STOCKHOLM SCHOOL OF ECONOMICS Department of Economics 659 Degree project in economics Spring 2017

Determinants of Institutional Trust

A European Cross-Country Evaluation

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Abstract: Properly functioning institutions are essential for economic prosperity. However, to be willing to engage in transactions and contribute to the economy, agents must deem them trustworthy. Trust is in itself an abstract and complex concept. There is a large number of competing but not necessarily contradictory theories aiming to explain how institutional trust arises. To better understand what explains cross-country differences in institutional trust, we apply qualitative comparative analysis (QCA) on data from the European Values Study, Transparency International, and the World Bank and propose a revised theoretical framework. Drawing on our empirical findings, we argue that perceived institutional performance is causally linked to trust in institutions. Furthermore, we propose that differences between countries in terms of institutional trust can also be explained independent of institutional performance by considering the social and individual setting.

Keywords: public institutions, institutional trust, behavioural economics, social trust

JEL: H11, O43, O52, D03, A12

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Date submitted:	May 15, 2017
Date examined:	June 2, 2017
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ACKNOWLEDGMENTS

We would like to express our deepest gratitude to our supervisor, Professor Örjan Sjöberg, for his enthusiastic support and insightful input throughout every stage of the process. Also, we would like to thank our fellow students for valuable feedback during the mid-term seminar that helped shape the direction of this thesis.

1 INTRODUCTION

No economy can flourish without properly functioning institutions. Adam Smith famously argued that the baker decides to make bread not because he wants to provide a benefit to society, but because he wants to make a living. The social benefit of the bread he supplies is merely an unintended consequence of his strive for personal gain. However, if the baker does not believe that the public institutions of society will enforce his right to be compensated for his work, or ensure that his money is not stolen from him, he will have neither incentive nor reason to produce more than what is required for his personal consumption. He could withdraw completely from the market, or spend some of the money that could otherwise be used in the production of bread on alternative, private protection, neither of which are particularly efficient outcomes for society. It is therefore crucial not only that institutions are of high quality, but also that they are trusted by the people they serve. In an anarchy, no one dares to trade with others and as a result there can be no economic activity.

The importance of trust in economic activity is both intuitively and empirically sound. For instance, Zak and Knack (2001) find low trust environments to reduce the rate of investment. Fukuyama (1995) argues that the most influential cultural factors on a nation's prosperity are civic norms and trust. In a famous comparison between Northern and Southern Italy, Putnam (1993) highlights how civic norms and trust can help explain the differences in economic and institutional performance. Further supporting this argument, Algan and Cahuc (2010) find a significant impact on income per capita in a cross-country study of trust. To uncover the inner workings of this mechanism, Whiteley (2000) identifies three paths through which trust affects economic growth:

- I) trust reduces transaction costs
- II) trust aids collective action problems, and
- III) trust mitigates principal-agent problems

Researchers have applied many different empirical settings, and the argument has been framed in various ways, but they all point to a common theme, the importance of trust in economic activity. Trust, however, is an abstract concept, and there is a wide range of definitions. The responsibility of institutions to facilitate a leveled playing field in economic transactions cannot be ignored, yet the majority of previous research on the effects of trust and how it arises has focused on trust among individuals. That is not to say that findings from analyses of interpersonal trust cannot be utilized to gain insight into trust in public institutions. After all, institutions are designed and

operated by people, and as such it is reasonable to assume mechanisms driving interpersonal trust to have an effect on institutional trust as well.

In the light of developments such as the rise of mainstream populism and the alt-right movement in the United States, it is increasingly important to examine and understand the determinants of trust in institutions. Currently, the field is characterized by a number of competing but not necessarily contradictory theories. A diversity of empirical findings and lack of theoretical consensus makes drawing conclusions difficult. This also implies that there is no straightforward way of empirically testing more than partial aspects of existing theoretical frameworks. We believe that a multidisciplinary approach, quantitatively compiling and comparing the theories regarding institutional trust, could provide valuable insight. By applying a relatively unorthodox statistical method, *qualitative comparative analysis* (QCA), we attempt to identify the key drivers of differences between societies in terms of how much confidence their citizens place in public institutions. This allows us to discriminate between theories or empirical findings worth pursuing and those that are less likely to provide useful explanations. At our disposal, we have a dataset consisting of the European Values Study of 2008 and 2009 as well as economic parameters from the World Bank and Transparency International's Corruption Perceptions Index. With QCA being a fundamentally theory-driven approach, a thorough review of relevant literature is required.

2 PREVIOUS RESEARCH

Sztompka (1999, p. 25) defines trust as "a bet about the future contingent actions of others." A similar view is expressed by Dasgupta (1997, cited in Ostrom, 1998, p. 12), who argues that "[t]rust is the expectation of one person about the actions of others that affects the first person's choice, when an action must be taken before the actions of others are known." Fukuyama (1995, p. 259) further develops the term, defining trust as "the expectation that arises within a community of regular, honest, and cooperative behavior, based on commonly shared norms, on the part of other members of that community."

Trust comes in various forms, and origins differ. Roth (2009) makes a three-parted distinction: thick trust, developed through family networks, generalized or social trust,¹ based on day-to-day interactions between people who do not know each other, and institutional trust, the form that people put in the institutions of society. The theory of how the different forms of trust emerge is complex and comprehensive. Although the available research on institutional trust is rudimentary compared to other categories, on an aggregate level it has been shown to be closely linked to other, more widely studied forms of trust (Sønderskov and Dinesen, 2016). This could potentially enable insights about institutional trust to be drawn from other more widely researched forms of trust.

One evident problem within the field of trust is the lack of contextual consistency. While some researchers use a theory or notion in one context, someone else might use it in another. This creates some confusion, and in some instances, there might even be a lack of consensus regarding the application of the most fundamental theories or notions. The very definition of trust itself is one example, where the meaning can differ in many aspects depending on the subject or intended use of the research. As a result, there is a certain amount of "overlap" of concepts between different theories and schools of thought. We therefore strive to clarify where deemed necessary.

Newton and Norris (1999) emphasize three main schools of thought regarding trust in public institutions:

- I) Social-psychological explanations
- II) The social and cultural model
- III) The institutional performance model

¹ This is one of the instances where inconsistent use of notions in literature becomes confusing. However, social and generalized trust can be understood as essentially the same thing, and as such we use them interchangeably throughout the thesis.

2.1 SOCIAL-PSYCHOLOGICAL EXPLANATIONS

PERSONALITY THEORY

Theories within the spectrum of social-psychological explanations usually assume trust to be a core personality trait (Erikson, 1950), which have been argued to be enduring and general (Allport, 1961; Cattell, 1965). Uslaner (2002, p. 4) believes trust, or the lack thereof, to be a personal quality generated in childhood—something we "learn [...] from our parents, early in life." during which we develop either *particularized* or *generalized* trust. People exhibiting particularized trust place confidence only in the small group of people to whom they are closely connected. They mistrust people in general and are skeptical about the future and their ability to influence it. As a result, they mistrust public institutions and believe them to be rigged against them (Uslaner, 2002 in Rothstein, 2005). On the other hand, people who exhibit generalized trust have an optimistic view about the future and their ability to influence it. They also believe that people in general can be trusted. Crucially, they believe most public servants they encounter in different settings to be honorable and likely to treat them well (Uslaner, 2002). Delhey and Newton (2003) refer to this psychological approach as "personality theory".

On an aggregate level, Newton and Norris (1999) find a correlation between social and institutional trust, also citing (Wright, 1976; Craig, 1993) who received similar results. On the individual level however, the relationship is found to be weak in their research.

Well-Being Theory

Delhey and Newton (2003) makes another important distinction. In reference to research such as Putnam (2000), who finds a link between social trust, happiness and well-being, they coin the term "well-being theory". Instead of focusing on psychological variables, it is based on the notion that a poor individual has relatively more to lose, in terms of potential negative, economic consequences, than someone who is better off from engaging in economic transactions. In a society where the population is rather well off, people are less inclined to exhibit mistrust due to the lower risk involved in economic interactions. The well-being theory has also been supported by other researchers. For instance, trust is shown to be higher in societies with a more even income distribution and higher educational levels (Knack and Keefer, 1997; Doring, 1992). Expressed differently, well-being theory describes both group and individual behavior. Bjørnskov (2006) shows that social polarization, specifically ethnic diversity and income inequality, increases the differences and social distance between members of society, reducing the level of aggregated generalized trust. Social polarization has also been shown to have a direct effect on economic growth (Easterly and Levine, 1997; Easterly, 1999).

