.010***	0.010***	0.012***	0.018***	0.016
N	32517	64704	37268	8550	1587
Personal Charact.	Yes				
Country Charact.	Yes				
Political Identity	Yes				
Political Climate	Yes				

Notes: 1) All standard errors are clustered by country, 2) * p<0.10, ** p<0.05, *** p<0.01

Table 7.8 Effect of trust in national parliaments on wellbeing across subsets of personal characteristics

Subset	ML Probit	Observations
Females	0.009***	84,950
Males	0.009***	83,387
Educational level 1	0.012***	17,960
Educational level 2	0.016***	26,112
Educational level 3	0.006***	65,381
Educational level 4	0.009	7,982
Educational level 5	0.013***	50,544
Born in country of survey	0.010***	155,894
Born abroad	0.009***	8,834
Controlling for:		
Personal Charact.	Yes	
Country Charact.	Yes	
Political Identity	Yes	
Political Climate	Yes	

7.8.1 Happiness

In this subsection, the specifications of Table 7.2 are re-estimated using a different dependent variable, that of happiness as a proxy of wellbeing. Even though there are normative and empirical differences between the concepts of subjective wellbeing and happiness (Frey and Stutzer, 2002b), the two variables are highly correlated and the use of happiness as a robustness check can serve as a way to account for potential measurement errors in the wellbeing variable used in Tables 7.1 and 7.2. Results shown in Tables 7.9 and 7.10 suggest that the happiness variable of the European Social Survey in the sample examined behaves as that of overall life satisfaction and that the effect of political trust in national parliaments is persistently a significant and robust determinant of it.

Table 7.9 Baseline specification for happiness without political trust

Happinnes	Ord. Probit	Multilevel	ML Ord. Probit	ML Ord. Probit
Age	0.003***	0.005***	0.005***	0.004***
	[0.000]	[0.000]	[0.000]	[0.000]
Born	0.034***	0.063***	0.063***	0.034***
	[0.013]	[0.020]	[0.020]	[0.013]
Education	-0.006***	-0.005***	-0.006***	-0.006***
	[0.001]	[0.001]	[0.001]	[0.001]
Employment Rel.	0.022***	0.033***	0.033***	0.020***
	[0.007]	[0.010]	[0.010]	[0.007]
Father	0.017	0.035**	0.036**	0.020*
	[0.011]	[0.017]	[0.017]	[0.011]
Gender	-0.082***	-0.129***	-0.129***	-0.088***
	[0.005]	[0.008]	[0.008]	[0.005]
Household	0.052***	0.063***	0.063***	0.044***
	[0.002]	[0.003]	[0.003]	[0.002]
Income	0.042***	0.075***	0.075***	0.044***
	[0.001]	[0.002]	[0.002]	[0.001]
Trust ppl.	0.044***	0.078***	0.078***	0.044***
	[0.001]	[0.002]	[0.002]	[0.001]
Religiosity	0.026***	0.042***	0.043***	0.029***
	[0.001]	[0.001]	[0.001]	[0.001]
Economy	0.091***	0.148***	0.149***	0.089***
	[0.001]	[0.002]	[0.002]	[0.001]
Voted	0.074***	0.136***	0.137***	0.072***
	[0.007]	[0.011]	[0.011]	[0.007]
Health	0.309***	0.518***	0.518***	0.320***
	[0.003]	[0.005]	[0.005]	[0.003]
Politics	0.005	0.012**	0.012**	0.004
	[0.003]	[0.005]	[0.005]	[0.003]
Party	0.033***	0.023	0.024	0.027**
	[0.012]	[0.020]	[0.020]	[0.013]
GDP	0.000***		0.000***	0.000***
	[0.000]		[0.000]	[0.000]
Unemployment %	0.014***		0.000	0.001
	[0.001]		[0.002]	[0.001]
Corruption	0.010***		-0.005***	-0.003***
	[0.000]		[0.001]	[0.001]
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
N	168,337	168,337	168,337	168,337

Notes: 1) All standard errors are clustered by country, 2) * p<0.10, ** p<0.05, *** p<0.01