2.2 THE SOCIAL AND CULTURAL MODEL

While agreeing that trust is in essence a personality trait, Hiraishi et al. (2008) argues that it is formed through social interactions in adult life rather than being inherited from parents. Theories within the realm of the social and cultural model are based on the idea that "individuals participate in, contribute to, or benefit from a trusting culture, or from social and political institutions that encourages the development of trusting attitudes and behaviour" (Delhey and Newton 2003, p. 96).

Social capital is often mentioned in studies concerned with the social and cultural context in which trust exists. The term is generally understood to consist of two main dimensions: social networks and the norm of *generalized reciprocity*, that is, the philosophy that "I'll do this for you without expecting anything specific back from you in the confident expectation that someone else will do something for me down the road" (Putnam 2000, p. 21). L.J. Hanifan (1916, pp. 130–131), believed to be the inventor of the term, defined it as the "tangible substances [that] count for most in the daily lives of a people, namely, goodwill, fellowship, mutual sympathy and social intercourse among a group of individuals and families who make up a social unit." Drawing on Fukuyama's (1995, p. 26) definition of trust as "the expectation that arises within a community of regular, honest, and cooperative behavior, based on commonly shared norms, on the part of other members of that community," it is reasonable to assume that trust is an important determinant of social capital. In fact, social trust is often the best and only indicator of social capital (Delhey and Newton, 2003).

The relationship between social trust and social capital has been widely studied in the context of participation in voluntary organization. According to this line of thought, voluntary organizations constitute excellent arenas for social interaction and hence they serve as generators of social trust among their members (Putnam, 1993). This view has however been disputed. Firstly, not all organizations foster positive views of other people. Considering Uslaner's (2002) distinction between particularized and generalized trust, one can easily imagine organizations that boost the former rather than the latter. For instance, the members of a football supporter club might trust each other fiercely, but it is harder to imagine them trusting the fans of rival teams. The nature of the proposed causality between membership voluntary organizations were more trusting than non-members, there was no difference between active and passive members (Wollebæck, Selle, and Lorentzen, 2001 in Rothstein, 2005). This implies that the proven correlation might be entirely

due to self-selection, that trusting people choose to interact with others in organizations, rather than an effect of the organizational interaction itself.

2.3 THE INSTITUTIONAL PERFORMANCE MODEL

The third school of thought argues that trust in institutions is a product of their public perception. According to this view, confidence in public institutions is the product of their performance much in the same way that estimations of trustworthiness of others are based on experiences of how others behave (Hardin, 1996). La Porta (1997) finds social trust to correlate with judicial efficiency, bureaucratic quality (autonomy from political pressure, ability to govern) and corruption. The effect of corruption, or rather perceived corruption, on institutional trust is further supported by Uslaner (2002).

Rothstein (2013) specifies trust in institutions as the product of partly preconceived notions. Based on imperfect information, individuals make inferences regarding the trustworthiness of public officials. According to Rothstein, these inferences are based on three pathways that together make up the so-called corruption–trust theory:

- Inference from public officials. If officials are known to be corrupt, then people place no confidence in them.
- Inference from people in general. If people think officials are corrupt, then they must become corrupt themselves to make due.
- III) Inference from the individual. If people think officials are corrupt, and they therefore engage in corruption themselves, then the individual must also participate in corruption to get by.

All the inferences above result in the individual concluding that most people cannot be trusted. Thereby, Rothstein argues, there is not only a relationship between corruption and institutional trust, but also between corruption and social trust.

A distinction can be made between exposure to two different types of public institutions: *selective* and *universal* (Rothstein, 2005). Selective forms of public service are distributed to individuals after a selection process, while universal are available to everyone regardless of personal characteristics. Selective forms of public service are prone to suspicion of cheating and corruption, and hence mistrust toward institutions arises more easily when they are selective in their nature. Rothstein and Stolle (2001) find that people who are heavily exposed to selective institutions tend to be more distrusting toward others than those who are exposed mainly to universal institutions.

3 RESEARCH DESIGN

3.1 RESEARCH QUESTION

Although there is substantial research on the creation and drivers of trust, there is a lack of standardization, particularly within the field of institutional trust. Crucially, there are several competing but not necessarily contradictory theories, ranging across a wide field of disciplines such as psychology, sociology, and economics. Empirical findings are highly diverse and the lack of consensus among researchers makes drawing any conclusions about the causes of varying levels of trust difficult.

Also, the majority of research investigates to which degree factors affect trust. We argue that it might be just as interesting, and perhaps even crucial, to reexamine the entire approach and seek an understanding of whether current theories even explain trust at all. The purpose of this paper then, is to evaluate existing theories and to create a revised framework for further research. The overarching research question examined in this paper is therefore formulated as follows:

Which theories contribute to the understanding of differences in institutional trust between countries, and under which circumstances do they make a contribution?

3.2 Method

CHOICE OF STATISTICAL FRAMEWORK

The by far most used method in previous research about trust is regression analysis. It is often accompanied by the assumption that the factor in question has an individual, linear relationship with the outcome regardless of the setting in which it exists. Nevertheless, it can be argued that trust, a complex human emotion, could be unsuitable for examination using linear methods. We theorize that trust should in its very nature exhibit complex causality, meaning that factors have an effect only in certain circumstances rather than there being a linear, universal relationship between conditions and trust.

Furthermore, we believe that due to the wide range of theories and the diversity of the underlying empirical findings, there is a need for a compilation and examination of which factors affect trust at all, not only to what degree they might have an effect. Therefore, a regression analysis, which would typically indicate how much a factor affects the outcome on average, might not be the optimal method to answer our research question.

QUALITATIVE COMPARATIVE ANALYSIS

An effective tool in analyzing complex causal effect is set-theory. It involves differentiating between *necessity* and *sufficiency*. Sufficiency implies that a condition (in regression analysis referred to as a variable) is sufficient on its own to materialize into the presence of an outcome. On the other hand, it is does not have to be the only way said outcome can materialize. For example, assume that buying ice cream makes you happy. Then, buying ice cream is sufficient for happiness. Nevertheless, it is unlikely to be the only way you can achieve happiness, and as such it is not necessary for happiness.

Utilizing many of the principles of set-theory, *Qualitative Comparative Analysis* (QCA), originally developed by Charles Ragin in 1987, is a statistical method that "bridges qualitative and quantitative analysis" (Ragin, 2008, p. 3). It allows for the sorting and categorization of large amounts of data, but also requires thorough knowledge of related theory and careful, qualitative examination.

The main argument for the application of QCA in examining institutional trust is the fact it does not require assumptions about the nature of the underlying population's distribution. This allows for analysis of causal inference even with a small number of observations, and is thus very useful when examining cross-country differences. For most statistical methods, a low number of observations leads to unstable and statistically insignificant results. In QCA, on the other hand, relatively few observations is often an advantage as it enables the application of qualitative knowledge on a case-to-case basis.

Katz, Vom Hau, and Mahoney (2005) evaluate the use of QCA compared to regression analysis in an attempt to understand the causes of the great diversity of wealth between countries in Spanish America. When using the latter (regression analysis), they find issues of multicollinearity, but conclude that this does not negatively affect results of QCA. This is an interesting point in the light of the complicated causal relationships of the components of trust. In summation, they note that with regression analysis, one is mostly concerned "with the 'effects of a cause' and less with the 'causes of an effect'" (p. 569). With the purpose of this paper being to find true causal relationships within a field where much research only point to correlation of factors, this provides a strong argument for the application of QCA.

In our case, where we compare several competing theories, QCA provides a useful framework. As argued by Rihoux and Ragin (2009, p. 10), "if several competing theories try to explain the same result, QCA techniques will quickly disqualify the theories that are unable to discriminate correctly

between cases with and without the outcome under study." As such, we hope to learn not only what causes trust, but also what does not.

Further distinctive traits of QCA compared to other methods lay in its assumptions (Berg-Schlosser, et. al., 2008). Firstly, additivity, that each independent variable has its own independent impact on the dependent variable, is not assumed. Assuming additivity for the creation of trust can, in light of the discussion in Section 2, be considered an overly simplistic approach. Also, causal uniformity is not assumed, meaning that a factor can affect trust positively in some circumstances, negatively in other circumstances and even not at all. Here, circumstances refer to the way in which a factor is combined with other factors.

As such, QCA allows for so-called causal complexity, that is, "causal conditions that are insufficient but necessary parts of causal recipes which are themselves unnecessary but sufficient." (Ragin 2008, p. 3). This is best explained by an example: Let "X" denote the outcome. The factors A and B form the combination AB, while C and D form the combination CD. Furthermore, let AB and CD be causally related to X. Then, the factor A would be an insufficient but necessary part of a sufficient but unnecessary combination. Factor A is a needed to form AB, but it is not enough to form AB. AB is enough to achieve X, but it is not the only way.

In fact, QCA allows for four different types of causal connections to be assessed:

- I) Conditions that are *necessary* for the outcome, meaning that the outcome cannot exist without the condition being present.
- II) Conditions that are *sufficient* for the outcome, meaning that the presence of the condition is proof of the existence of the outcome.
- III) Conditions that are "insufficient but necessary components of an unnecessary but sufficient cause" (*INUS* causes) for an outcome. This seemingly complex relationship is best understood through an example. Assume that the outcome is good dental health, and that this can be achieved through *either* brushing *or* flossing. Furthermore, the ability to brush depends on having *both* toothpaste *and* a toothbrush. Then, toothpaste is a necessary but insufficient part of brushing (you cannot brush without toothpaste, but toothpaste itself is not enough to brush), which is in turn a sufficient but unnecessary cause of good dental health (brushing is enough for having good dental health, but it is not necessary as one could floss instead and still achieve the desired outcome).
- IV) Conditions that are "sufficient but unnecessary components of an insufficient but necessary cause" (*SUIN* causes) for an outcome. Again, this is best understood by an

example. Assume that the outcome is good dental health once more, only this time, this is only achieved through brushing *and* flossing (furthermore, toothpaste is no longer required for brushing). Then an electrical toothbrush would be a sufficient but unnecessary component (as brushing can be achieved with *either* an electrical *or* a manual toothbrush) of an insufficient but necessary cause of good dental health (brushing is required for good dental health, but it is not sufficient as flossing is also required).

There are several variants of QCA, the most popular being crisp-set QCA (csQCA) and fuzzy-set QCA (fsQCA). csQCA uses binary variables to discover patterns in the dataset. As such, variables are coded as present (1) or absent (0). fsQCA, on the other hand, includes more "fuzzy" thresholds, allowing observations to be partially present or absent.² Although the fuzzy thresholds of fsQCA provides an advantage over csQCA, it makes the analysis less manageable and requires even more in-depth theoretical and technical knowledge than csQCA. We therefore apply csQCA in this thesis to be able to realistically complete and interpret the analysis within the scope of our knowledge.

DATASET

The majority of the data used in the analysis originates from the *European Values Study* (EVS), which has inquired Europeans about their values, beliefs and opinions since 1981. It is similar in its approach and structure to the *World Values Survey* (WVS), commonly used in research regarding trust, but the EVS is generally more detailed. As previously mentioned, QCA is a particularly effective approach when the sample size is relatively low. Therefore, in order to reduce the number of countries to a manageable size, we decide to focus on European countries and to apply the EVS instead of the WVS.

In order to ensure that conclusions drawn from the analysis are up to date, we apply the latest wave of the EVS, collected during 2008 and 2009³. Also, it is the only one to include every country in Europe, minimizing the risk of sampling bias. One concern with this particular wave is the potential implications of the financial crisis of 2008 on institutional trust. There are studies stating that this had a major effect on the trust put in financial institutions (Roth, 2009b). However,

 $^{^{2}}$ This is achieved by introducing a number of thresholds to control for partial presence or absence. For instance, if four thresholds are used, this would entail the categories perfectly absent (0), more absent than present (0.25), more present than absent (0.75), and perfectly present (1).

³ There has been four EVS waves to this date: Wave 1 (1981), Wave 2 (1990), Wave 3 (1999) and Wave 4 (2008).

comparing the last wave to EVS data from before the crisis reveals no dramatic effects of the financial crisis on the factors we examine in the thesis.

Another potential concern is the fact that data was collected over two years, meaning that some answers are from 2008 and others are from 2009. Nevertheless, because trust in general has proven to be quite stable over time (Bjørnskov, 2006), we disregard time and treat answers from different years the same. This principle also pertains to other measures taken from other sources than the EVS. The EVS conducted in 2008–2009 contains 66 281 observations, spanning over 46 countries, disputed territories, and areas. The number of individual observations per country ranges from 500-2 384, with a mean of 1 440.891 observations per country.

With the theoretical framework surrounding the determinants of trust varying in the use of variables, the EVS is complemented with other datasets. The Gini coefficient, a widely used and well-known measure of income inequality, is collected from the World Bank database. This introduces an issue with missing observations as the Gini coefficient data for 2008–2009 only includes information about internationally recognized countries and not territories and areas included in the EVS such as Northern Cyprus, Northern Ireland, and Kosovo⁴. As QCA is unable to handle missing observations, countries without inequality data (and/or other measures included in the analysis) are removed. A common theme of the countries dropped from the dataset is that their independence is new or disputed. This might, in itself, be interesting in the perspective of trust. A territory wanting to gain independence might be more inclined to distrust current institutions. In fact, it might be the very reason for such a strive. It is to be noted that disregarding countries that most likely are subject to such complex political issues could mean a loss of important information within the data. However, in the context of QCA, having 40 cases is considered a large sample, enabling generalization even with the loss of variation by restricting the number of countries on such grounds.

Transparency International provides yearly estimates of the level of corruption in countries across the world, sourcing country ratings data from different analytical institutions⁵ and compiling this

⁴Although Kosovo declared independence in 2008, this was not recognized by the International Court of Justice until 2010.

⁵ In 2008, these included: Asian Development Bank, African Development Bank, Bertelsmann Foundation, World Bank, Economist Intelligence Unit, Freedom House, Global Insight, Institute for Management Development International–World Competitiveness Center, Merchant International Group, Political & Economic Risk Consultancy, and World Economic Forum.

information in the form of the *Corruption Perceptions Index*. This provides a well-suited measure of the theory regarding the effects of corruption on trust in public institutions, and the index for relevant countries from 2008-2009 is therefore added to the dataset.

GDP per capita has previously been frequently used to assess the wealth of a population, relating to the notion that poor people have more to lose and therefore are more prone to distrust and cautious behavior. This data is also collected from the World Bank database for the years in question.

SELECTING OUTCOME AND CONDITIONS

OUTCOME: CONFIDENCE IN THE CIVIL SERVICE

In QCA, the "dependent variable" is called the outcome, while "independent variables" are called conditions. This is to emphasize the distinction from conventional, quantitative measures and the fact that conditions are merely attempts to assign values of presence or absence to complex and abstract real-life situations with often unquantifiable qualities.

An issue when studying institutions within the field of trust is that some are representative and potentially could be subject to unpredictable and undesired sources of variation. The trustworthiness of the parliament, for instance, can reasonably be considered a function of the trustworthiness of politicians. As such, the behavior of a single politician could potentially affect the attitude toward the entire parliament, and this can shift dramatically within a short period of time. Another argument is that the view of parliament is likely to be subject of political bias. We theorize that people tend to trust certain political institutions more when their preferred political party is in power. Following this logic, survey answers regarding trust in representative institutions would yield a flawed representation of institutional trust. As a result, we focus on nonrepresentative institutions, consisting of individuals to whom the citizens of a country lack personal relationships. Compared to politicians, who have a direct public relationship with members of society, officials of non-representative institutions are not public themselves. Unlike the government, tasked with the decisive power of society, these institutions are meant to carry out policy decided by others, and are thereby operational in their purpose. Examples include the armed forces, police, judicial system, the educational system, and social security. Although the EVS includes confidence in such institutions, there is no exhaustive measure of this concept and a proxy

In 2009, these included: Asian Development Bank, African Development Bank, Bertelsmann Foundation, World Bank, Economist Intelligence Unit, Freedom House, Global Insight, Institute for Management Development International–World Competitiveness Center, and Political & Economic Risk Consultancy.

is needed. The selection of this proxy is based on the definition of non-representative public institutions. To be suitable, it should be widely regarded as a part of *the system*, a representation of society's institutions, and consist of individuals recruited on merit.