Table 7.10 Full specification for happiness including Political Trust

Happinnes	Ord. Probit	Multilevel	ML Ord. Probit	ML Ord. Probit
Age	0.003***	0.005***	0.005***	0.004***
	[0.000]	[0.000]	[0.000]	[0.000]
Born	0.036***	0.066***	0.067***	0.035***
	[0.013]	[0.020]	[0.020]	[0.013]
Education	-0.006***	-0.006***	-0.006***	-0.007***
	[0.001]	[0.001]	[0.001]	[0.001]
Employment Rel.	0.023***	0.034***	0.033***	0.020***
	[0.007]	[0.010]	[0.010]	[0.007]
Father	0.017	0.035**	0.037**	0.020*
	[0.011]	[0.017]	[0.017]	[0.011]
Gender	-0.082***	-0.129***	-0.129***	-0.088***
	[0.005]	[0.008]	[0.008]	[0.005]
Household	0.052***	0.063***	0.063***	0.044***
	[0.002]	[0.003]	[0.003]	[0.002]
Income	0.042***	0.075***	0.075***	0.043***
	[0.001]	[0.002]	[0.002]	[0.001]
Trust ppl.	0.043***	0.076***	0.076***	0.043***
	[0.001]	[0.002]	[0.002]	[0.001]
Religiosity	0.026***	0.042***	0.042***	0.029***
	[0.001]	[0.001]	[0.001]	[0.001]
Economy	0.089***	0.143***	0.144***	0.088***
	[0.001]	[0.002]	[0.002]	[0.001]
Voted	0.072***	0.132***	0.133***	0.071***
	[0.007]	[0.011]	[0.011]	[0.007]
Health	0.308***	0.517***	0.517***	0.320***
	[0.003]	[0.005]	[0.005]	[0.003]
Politics	0.003	0.008	0.008	0.003
	[0.003]	[0.005]	[0.005]	[0.003]
Party	0.032**	0.022	0.022	0.027**
	[0.012]	[0.020]	[0.020]	[0.013]
GDP	0.000***		0.000***	0.000***
	[0.000]		[0.000]	[0.000]
Unemployment %	0.014***		0.001	0.001
	[0.001]		[0.002]	[0.001]
Corruption	0.010***		-0.005***	-0.003***
	[0.000]		[0.001]	[0.001]
Trust in Parl.	0.006***	0.012***	0.013***	0.004***
	[0.001]	[0.002]	[0.002]	[0.001]
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
N	168,337	168,337	168,337	168,337

Notes: 1) All standard errors are clustered by country, 2) * p<0.10, ** p<0.05, *** p<0.01

7.9 Conclusions

Over the past decades, questions about what constitutes subjective wellbeing, which factors affect it both at the individual and societal level, how can scientists accurately measure it and its policy relevance have been at the centre of both researchers and policy makers. Multidisciplinary research on the subject of wellbeing has provided evidence that both individual factors (i.e. employment status, marital status, health) and aggregate factors (i.e. state of the economy, level of unemployment, environmental quality) affect individuals' wellbeing. One of the key categories of factors that have been identified as relevant for this process is the polity and quality of governance in a country Frey and Stutzer (2010).

This chapter explores the determinants of subjective wellbeing and what is the role of political trust as measured by trust in national parliaments in this process. Motivated by the declining levels of political trust in European countries in the era of austerity, data from the European Social Survey (2002-2016) were used to see which factors affect overall life satisfaction. Hudson (2006) showed in a similar sample that socio-economic factors are not the sole determinants of respondents' levels of happiness that happiness does not solely lie within the realm of the individual, but that institutional performance also has a direct impact upon subjective wellbeing.

Taking the analysis a step forward this work provides robust empirical evidence suggesting that this response to political trust is consistent across the majority of sub samples of European Social Survey over the past two (2) decades. Results suggest that under all specifications, the levels of (dis)trust in national parliaments is positively (negatively) affecting lived experiences and overall levels of subjective wellbeing. The impact of this direct effect is considered significant and remains robust across all specifications. Quantifying the size of this effect rather than its sign is trivial due to potential measurement errors of both variables of interest.

The limitations of this research are centred around the fact that due to the lack of genuine panel dataset tracking the same individuals over time, it is not possible to address issues of endogeneity and indirect effects of political trust on subjective wellbeing. However, through the use of multilevel hierarchical analysis, that allows to capture country and time specific effects, potential biases are reduced to the minimum possible. This chapter adds to an increasing body of the literature of comparative political economy on the role of trust in political institutions in determining welfare.

Appendix

Table 7.11 shows information on which wave answered and with how many observations it participated.

Country	2002	2004	2006	2008	2010	2012	2014	2016	Total
Austria	983	833	1,069	-	-	-	1,069	1,286	5,240
Belgium	959	1,161	1,302	1,339	1,230	1,500	1,408	1,472	10,371
Bulgaria	-	-	626	-	1,375	1,369	-	-	3,370
Cyprus	-	-	498	-	492	599	-	-	1,589
Czech Republic	620	1,076	-	1,027	1,280	764	1,077	1,424	7,268
Germany	1,934	1,788	1,782	1,911	1,999	2,217	2,409	2,271	16,311
Denmark	1,087	1,052	1,134	1,234	1,232	1,068	1,201	-	8,008
Estonia	-	-	-	985	1,157	1,505	-	1,673	5,320
Spain	594	717	858	1,166	1,140	1,193	1,128	1,121	7,917
Finland	1,630	-	1,604	1,782	1,598	1,914	1,790	1,706	12,024
France	-	-	1,503	1,591	1,390	1,544	1,530	1,595	9,153
Great Britain	1,527	1,240	1,562	1,733	1,508	1,435	1,632	1,413	12,050
Greece	1,140	1,111	-	946	1,286	-	-	-	4,483
Croatia	-	-	-	681	712	-	-	-	1,393
Hungary	-	-	-	794	867	1,034	890	774	4,359
Ireland	-	1,210	873	1,360	1,267	1,502	1,407	1,610	9,229
Italy	442	-	-	-	-	397	-	946	1,785
Lithuania	-	-	-	-	713	1,054	1,166	1,234	4,167
Luxembourg	415	625	-	-	-	-	-	-	1,040
Netherlands	1,679	1,306	1,375	1,329	1,258	1,346	1,507	1,269	11,069
Poland	1,204	999	995	951	963	1,030	811	880	7,833
Portugal	711	799	736	696	-	754	817	946	5,459
Sweden	1,518	1,528	1,296	1,455	1,172	1,461	1,371	1,227	11,028
Slovenia	709	19	735	702	693	671	669	864	5,062
Slovakia	-	312	708	-	891	901	-	-	2,812
Total	17,152	15,776	18,656	21,682	24,223	25,258	21,882	23,711	168,340