The civil service is consistent with all of the requirements posed by the definition of nonrepresentative public institutions. It comprises of several different branches of public administration and is based on merit recruitment. Essentially, it is an umbrella term for a majority of the institutions relevant to this discussion. The outcome used in our analysis then, is high or low confidence in the civil service. Based on common practice within the field of trust, we treat "confidence" and "trust" as interchangeable notions.

SELECTING PLAUSIBLE CAUSAL FACTORS

As previously mentioned, the available research on institutional trust is limited. However, as outlined in Section 2, there seems to be a relationship between different types of trust. It is therefore common practice among researchers to use factors that have been established to effect one type of trust when attempting to explain another. In selecting plausible causal factors for further analysis, we apply a similar approach. In these cases, the selection criteria is that the argued causal link is intuitively sound also in the context of institutional trust and that there is a relatively high degree of consensus about its effects on other forms of trust.

The purpose of the following section is not only descriptive, it also serves to assure *construct validity*, the ability of an indicator to accurately represent the concept or notion it is supposed to. This is an important issue concerning QCA, where the model should be accurately designed before any tests are undertaken. Although it is theoretically possible to test an indefinitely large number of unsubstantiated theories with QCA, the method is most effective when it is carefully designed with theory in mind (Befani, 2016). To be relevant then, the selected conditions should be reasonable in light of the prior knowledge of the determinants of trust.

Selecting conditions entails restricting the large number of potential factors in evaluating theories on the formation of trust. The following requirements are applied to identify suitable conditions:

- I) There should be relatively high consensus about the relevance of the theoretical frameworks.
- II) They should be realistic given our access to data.

The result is a revised version of the theoretical frameworks introduced in Section 2. Given the requirements above, our analysis makes use of three different theoretical sources of trust: the individual, the social and cultural context, and the perceived performance of relevant institutions.

Source I: The Individual

Life Satisfaction

Evaluating theories on generalized trust, Delhey and Newton (2003), find relevance in the influence of individual, subjective measures such as life and job satisfaction, as well as happiness. Perhaps most interesting is that the effects vary between different types of countries, meaning that high-trusting societies are effected to a different degree by these factors than low-trusting ones, indicating a form of complex causality. In this thesis, Delhey and Newton's findings are accounted for by a direct question in the EVS regarding how satisfied respondents are with their lives.

Source II: Social and Cultural Context

Generalized Trust

There is an established correlation between generalized and institutional trust on an aggregate level (Newton and Norris, 1999). If an individual is trusting toward other people, it is likely that said individual exhibits a generally trusting behavior applicable to institutions as well. Although this assumption might be perfectly reasonable on an aggregate level, personality-based factors could cause unpredictable variation when concerning individual cases that is difficult to account for. The definition of generalized trust used here is the same as the widely used approach in contemporary research, namely variations of answers to the question "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" in the EVS. However, this question has received some critique for not being specific enough to be effectively utilized as a measure of generalized trust. When answering the question, it is argued, the interviewer cannot be certain of what group of people the interviewee has in mind (Bjørnskov, 2006). If respondents are thinking about people they know, then the question regards particularized trust, but if they are in fact thinking about people in general (people who they do not know), then it is about generalized trust. As cited in Bjørnskov (2006, p. 3), however, Knack (2001) finds that this ambiguity might not be as troublesome as some claim: "Knack (2001) for example notes that in an experiment in which a number of wallets were dropped in cities around the world, the trust scores were good predictors of how many wallets in each country were returned with the contents intact." The stability of the measure has also been cause of some concern, but Bjørnskov (2006) finds that over time, the level of generalized trust seems to be rather stable.

Social Polarization

Originating from the idea that diversity reduces cooperation, social polarization is often mentioned as a determinant of trust. Included in Delhey and Newton's (2003) well-being theory as a crossing of individual factors and social context, the interpretation can be twofold. Firstly, people with more to lose from engaging in a transaction, that is, people who are less off and therefore risk more by doing so, are thought to be less trusting as a consequence. Secondly, heterogeneity in a population is thought to decrease the level of trust as diversity increase social distance between parties. Bjørnskov (2006) finds that social polarization, driving members of society further away from each other, has an important negative effect on generalized trust. Most evident is the effect of income inequality, which is relevant even when performing tests using instrumental variables. As these findings are supported by a range of other studies (Knack and Keefer, 1997; Zak and Knack, 2001; Knack and Zak, 2003; Uslaner, 2002), social polarization pose a viable factor to be examined with the relationship between generalized and institutional trust in mind. Specifically, Bjørnskov (2006) turns to the Gini coefficient, a popular measure of income inequality. As this paper studies cross-country differences, the implication will primarily be the aggregate effect of income inequality embedded in society.

GDP per Capita

GDP per capita is popular in research on generalized trust (examples include Bjørnskov, 2006; Knack and Keefer, 1997; Zak and Knack, 2001; Delhey and Newton, 2005). Although there is a proven positive correlation between the two, the direction of the causality is more disputed. With GDP per capita used as a measure of a population's well-being, and considering well-being an important factor in the creation of trust, one can reasonably expect GDP per capita to be a sensible determinant of trust. The relationship is, however, quite complex as trust aids economic activity, and successful economic activity aids trust (Delhey and Newton, 2003). This implies that in order for trust to exist, for people not to resort to suspicious attitudes toward each other, there has to be a certain amount of well-being embedded in the social context. Trust does not occur in a vacuum. One explanation, as outlined in the social polarization section, could be that of relativity, meaning that someone who is rich has relatively less to lose compared to someone who is poor. Nevertheless, GDP per capita, and the implication that it might have for the social context individuals exist in, can still be examined as a trait of a specific society.

Source III: Perceived Institutional Performance

Satisfaction with the System

Institutional performance is difficult to quantify. Previous research makes use of several different proxies. Interpreting trust as an expectation of the future actions of an opposing player (in this

case an institution), the rationale is that people form these expectations based on historic performance. Although the EVS does not ask respondents about the nature of their experiences with institutions directly, we consider the following question to capture the notion of systemic performance rather well: "People have different views about the system for governing this country. Here is a scale for rating how well things are going: 1 means very bad; 10 means very good." We argue that respondents answer this questions based on how they perceive the institutions to be functioning. This should in turn be based on their experiences with said institutions, following the reasoning of Hardin (1996) who argues that the trustworthiness of institutions is a function of their perceived performance. What matters is not the performance of institutions in terms of objective criteria, but rather how the people they affect perceive them to be working. Therefore, we deem it reasonable to use the abovementioned question to capture the notion of experiences with (perceived) institutional performance. It is however worth mentioning that because of the lack of representation in previous research, this measure cannot be validated via past empirical evidence to the same degree as other conditions used in this thesis. How individuals rate the success of governance in a country is likely to correlate with the perceived performance of institutions, and as such should function as an adequate proxy.

Due to the subjective nature of the measure, it could potentially be the victim of political bias. It may possibly depend on how the interviewee perceive the matter of the question. If it regards contemporary success of the system, political views could surely have an impact. However, if the subject is considering the broader governance of the country, i.e. from an extended perspective, then this effect could be mitigated, something we cannot account for.

Corruption

The Corruption Perceptions Index is frequently used by researchers within the field of institutional trust to measure the performance, perception, and the level of trustworthiness that can be attributed to a country's institutions. La Porta (1997) provides empirical evidence of this notion. As discussed by Uslaner (2002) and Rothstein (2013), a high degree of corruption, or perceived institutional corruption, implies low confidence being placed in them. Potential political bias is a worry with all perception measures. Regarding corruption, one could easily imagine that a citizen's perception of governmental corruption would be influenced by whether or not he or she supports that government. However, the CPI should be relatively free from this form of bias as it is constructed based on expert and/or analyst assessment.

Selective Institutions

There are countless types of institutions embedded in society. Rothstein (2003) makes use of a distinction between those whose interaction with members of society are selective in their nature, and those who are universal. Rothstein and Stolle (2001) find that those who are heavily dependent on public service are more likely to exhibit low-trusting behavior. The reason is thought to be that selective forms of public service are prone to suspicion of cheating and corruption. This becomes highly relevant in case of the civil service. If we develop this argument further, we should expect to find that exposure to selective public service reduces trust in institutions, while exposure to universal service should increase it.

Post-Communism

The sudden and chaotic collapse of the Soviet Union has been empirically shown to have affected the level of confidence its former citizens place in their societies' institutions. Several economists have agreed on the negative effects of unequal income distribution before and after the collapse on trust in a society (Bjørnskov, 2006). Pehlivanova (2009) further points to such countries being characterized by particularized trust. As such, including post-communism might provide an interesting explanation for differences in institutional trust between countries.

MODEL SPECIFICATION

The analysis of plausible causal pathways is finalized in the model specification. The theoretical models and effects highlighted previously in the section are summarized in Figure 3.1. This theoretical framework lays the foundation for all interpretations of results.

Figure 3.1

The Theoretical Framework of the Thesis



CALIBRATION

After specifying the model and determining the empirical basis, it is necessary to appropriately calibrate the conditions for use in further statistical analysis. Calibration, in the case of crisp-set QCA, is the process of converting reality into dichotomous values, i.e. 1's (presence) and 0's (absence). This can be achieved through two strategies, *theory-consistency calibration strategy* and/or *empirical coverage calibration strategy*. Theory-consistent calibration, in which cases are coded based on extensive theoretical case-by-case knowledge, is generally considered superior to empirical coverage calibration, in which cases are classified as 1's or 0's based on the relative statistical relationships between their underlying variables.

When analyzing the plausible causal factors however, we find that because of the limited use of QCA within the field of trust, there is little to no theoretical guidance for a theory-consistent calibration. Therefore, an empirical coverage calibration strategy is pursued.

Examining the distribution of answers to questions⁶ in the EVS, we find that the average answer scores to several questions used when developing plausible causal factors fall far away from the middle of the answer ranges. For example, when comparing the overall life satisfaction across European countries, we find an approximate skewed normal distribution. The question this condition is based on asks respondents to rate how satisfied they are with life in general from 1 (lowest) to 10 (highest). This theoretically implies that the normal distribution curve should be centered on 5.5 if the "average" person was "decently" happy. Then, it would be intuitive to classify countries exhibiting average answer scores above 5.5 as "satisfied on average" (1) and countries below 5.5 as "unsatisfied on average". However, this is not reflected in the data as the actual mean of answers when pooling all countries is approximately 7. If we define "unsatisfied" as being below the theoretical average of 5.5, then the population in all European countries except Georgia would be classified as "satisfied on average" (1).

This lack of variation would of course provide little useful information when examining whether different levels of life satisfaction can explain different levels of trust in the civil service. This tendency is shared by most conditions, and as such the best possible way to differentiate between presence and absence seems to be the following:

- I) Create a European average based on all individual observations,
- II) Create country averages, and

⁶ For specific questions, see Appendix 9.2

III) Define a condition as "present" if a country's average lies above the European average calculated in item I) and absent if below.

THE OUTCOME: CONFIDENCE IN THE CIVIL SERVICE

In the EVS, respondents are asked to state the level of confidence they place in the civil service of their country on a scale from 1-4, 4 indicating a great deal of confidence. Following the previously mentioned guidelines for empirically-based calibration, we create a European mean based on all individuals in the dataset (2.408555). Then, confidence in the civil service is present (1) if a given country's average is above the average of the European population and absent (0) otherwise.

On average, the country's population exhibits a higher degree of confidence in the civil service than the European

mean

$$ITRUST = \begin{cases} = 1 \ if \geq European \ mean \\ = 0 \ if < European \ mean \end{cases}$$

SOURCE I: THE INDIVIDUAL

Life satisfaction

This condition is based on a question in the EVS where subjects are asked to rate how satisfied they are with life in general. Originally coded 1-10, with 1 being the lowest and "Dissatisfied", and 10 being the highest and "Satisfied", we calculate the European mean (6.995771). Presence (1) of the condition implies that the country average lies above the European mean, and absence (0) that the country average lies below the European mean.

On average, the country's population exhibits a higher degree of life satisfaction than the European mean

$$SAT = \begin{cases} = 1 & if \ge European mean \\ = 0 & if < European mean \end{cases}$$

SOURCE II: SOCIAL AND CULTURAL CONTEXT

Generalized Trust

Social or generalized trust is generally understood as the degree to which individuals believe that people in general can be trusted. From the EVS, we use the yes/no-answers to whether or not people in general can be trusted and calculate the European mean (0.2990322). Presence (1), implies that the country average lies above the European mean and absence (0) that the country average lies below the European mean.

The country has an above average proportion of the population exhibiting social/generalized trust compared to the

European mean

$$STRUST = \begin{cases} = 1 & if \ge European mean \\ = 0 & if < European mean \end{cases}$$

Social Polarization: Gini Coefficient

The Gini coefficient (coded 0-100, with 0 implying perfectly equal distribution and 100 implying one person owning everything), a common measure of income inequality in a country, is used to calculate the European average inequality score (31.792). Then, an above average level of income inequality in a country implies that the condition is present (1), otherwise it is absent (0).

The country has an above average level of income inequality compared to other European countries

$$INEQ = \begin{cases} = 1 & if \ge European \ country \ mean \\ = 0 & if < European \ country \ mean \end{cases}$$

GDP per capita

We create a European average (28 836.69), and state presence (1) if the country has a GDP per capita above this, and absence (0) if below.

The country has an above average level of GDP per capita compared to other European countries

 $GDPC = \begin{cases} = 1 \ if \geq European \ country \ mean \\ = 0 \ if < European \ country \ mean \end{cases}$

SOURCE III: PERCEIVED INSTITUTIONAL PERFORMANCE

Satisfaction with the System

Considering the previous argument regarding satisfaction with the system and perceived institutional performance, a condition is coded based on answers to an EVS question about how satisfied the respondent is with how the system is working. Coded 1-10, with 10 being the most satisfied, the European average (4.760125) is calculated. Presence (1) is implied the average answer of a country lies about this number, while absence (0) implies the opposite.

On average, the country's population exhibits high satisfaction with the system compared to the European mean

 $SYS = \begin{cases} = 1 & if \ge European mean \\ = 0 & if < European mean \end{cases}$

Corruption Index

The corruption index (coded 0-10, 0 being highly corrupt and 10 being very clean), yearly updated by Transparency International, provides the basis for this condition. The European average (5.625581) is calculated, and presence (1) is then implied if the country has a corruption index score below this average, hence that it is more corrupt than the average European country. Absence implies that the corruption index score is above the European average.

The country has a high level of corruption compared to other European countries

$$CORR = \begin{cases} = 1 \ if \le European \ country \ mean \\ = 0 \ if > European \ country \ mean \end{cases}$$

Selective Institutions

Based on a question about whether or not the respondent received social benefits the last five years, the answers are used to calculate the proportion of European citizens who has received social benefits recently (0.1096011). If an above average part of the population of a country has received social security in the last five years, then the condition is present (1). If not, it is absent (0).

The country has an above average proportion of the population having received social security in the last five years compared to the European mean

 $SSEC = \begin{cases} = 1 \ if \ge European \ mean \\ = 0 \ if < European \ mean \end{cases}$

Post-Communism

Countries who were part of the Soviet Union, or were defined as communist in their constitution at any point, are coded as post-communist (1). Otherwise, they are coded to 0.

The country was formerly communist

$$PCOM = \begin{cases} = 1 \text{ if } post - communist country} \\ = 0 \text{ if } not \end{cases}$$

4 **Results**

4.1 ANALYSIS OF NECESSITY AND SUFFICIENCY

NECESSITY ANALYSIS

The goal of the necessity analysis is identifying conditions, or configurations of conditions, that are necessary for a particular outcome to transpire. In other words, if a condition or configuration is perfectly necessary, then the outcome never transpires without its presence. Consequently, observing the outcome in a case is proof that the perfectly necessary condition or configuration is also present in the case. QCA allows for two types of configurations:

- I) Conjunctions: the union of two or more sets of cases by the operator AND. In other words, a conjunction of two conditions includes the set of cases simultaneously exhibiting both conditions in the conjunction. For example, the conjunction of educated, rich and intelligent people is the set of people who are educated AND have a lot of money AND are intelligent. In conventional algebra, this would be denoted by the symbol Ω .
- II) Disjunctions: the union of two or more sets of cases by the operator OR. In other words, a disjunction of two conditions includes the set of cases exhibiting either of the conditions in the disjunction. For example, the disjunction of educated, intelligent, and rich people is the set of people who are educated OR intelligent OR have a lot of money. In conventional algebra, this would be denoted by the symbol U.