Table 7.11 Response Rate of ESS by country and wave

Tables 7.12 & 7.13 include data description and sources as well as summary statistics for the variables used in this paper.

Table 7.12 Variables descriptions and sources

Variable	Description
Age	Individuals' age. - Source: European Social Survey / Responses at the individual level
Born	Dummy if the individual was born in country of survey. - Source: European Social Survey / Responses at the individual level
Corruption	Corruption Perception Index. - Source: Transparency International / Responses at the country level
Economy	Respondents' satisfaction with the national economy. - Source: European Social Survey / Responses at the individual level
Education levels	Dummies for the highest level of education completed. - Source: European Social Survey / Responses at the individual level
Education	Years of formal education. - Source: European Social Survey / Responses at the individual level
Employment	Current/recent employment relationship of the individual (0=Unemployed, 1=Part Time, 2=Full Time). - Source: European Social Survey / Responses at the individual level
Father	Father born in country of respondents' current residence. - Source: European Social Survey / Responses at the individual level
Gender	Respondents' dummy for gender. - Source: European Social Survey / Responses at the individual level
GDP	Gross Domestic Product per capita in constant 2010 USD. - Source: World Bank / Responses at the country level
Happiness	Responses on how happy individuals are. - Source: European Social Survey / Responses at the individual level
Health	Respondents' subjective health. - Source: European Social Survey / Responses at the individual level
Household	Members currently living in respondents' household. - Source: European Social Survey / Responses at the individual level
Income	Level of income individuals responded (in bands). - Source: European Social Survey / Responses at the individual level
Party	Dummy if respondent worked for a political party. - Source: European Social Survey / Responses at the individual level
Place	Dummies for different community sizes. - Source: European Social Survey / Responses at the individual level
Politics	Reported interest in politics. - Source: European Social Survey / Responses at the individual level
Religiosity	Responses on how religious individuals feel. - Source: European Social Survey / Responses at the individual level
Trust Ppl.	Respondents' trust in other people. - Source: European Social Survey / Responses at the individual level
Trust Parl.	Respondents' trust in the national parliament. - Source: European Social Survey / Responses at the individual level
Unemployment	Rate of total unemployment. - Source: World Bank / Responses at the country level
Voted	Dummy if respondent voted in last national elections. - Source: European Social Survey / Responses at the individual level

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	168,337	49.118	16.740	14	100
Big City (dummy)	168,337	.1960	.397	0	1
Born in country	168,337	.926	.261	0	1
Corruption	168,337	71.576	16.293	35	97
Economy	168,337	4.515	2.425	0	10
Education level 5 (dummy)	168,337	.300	.458	0	1
Education level 4 (dummy)	168,337	.047	.213	0	1
Education level 3 (dummy)	168,337	.388	.487	0	1
Education level 2 (dummy)	168,337	.155	.362	0	1
Education level 1 (dummy)	168,337	.107	.309	0	1
Education (in years)	168,337	12.937	3.987	0	56
Employment relationship	168,337	1.143	.389	1	3
Father born in Country	168,337	.895	.306	0	1
Gender	168,337	.495	.500	0	1
GDP	168,337	37,077.93	15,473.87	5,988.771	99,778.47
Happiness	168,337	7.356	1.874	0	10
Health	168,337	3.811	.885	1	5
Suburbs (dummy)	168,337	.127	.333	0	1
Household Members	168,337	2.632	1.340	1	15
Income	168,337	5.572	2.785	1	10
Politics	168,337	2.510	.882	1	4
Religiosity	168,337	4.538	2.994	0	10
Town (dummy)	168,337	.318	.466	0	1
Trust Ppl.	168,337	5.199	2.367	0	10
Trust Parl.	168,337	4.492	2.511	0	10
Unemployment (%)	168,337	8.427	3.931	2.554	24.7872
Village (dummy)	168,337	.293	.455	0	1
Voted (dummy)	168,337	.783	.412	0	1
Worked in Party	168,337	.044	.205	0	1