In the real world, and especially when considering a large number of cases, perfect necessity is quite rare. Then, the necessity parameters of fit, necessity-*consistency* and necessity-*coverage*, reveal important information about the accuracy and relevance of the necessity of a condition or configuration, potentially allowing for generalization even though no perfect necessity is observed.

The necessity parameters of fit are derived from the following formulas:

$$Necessity - consistency = \frac{No. of \ successful \ cases \ in \ which \ the \ condition \ is \ observed}{No. of \ successful \ cases}$$

$$Necessity - coverage = \frac{No. of successful cases in which the condition is observed}{No. of cases in which the condition is observed}$$

As such, necessity-*consistency* can be interpreted as the degree to which a condition or configuration is necessary for the outcome to transpire. If the necessity-consistency equals 1, the condition or configuration is present every time the outcome is present. In other words, the outcome cannot

be present without the condition or configuration simultaneously being present. If the necessityconsistency equals 0.9, the condition or configuration is present in 90 % of the cases with successful outcomes.

Similarly, the necessity-*coverage* can be interpreted as the degree of non-triviality of the condition or configuration. If the necessity-coverage equals 0.5, 50 % of the cases with the conditions will have successful outcomes and 50 % will have unsuccessful outcomes. Observing the condition or configuration then reveals no useful information about whether or not the outcome is present, and as such the necessity of the condition or configuration is considered perfectly trivial.

To summarize, a condition or configuration can be perfectly necessary for the outcome, yet also perfectly trivial for the analysis as its presence reveals no information about the presence or absence of the outcome. For instance, being human is perfectly necessary for speaking French. However, merely observing a human reveals no information about whether or not he or she speaks French, and therefore being human is trivial for speaking French. In other words, if we claim that a condition or configuration is necessary for the outcome to transpire, consistency can be considered the accuracy of that claim while coverage represents its relevance in answering the research question.

The necessities of the individual conditions are calculated and outlined in Table 4.1. This allows for several interpretations. Firstly, social trust is individually neither necessary nor informative. It is as necessary for the outcome as for the lack of outcome⁷, and observing social trust reveals no useful information about the presence or absence of the outcome⁸ for the analysis. It is an early indication that social trust might not be as important as often suggested in previous research, although this argument should be further, empirically strengthened. On the other hand, the claim that high life satisfaction is necessary for the outcome seems both accurate and relevant at first sight. Among the countries with high confidence in the civil service, there are nearly three times as many countries in which the population is satisfied with the system as there are countries in which the population is dissatisfied.

 $^{^{7}}$ A necessity-consistency of 0.5 implies that the condition is observed in 50 % of the successful cases. Given the dichotomous nature of the dataset, it naturally follows that it is observed in 50 % of the unsuccessful cases.

⁸ In fairness, it does reveal that 50 % of the countries with high social trust exhibit a high level of confidence in the civil service. However, the goal of the analysis is revealing factors influencing the presence or absence of the outcome, and as such social trust does not provide anything useful when trying to understand differences between countries.

Table 4.1

Condition	Consistency	Coverage
STRUST	0.500	0.500
SAT	0.722	0.591
SYS	0.667	0.706
GDPC	0.556	0.556
SSEC ^a	0.844	0.536
pcom ^a	0.611	0.550
corr ^a	0.667	0.632
ineq ^a	0.556	0.476

Necessity Analysis of Individual Conditions

Note. The parameters of fit are necessity-consistency and -coverage, respectively.

Conditions expected to contribute negatively to the outcome are negated in the analysis.

^a Negations are denoted by lowercase letters.

Nevertheless, none of the results in Table 4.1 exhibit an adequate degree of consistency and coverage to enable any final conclusions about necessity. Therefore, the necessity analysis is expanded by examining all possible conjunctions and disjunctions the individual condition can produce, a so-called superset analysis. Furthermore, in order to limit the number of listed configurations to those exhibiting high degrees of necessity (represented by the parameters of fit), only configurations with consistency>0.75 and coverage>0.6 are considered. This does not alter the results in any way, it merely functions as a filter in the table in order to yield an interpretable number of solutions.

Table 4.2

Configuration	Consistency	Coverage
STRUST + SYS	0.833	0.625
SYS + pcom ^a	0.833	0.600
SYS + corr ^a	0.944	0.680
SYS + GDPC	0.833	0.625

Superset Analysis of All Conditions with Thresholds

Note. The parameters of fit are necessity-consistency and -coverage, respectively.

Thresholds: Consistency>0.75 and Coverage>0.6.

^a Negations are denoted by lowercase letters.

As outlined in Figure 3.1, SYS, pcom, and corr are all used as measures of perceived institutional performance. Table 4.2 therefore implies that perceived institutional performance might be the most necessary theoretical framework. In fact, the disjunction SYS + corr is the most necessary and the most relevant configuration for the outcome, high trust in the civil service. As a result, pcom is disregarded as a measure of institutional performance in the rest of the analysis.

Based on the argument above, the following proposition can be developed from the necessity analysis:

Proposition 1: High perceived institutional performance is the <u>most necessary</u> factor for the presence of high confidence in the civil service of a country.

SUFFICIENCY ANALYSIS

Unlike necessary configurations, which are needed for the outcome to be able to transpire, sufficient configurations are the configurations with the ability to produce the outcome by themselves. Consequently, perfectly sufficient configurations are accompanied by the presence of the outcome every time they are observed in a case. A first useful step of the sufficiency analysis

is to apply De Morgan's Laws⁹ to the findings from the necessity analysis. In the context of QCA, De Morgan's Laws can be summarized as follows¹⁰:

- I) If the presence of either condition A or condition B is necessary for the presence of the outcome O, i.e. $0 \Longrightarrow A \cup B$, then A and B being simultaneously absent is sufficient for the absence of the outcome, i.e. $a \cap b \Longrightarrow o$. If it can be proven that the outcome is always accompanied by either A or B, then naturally the absence of both A and B must mean that the outcome is absent. This relationship is illustrated in Figure 4.1.
- II) If the presence of both condition A and also condition B is necessary for the presence of the outcome O, i.e. $0 \Rightarrow A \cap B$, then the absence of either A or B is sufficient for the absence of the outcome, i.e. $a \cup b \Rightarrow o$. If it can be proven that the outcome is always accompanied by A and B, then observing a case in which at least one of the two is absent naturally implies that the outcome cannot be present in the case.
- III) If the presence of either condition A or condition B is sufficient for the presence of the outcome O, i.e. $A \cup B \Longrightarrow O$, then the absence of both A and B is necessary for the absence of the outcome, i.e. $o \Longrightarrow a \cap b$. This is merely item I) approached from the opposite direction.
- IV) If the presence of both condition A and B is sufficient for the presence of the outcome O, i.e. $A \cap B \Rightarrow O$, then the absence of either A or B is necessary for the absence of O, i.e. $o \Rightarrow a \cup b$. This is item II) approached from the opposite direction.

⁹ According to Befani (2016, pp. 107–108): "DeMorgan's Law works well only when necessity and sufficiency are analysed in a supersubset sense: when these statements are made while interpreting the findings of a boolean minimisation [...] the logical symmetry often doesn't hold because of limited diversity [...]" As such, De Morgan's Laws are applied only in this part of the analysis.

¹⁰ Conventional algebraic operators are applied in the following section in order to distinguish it from the main analysis. The QCA operator + equals the algebraic U and the logical OR, while the QCA operator * equals the algebraic \cap and the logical AND.

Figure 4.1



Venn Diagram Highlighting the Principle of De Morgan's Law

Description. Any point within the two circles of A and B must be A + B (A or B). Similarly, any point within the black area must be A * B (A and also B). Consequently, any point not within the rings of A + B must be a * b (not A and also not B).

The necessity analysis highlights the almost perfect necessity (necessity-consistency=0.944) of a country having either a high satisfaction with the system or low corruption (SYS + corr) for there to be high confidence in civil service. Considering De Morgan's Law, this naturally implies that the negation of (SYS + corr), (sys * CORR) is almost perfectly sufficient for the negation of the outcome (see Equation 4.1).