Table 7.13 Summary Statistics

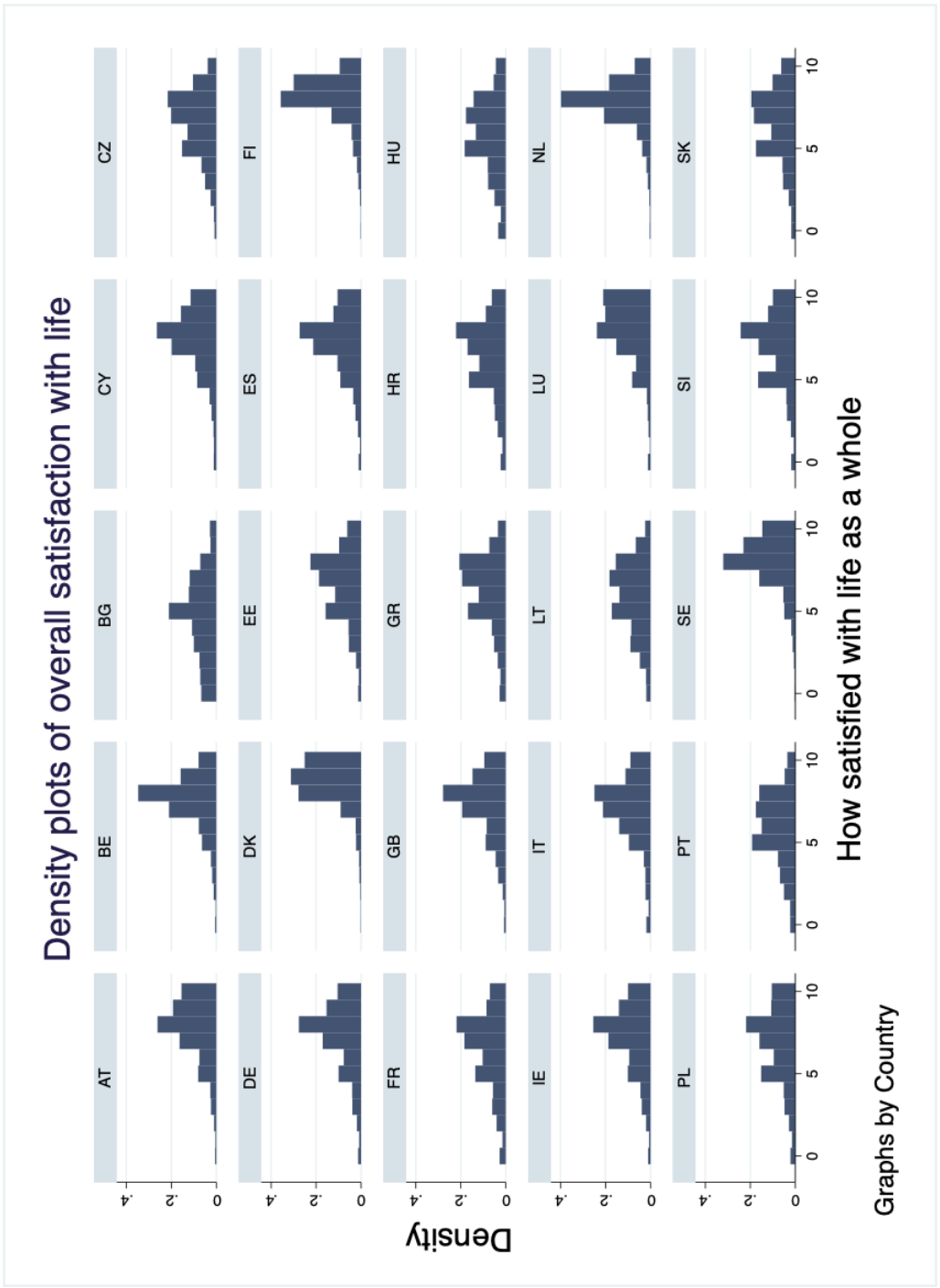

Figure 7.1 Density of responses on overall life satisfaction by country

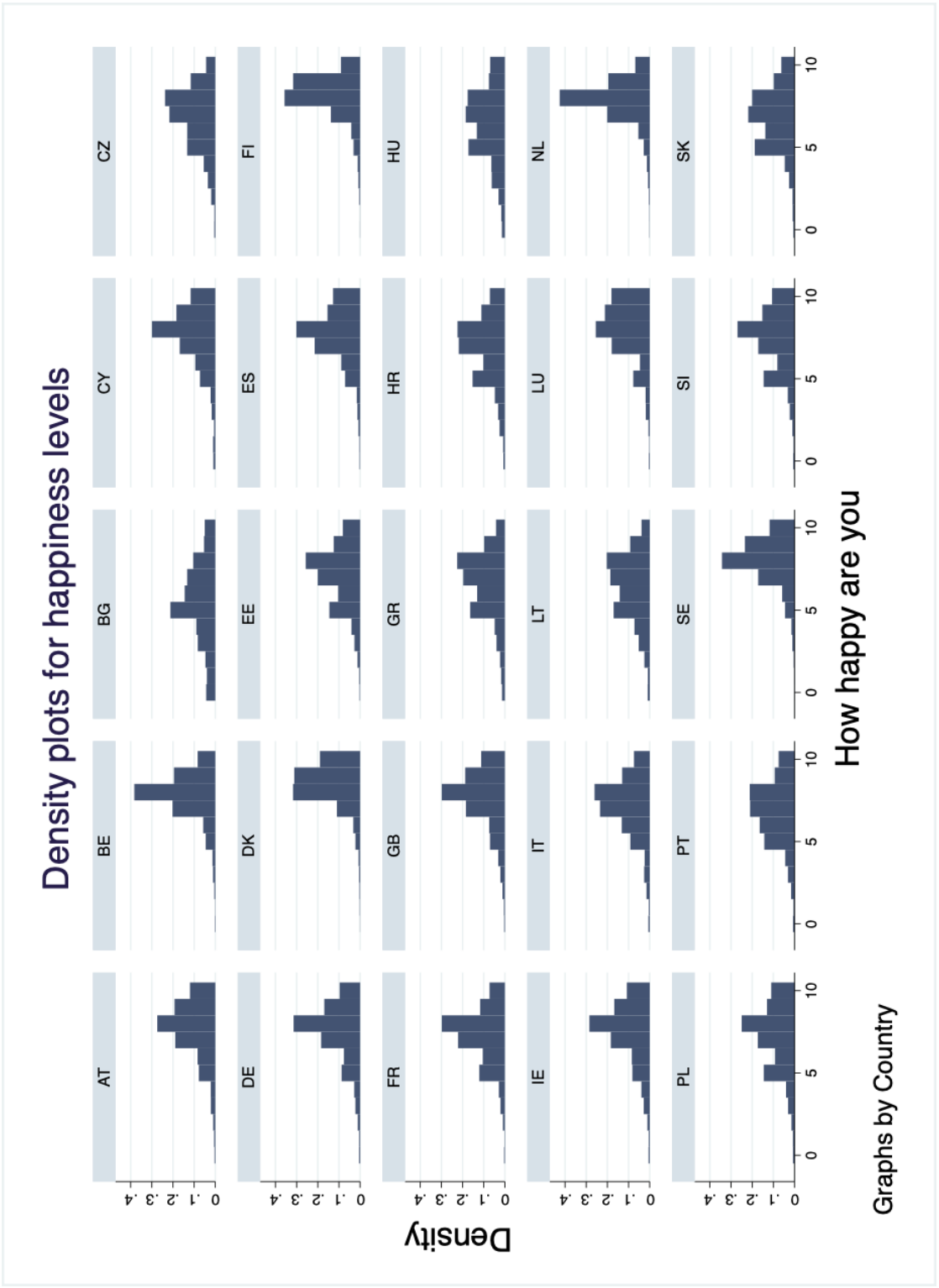

Figure 7.2 Density of responses on happiness levels by country

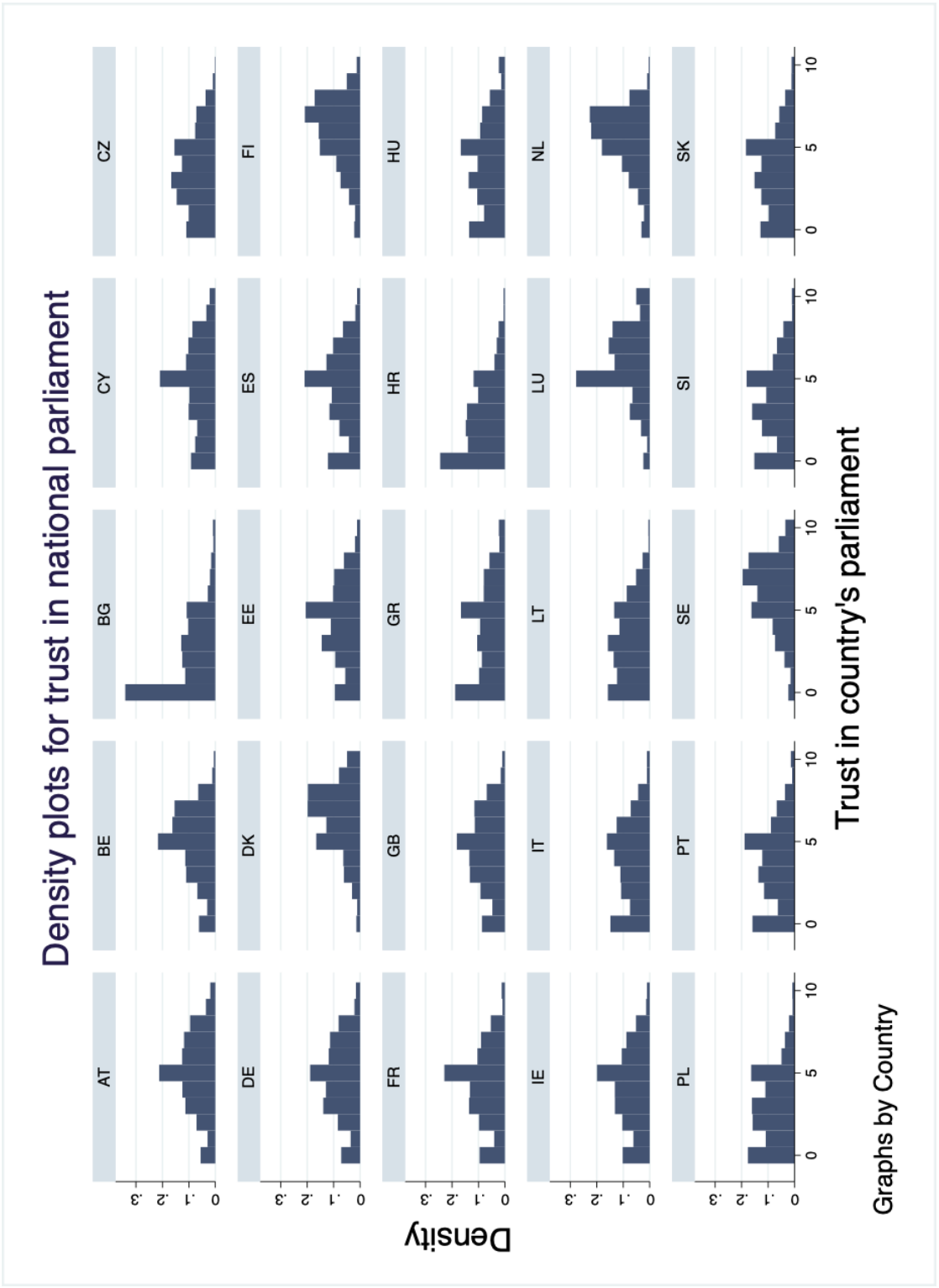

Figure 7.3 Density of responses on trust in National Parliaments by country

	SWB	Age	Born	Educ.	Empl.	Father	Gen.	House	Inc.	Trust	Relig.	Econ.	Vote	Hlth	Polit.	Party	GDP	Unem.	Corr.	Parl.
SWB	1.000																			
Age	-0.033	1.000																		
Born	0.018	0.039	1.000																	
Educ.	0.143	-0.277	-0.034	1.000																
Empl.	0.031	0.067	0.008	-0.025	1.000															
Father	0.026	0.059	0.661	-0.030	0.011	1.000														
Gender	0.009	0.008	0.003	-0.010	0.085	0.002	1.000													
Househ.	0.054	-0.362	-0.039	0.072	0.023	-0.036	0.013	1.000												
Income	0.236	-0.198	0.038	0.331	0.023	0.033	0.074	0.344	1.000											
Trust	0.302	-0.011	0.007	0.195	0.004	0.018	0.013	-0.012	0.151	1.000										
Relig.	0.046	0.164	-0.070	-0.110	0.040	-0.057	-0.143	0.041	-0.075	-0.004	1.000									
Econ.	0.430	-0.007	-0.034	0.123	0.006	-0.021	0.062	-0.007	0.168	0.340	0.029	1.000								
Voted	0.120	0.207	0.201	0.085	0.033	0.195	0.005	-0.032	0.108	0.110	0.057	0.094	1.000							
Health	0.314	-0.342	-0.011	0.233	0.019	-0.003	0.036	0.147	0.232	0.166	-0.057	0.166	0.027	1.000						
Polit.	0.117	0.124	-0.000	0.242	0.038	-0.002	0.134	-0.051	0.158	0.170	0.002	0.143	0.248	0.043	1.000					
Party	0.025	0.018	0.006	0.067	0.031	0.004	0.050	0.007	0.045	0.038	0.003	0.016	0.071	0.012	0.184	1.000				
GDP	0.290	-0.006	-0.075	0.131	0.006	-0.065	0.037	-0.073	0.041	0.264	-0.066	0.334	0.105	0.168	0.179	0.022	1.000			
Unem.	-0.155	-0.006	0.009	-0.048	0.023	0.031	-0.002	0.079	-0.071	-0.125	0.079	-0.320	-0.044	-0.069	-0.11	0.016	-0.411	1.000		
Cor.	0.302	-0.009	-0.042	0.127	-0.018	-0.039	0.023	-0.095	0.067	0.312	-0.094	0.388	0.091	0.117	0.198	0.014	0.821	-0.473	1.000	
Parl.	0.305	-0.011	-0.044	0.154	0.009	-0.029	0.048	-0.003	0.162	0.367	0.050	0.498	0.149	0.151	0.249	0.057	0.312	-0.204	0.344	1.000