Equation 4.1: { $ITRUST \Rightarrow SYS \cup corr$ } \Leftrightarrow { $sys \cap CORR \Rightarrow itrust$ }

In other words, discontent with the system in combination with high levels of corruption is sufficient for a country to exhibit low confidence in civil service. This suggests that perceived institutional performance is in fact a key differentiator between countries. Not only is it necessary for the presence of the outcome, but its absence is also sufficient for the absence of the outcome. As such, to a large degree the differences between countries in terms of institutional trust can be explained by differences in perceived institutional performance alone.

This allows us to develop a second proposition:

Proposition 2: Low perceived institutional performance results in low confidence in the civil service.

Furthermore, it is useful to compute the sufficiency parameters of fit for the conditions in our analysis (Table 4.3). The sufficiency parameters of fit are the exact opposite of the necessity parameters of fit, and are derived from the following formulas:

$$Sufficiency - consistency = \frac{No. of \ successful \ cases \ in \ which \ the \ condition \ is \ observed}{No. of \ cases \ in \ which \ the \ condition \ is \ observed}$$

$$Sufficency - coverage = \frac{No. of succesful cases in which the condition is observed}{No. of successful cases}$$

In other words, necessity-consistency equals sufficiency-coverage and sufficiency-necessity equals necessity-coverage. Although the terms consistency and coverage have opposite meanings in the sufficiency analysis, the notion of consistency representing accuracy and coverage representing relevance applies for the sufficiency analysis as well.

Table 4.3

Condition	Consistency	Coverage
SYS	0.706	0.667
STRUST	0.500	0.500
SAT	0.591	0.722
GDPC	0.556	0.556
SSEC ^a	0.536	0.833
pcomª	0.550	0.611
corr ^a	0.632	0.667
ineq ^a	0.476	0.556

Sufficiency Analysis of Individual Conditions

Note. The parameters of fit are sufficiency-consistency and -coverage, respectively.

^a Negations are denoted by lowercase letters.

The low sufficiency-consistency and sufficiency-coverage scores of STRUST further strengthens the argument, introduced in the necessity analysis, that social trust is irrelevant for confidence in the civil service. On the other hand, perceived institutional performance (represented by SYS and corr), which was shown to be highly necessary, seems to be quite sufficient for the outcome.

No condition exhibits an adequately high consistency to allow particularly strong assumptions of sufficiency. A subset analysis is therefore required to allow for unions of conditions that might together exhibit stronger sufficiency (Table 4.4). Consistency and coverage threshold (0.7 and 0.5, respectively) are set applying the same logic as in the necessity analysis.

Table 4.4

Configuration	Consistency	Coverage
SYS	0.706	0.684
ssec ^a * corr ^a	0.714	0.556
SAT * ineq ^a	0.714	0.556

Subset Analysis of All Conditions with Thresholds

Note. The parameters of fit are sufficiency-consistency and -coverage, respectively.

Thresholds: Consistency>0.7 and Coverage>0.5.

^a Negations are denoted by lowercase letters.

The subset analysis further strengthens the notion of a strong causal relationship between trust in civil service and perceived institutional performance (represented by SYS and ssec * corr). However, the high sufficiency-coverage of the conjunction SAT * ineq also implies that high confidence in civil service may transpire through a second causal pathway, a combination of favorable social context (low income inequality) and individual factors (high life satisfaction).

The conclusions drawn from the sufficiency analysis allow for the development of a third and final proposition of the necessity- and sufficiency analysis:

Proposition 3: High perceived institutional performance is sufficient in most cases for the emergence of high trust in the civil service. Furthermore, confidence in civil service might also emerge in the presence of low income inequality and high life satisfaction.

4.2 TRUTH TABLE DESIGN

Although the necessity- and sufficiency analysis yields several interesting results, the analysis can be further strengthened by turning to the most powerful parts of the QCA toolkit, the truth table analysis and Boolean minimization. The truth table groups all cases with the same configuration of conditions together. Each configuration with a positive outcome constitutes a causal pathway, and as such the raw truth table represents the complete answer to which combinations of conditions result in the outcome. This is an exhaustive list, there are 2^n possible configurations for n conditions. Through Boolean minimization algebra, this list can be substantially shortened. For example, if ABC \rightarrow OUTCOME and AbC \rightarrow OUTCOME, then whether B is present or absent is considered superfluous to the presence of the outcome. Therefore, the two configurations are merged into a single causal pathway: AC \rightarrow OUTCOME.

Careful selection of causal conditions to be included is important when developing the initial truth table. More conditions allow for more differentiation between countries, but on the other hand, the solution becomes harder to interpret. It is therefore reasonable to start with a limited number of conditions and potentially expand the list further on if it is deemed necessary. We interpret corruption and satisfaction with how the system is working to be the most influential parameters of institutional performance based on the necessity and sufficiency analysis above, and as such pcom and ssec are excluded from the initial truth table. Moreover, GDP per capita was interpreted to be a stronger measure of social context than ineq, and as such the latter is chosen instead of the former to be included in the initial truth table (Table 4.5).

Table 4.5 groups the cases after their assigned dichotomous values to the conditions *social trust, life satisfaction, satisfaction with the system, corruption*, and *GDP per capita*. There are five "1 configurations" (configurations with positive outcomes, denoted [1]), seven "0 configurations" (configurations with negative outcomes, denoted [0]) and three contradictory configurations (configurations associated with both positive and negative outcomes, denoted [C]).

The contradictory configurations have to be resolved to enable an accurate standard analysis later on. This can be achieved through the following means (Rihoux and Ragin, 2009):

- I) Examine counterintuitive configurations to uncover potential calibration issues.
- II) Add more or replace conditions to the model to increase differentiation between cases.
- III) Check for dichotomization issues.
- IV) Reconsider the outcome variable.
- V) Recode all contradictory configurations to negative outcomes, denoted [0]
- VI) Recode contradictory configurations based on frequency criteria

		CAUSA	LIQNOD T	SNOI		OUTCOME	
cases	STRUST	SAT	SYS	CORR	GDPC	ITRUST	Inclusion
ALB, ARM, BULG, HUN, LAT, LITH, MOLD, ROM, SERB, UKRA	0	0	0	1	0	C	1/10
DEN, FIN, IRE, LUX, NETH, NOR, SPA, SWE, SWI	1	1	1	0	1	C	6/9
AUS, BELG, ICE, UK	1	1	0	0	1	C	2/4
GEO, RUSS, TUR	0	0	1	1	0	1	3/3
MON, SLOVAK	0	1	1	1	0	1	2/2
CRO, POL	0	1	0	1	0	0	0/2
SLOVEN	0	1	0	0	0	1	1/1
FRA	0	1	0	0	1	1	1/1
CYP	0	1	1	0	1	1	1/1
EST	1	0	0	0	0	1	1/1
PORT	0	0	0	0	0	0	0/1
GRE	0	0	0	1	1	0	0/1
GER	1	0	1	0	1	0	0/1
BELA	1	0	1	1	0	0	0/1
CZCH	1	1	0	1	0	0	0/1
ITA	1	Ţ	0	1	1	0	0/1

Table 4.5: The Initial Truth Table

Counterintuitive configurations are configurations including only factors expected to affect the outcome positively, yet including cases with negative outcomes, or vice versa. One out of ten cases in the $[0, 0, 0, 1, 0]^{11}$ configuration is accompanied by a positive outcome. Also, three out of nine cases in the $[1, 1, 1, 0, 1]^{12}$ are accompanied by a negative outcome. Examining the raw dataset, the following counterintuitive cases are identified:

Table 4.6

			OUTCOME			
Country	STRUST	SAT	SYS	CORR	GDPC	ITRUST
Latvia	0	0	0	1	0	1
Finland	1	1	1	0	1	0
Netherlands	1	1	1	0	1	0
Spain	1	1	1	0	1	0

Counterintuitive Cases

Note. Corruption is expected to negatively impact the outcome. 0 thus implies expected positive contribution.

A natural first step is examining whether any of the cases are close to the calibration cut-off. As previously mentioned, we consider dichotomous calibration to be the single largest disadvantage of csQCA, and as such we carefully consider whether cases that are close to the threshold, and thereby produce "strange" outcomes, should be recoded.