Table 7.14 Correlations table Chapter 6

Table 7.15 Table 7.1 cut points

	(1)	(2)	(3)	(4)
	reg1	reg2	reg3	reg4
cut1	1.026***			0.036
	[0.030]			[0.094]
cut2	1.306***			0.319***
	[0.029]			[0.094]
cut3	1.664***			0.681***
	[0.029]			[0.094]
cut4	2.046***			1.068***
	[0.029]			[0.094]
cut5	2.341***			1.368***
	[0.029]			[0.094]
cut6	2.856***			1.890***
	[0.029]			[0.094]
cut7	3.191***			2.230***
	[0.029]			[0.094]
cut8	3.757***			2.803***
	[0.030]			[0.094]
cut9	4.605***			3.661***
	[0.030]			[0.094]
cut10	5.301***			4.365***
	[0.030]			[0.094]
N	168337	168337	168337	168337

Standard errors in brackets

* p<0.10, ** p<0.05, *** p<0.01

Table 7.16 Table 7.2 cut points

	(1) reg5	(2) reg6	(3) reg7	(4) reg8
cut1	1.019***			0.049
	[0.030]			[0.093]
cut2	1.299***			0.332***
	[0.029]			[0.093]
cut3	1.657***			0.694***
	[0.029]			[0.093]
cut4	2.040***			1.082***
	[0.029]			[0.093]
cut5	2.335***			1.382***
	[0.029]			[0.093]
cut6	2.850***			1.904***
	[0.029]			[0.093]
cut7	3.186***			2.244***
	[0.029]			[0.093]
cut8	3.752***			2.818***
	[0.030]			[0.093]
cut9	4.599***			3.676***
	[0.030]			[0.093]
cut10	5.295***			4.379***
	[0.030]			[0.093]
N	168337	168337	168337	168337

Standard errors in brackets

* p<0.10, ** p<0.05, *** p<0.01

8

Conclusion

..."What's divine? That which has neither beginning nor end."

– Thales of Miletus (Ancient Greek philosopher) *643-548 BC*

8.1 Summary

Following Thales' quote, this chapter concludes this thesis by synthesising it's contents with its limitations and prospects for future work. Building on the existing and growing literature on the importance and effects of institutions for economic performance and welfare the aim of this doctoral thesis is twofold. At first to explore how individuals build their perceptions about different institutions in a methodological way that explains how macro level institutional outcomes such as corruption or quality of governments affect micro level outcomes such as individuals perceptions and trust in different institutions. In addition to that, it explores how this macro to micro processes affect the micro level welfare of individuals through subjective wellbeing. The thesis is comprised of an introduction, five (5) main chapters and this concluding chapter.

The first chapters two chapters present two distinct but also interrelated reviews of the literature in regard to the two main aspects of this doctoral thesis: institutions and trust. At first, the importance and relevance of institutions is explored followed by a thorough look on the enquiries about trust throughout centuries and different disciplines. The literature review chapters are followed by Chapter 4 which provides an overview of the methodological framework used throughout the thesis and the three main empirical exercises of this thesis.

Chapter 5 focuses on Europe and explored the interplay between trust in national governments and corruption. Over the past decade European citizens' confidence in political institutions has dropped sharply. This chapter examines what makes individuals report a particular level of trust towards their national government and why in Europe such trust is declining. At first, the chapter lays the theoretical grounds of what affects trust decisions; exploring subsequently the question empirically by analysing data from the Eurobarometer (2005-2018). Using a multilevel logistic regression, I combine micro and macro characteristics to also explore the role of perceived corruption in this process. Results suggest that corruption is a significant determinant of trust in national governments, particularly where austerity was present.

Chapter 6 focuses on the interrelations between informal and formal institutions through the inter-generational transmission of trust. In this chapter, I explore the role of individuals' historical lineages in determining their contemporary political attitudes. Distinguishing between formal and informal institutions and motivated by a growing literature in economics and social sciences on how history matters in explaining variations in economic outcomes, I examine how pre-colonial cultural and ethnic characteristics in Africa persist over time and shape contemporary political beliefs and attitudes towards political and traditional leaders. Two different matching methods are employed in order to match as best as possible contemporary respondents of the Afrobarometer with their ancestral lineages. Results confirm the hypothesis that there exist deeply rooted ethnic legacies that still shape political attitudes and beliefs today.

Lastly, in Chapter 7, the regional focus is shifted again in the European Union and the interplay between political trust and subjective wellbeing is explored. The scope of the chapter is to examine empirically the determinants of subjective wellbeing in European Countries while at the same time focusing on one of the mechanisms through which institutions affect it, that of trust in political institutions. Individuals' perceptions about the quality of these institutions, as depicted through political trust, are hypothesised to be more efficient as they provide information about the feeling of "(in)security" citizens feel towards these institutions. Following the financial crisis of 2008 (which started impacting EU in 2009 onward), and as showed in Chapter 5 of this thesis, European countries experienced a significant crisis of trust that citizens report in regard to political institutions at the national and European level. This phenomenon of declining trust provides an interesting framework upon which one could test Hudson (2006) hypotheses on how such levels of political trust affect individuals' wellbeing directly.

8.1.1 Contributions and limitations

This doctoral thesis contributes to a growing body of empirical literature of the determinants and effects of institutions on economic and political outcomes. The contributions of this work can be summarised in the following three main points:

- **Micro-Macro level interactions**: One of the main novelties of this doctoral thesis is that for the regions, time periods and topics of this study (to the author's knowledge), applies for the first time a novel multilevel empirical strategy that allows for the better examination and decomposition of different outcomes. Even though such empirical strategies have been used in the past in social sciences and both their merits and limitations are known (see Bryan and Jenkins (2016)), its use for the study of macro to micro political and institutional outcomes is limited. Recent literature (Foster and Frieden, 2017) suggests that such empirical strategies

could be helpful in order to decompose individual country level effects on political attitudes. In that suggestion, lie both the main motivation and contributions of the methodological component of this thesis. The use of multilevel models, especially in Chapter 5, allowed for a more thorough investigation of the country-level determinants of individuals' levels of political trust in national governments.

- **Determinants of institutional perceptions**: Through the exploration of macro-micro interactions, this thesis also contributes, in ways beyond methodology, to the literature of empirical studies that seek to explain how individuals form their perceptions and beliefs about institutions and their quality. Through Chapters 5 & 6 of these thesis, the reader gets novel insights on how different environments shape individuals beliefs about political institutions. Using the financial crisis of 2008 as a starting point, Chapter 5 explores its differential impacts on citizens perceptions across different European countries providing insights on the role individual institutional frameworks on the process (through perceived corruption). At the same time, Chapter 6 takes a more macroscopic view of the determinants of political trust by trying to understand the deeply-rooted determinants of such processes. This provides novel insights on how unconscious processes (such as intergenerationally transmitted cultural traits) affect political decisions at the present.

- **Direct effects of political perceptions on lived experiences**: Lastly, the macro-micro interactions empirical strategy of this thesis allows for an interesting investigation of the direct effects of political perceptions on individuals' welfare (as measured through subjective wellbeing). That is achieved by exploiting the advantages of multilevel analysis, as presented by Mehmetoglu and Jakobsen (2016). The main advantage of this methodological strategy is that it decomposes through variance decomposition, whether changes in individual level outcomes can be attributed to their micro level characteristics or macro level determined phenomena. This is applied in the empirical exercise of Chapter 7 which seeks

to explore what were the effects of the sharp decline of political trust in Europe, which was explored in Chapter 5, in individuals' wellbeing.

The nature of the topics explored in this doctoral thesis pose certain limitations to its content, results and implications. Limitations can be summarised in the following two categories:

- **Data**: The nature of the topics explored in this thesis (corruption, trust and welfare) is broad and complicated and therefore their meaning differs greatly depending on one's definitions. This dependency of the terms on different definitions decreases the availability of holistic and uncontested ways to measure them and collect data for. The data used in this research therefore rely on the definitions used while collecting and may therefore contain measurement or biases. In all empirical chapters the data were carefully selected in order to minimise the potential effects of these problems and in order to ensure that they follow the scientific and epistemological consensus regarding the phenomena they measure. In addition to that in all empirical chapters different robustness checks are employed to mitigate the sensitivity of the estimated models.

- **Causal inference**: The nature of the data in regards to the topics studied in this thesis are also related to this limitation which is related to the inference of causality in the effects that are explored across this thesis. For most of the issues explored in this doctoral research there is no available data set that tracks the same individuals across time in order to observe changes in their beliefs. Therefore assessing the causal mechanisms through which institutional factors affect these changes is not possible. However, between causal inference and simple correlations, this thesis is leaning towards the former than the latter through a set of mitigation measures. At this point it is important to note that leaning towards does not imply in any way that causal mechanisms can be inferenced from this study. Mitigation measures include the use of hierarchical modelling that allows

for across levels variance decomposition, the inclusion of mixed effects (both fixed and random) and multiple levels of clustering and the use of large samples. Large sample sizes allow for an in-depth set of robustness checks to be employed that ensures results are not driven by omitted variables bias or a particular sub sample of the data.

These limitations pave the way for potential future work on the topic where new data can be mined in order to explore causal mechanisms of these relationships. This could include a longitudinal study that collects data on political attitudes, beliefs and personal characteristics from the same individuals over time. Another potential avenue of research, that is beyond the comparative scope of this study, would be to use experimental methods such as Discrete Choice Experiments or Trust games in order to test causal mechanisms of these topics.

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