As evident from Table 4.7, Finland's outcome variable (ITRUST) lies very close to the cut-off value. In fact, it is the country closest to the cut-off in the dataset. Given this, as well as the fact that the configurations are counterintuitive, we argue that it is reasonable to recode Finland's outcome variable to 1. This changes the inclusion of the [1, 1, 1, 1, 0, 1] configuration to 7/9. The other countries are left unchanged, although their proximity to the cut-offs is taken into consideration in the selection of the inclusion threshold in subsequent steps of the analysis.

¹¹ Low social trust, low life satisfaction, low satisfaction with the system, high corruption, and low GDP/capita.

¹² High social trust, high life satisfaction, high satisfaction with the system, low corruption, and high GDP/capita.

Table 4.7

Variable	Latvia	Finland	Netherlands	Spain
STRUST (=1 if >0.3)	0.255	0.647	0.617	0.343
SAT (=1 if >7.0)	6.367	7.675	7.374	7.292
SYS (=1 if >4.76)	4.277	5.593	5.647	4.900
CORR (=1 if <5.63) ^a	5	8.9	8.9	6.5
GDPC (=1 if >USD 28 837)	USD 16 349	USD 47 107	USD 56 928	USD 35 579
ITRUST (=1 if >2.41)	2.550	2.381	2.327	2.364

Proximity to Calibration Cut-Offs for Counterintuitive Cases

^a In the Corruption Perception Index, 1: highest corruption and 10: lowest corruption.

Further following the Rihoux and Ragin's order of procedure, the selected conditions are carefully examined. A review of the raw data reveals that almost all of the cases with mainly positive conditions and a negative outcome have low levels of corruptions, but that they differ more in terms of income inequality (see Appendix 9.2). In order to resolve the contradictions, CORR is replaced with INEQ. After testing all possible combinations of conditions, the final truth table is developed (Appendix 9.6). There are still two counterintuitive configurations (consisting of Latvia and the Netherlands). However, given that these countries are relatively close to the cut-offs of several variables (see Table 4.7), we deem it reasonable to set the inclusion cut-off at 0.8 so that the configuration including the Netherlands is treated as a positive outcome and the configuration including Latvia is treated as a negative outcome. As a result, the configuration with an inclusion score above 0.8 is assigned a positive outcome (ITRUST=1), while all configurations with an inclusion score below 0.8 are assigned negative outcomes (ITRUST=0). It is important to note that the inclusion threshold does not affect the parameters of fit of the solutions in subsequent steps of the analysis. Rather, it allows the software to group configurations with inclusion over 0.8 together and configurations with inclusion under 0.8 together in order to simplify the solution of the standard analysis below.

4.3 STANDARD ANALYSIS

In the standard analysis, Boolean minimization is used to merge configurations. Simply doing so yields the conservative solution¹³ (Table 4.8).

Table 4.8

Conservative Solution (Positive Outcome)

STRUST * SAT * GDPC * ineq + STRUST * SAT * SYS * GPDC + strust * SAT * SYS * gdpc * ineq+ $strust * sat * SYS * gdpc * INEQ \iff ITRUST$

Causal Pathways	Cons.	Cov. (R) ^a	Cov. (U) ^b	Countries
STRUST*SAT*GDPC*ineq	0.778	0.368	0.105	AUS, BELG, ICE; DEN, FIN, IRE, NOR, NETH, SWE
STRUST*SAT*SYS*GDPC	0.778	0.368	0.105	DEN, FIN, IRE, NETH, NOR, SWE; LUX, SPA, SWI
strust*SAT*SYS*gdpc*ineq	1.000	0.105	0.105	MON, SLOVAK
strust*sat*SYS*gdpc*INEQ	1.000	0.158	0.158	GEO, RUSS, TUR
SOLUTION	0.824	0.737		

Note. Only configurations with more than one observation are included.

^a Raw Coverage: Share of the outcome explained by the configuration.

^b Unique Coverage: Share of the outcome explained exclusively by the configuration.

Although the conservative solution is very accurate (it yields high consistency and raw coverage scores), it is too complex to enable the development of any meaningful conclusions.

To further deepen the analysis, the intermediate solution is developed (Table 4.9). Unlike the conservative solution, the intermediate solution makes use not only of the observed configurations in the minimization process, but also a particular type of logical remainders, the so-called *easy counterfactuals* (Befani, 2016). While logical remainders can be understood simply as the possible combinations of the examined conditions that are not observed in the data, i.e. configurations with

¹³ This has been referred to as both the complex solution (because of the complexity) and the conservative solution (because of the lack of simplifying assumptions) in previous QCA literature. We have chosen to use the term conservative solution as this is used in the QCA package in R we use to produce the results.

zero observations, the term easy counterfactuals is best understood through an example. Assume that the conjunction A*B*c are observed a number of times in the dataset, and that it always results in the presence of the outcome O. In other words, ABc \rightarrow O. Furthermore, assume that it is considered highly unlikely that the presence of C would negatively impact O. For instance, it goes against the grain of existing theory, as well as common sense, that high levels of social trust would negatively impact trust in the civil service (although there is more debate about to what degree its presence has a positive impact). Then, the intermediate solution would utilize the logical remainder ABC to merge the statements ABc \rightarrow O (observed in data) and ABC \rightarrow O (not observed in the data) into the simpler AB \rightarrow O, hence simplifying the solution. If A and B and the absence of C is observed together with O, and the presence of C is widely expected not to contribute negatively to O, then it is logically viable to assume that ABC would yield O as well. In developing the intermediate solution, we assign the conditions the following expected directions (1 denoting an expected positive impact):

- I) Social trust: 1
- II) Satisfaction with the system: 1
- III) Life satisfaction: 1
- IV) Income inequality: 0
- V) GDP per capita: 1

Although the consistency of the intermediate solution (Table 4.9) is slightly lower, it is far easier to interpret. Furthermore, it allows for interesting conclusions. Firstly, it confirms our findings that perceived institutional performance (represented by SYS) is the most important individual cause of high confidence in the civil service. Satisfaction with the system is alone sufficient and necessary for a majority of the countries in the dataset. Its importance is further underlined when analyzing the intermediate solution to the negation of the outcome (Table 4.10). 80 % of the countries exhibiting low confidence in the civil service have low levels of satisfaction with the system (consistency of SOLUTION¹⁴). Furthermore, among the countries with low satisfaction with the system, 76.2 % exhibit low levels of confidence in civil service (raw coverage of SOLUTION).

¹⁴ Abstracting from the slightly different consistency scores, the intermediate solution of the negated outcome can be rewritten to sys * (gdp + INEQ). As such, satisfaction with the system is observed to be low in 80 % of the countries exhibiting low confidence in the civil service.

Table 4.9

SYS + STRUST * SAT * GDPC * ineq <=> ITRUST						
Causal Pathways	Cons.	Cov. (R) ^a	Cov. (U) ^b	Countries		
SYS	0.765	0.684	0.421	GEO,RUSS,TUR; MON,SLOVAK; Den,FIN,IRE,NETH,NOR,SWE; LUX,SPA,SWI		
STRUST*SAT*GDPC*ineq	0.778	0.368	0.105	AUS,BELG,ICE; Den,FIN,IRE,NETH,NOR,SWE		
SOLUTION	0.750	0.789				

Intermediate Solution (Positive Outcome)

Note. Only configurations with more than one observation are included.

^a Raw Coverage: Share of the outcome explained by the configuration.

^b Unique Coverage: Share of the outcome explained exclusively by the configuration.

Table 4.10

Intermediate Solution (Negated Outcome)

sys * gdpc + sys * INEQ <=> itrust						
Causal Pathy	ways	Cons.	Cov. (R) ^a	Cov. (U) ^b	Countries	
sys*INEQ		0.769	0.476	0.143	BULG,LAT,LITH,MOLD,PORT,ROM; CRO,POL; ITA,UK	
sys*gdpc		0.812	0.619	0.286	ALB,ARM,HUN,SERB,UKRA; BULG,LAT,LITH,MOLD,PORT,ROM; CRO,POL	
	SOLUTION	0.800	0.762			

Note. Only configurations with more than one observation are included.

^a Raw Coverage: Share of the outcome explained by the configuration.

^b Unique Coverage: Share of the outcome explained exclusively by the configuration.

It is however possible to achieve high confidence in the civil service in a country independent of high or low satisfaction with the system. As evident from the intermediate solution of the positive outcome (Table 4.9), there is another causal pathway to high institutional trust, namely high social trust <u>and</u> high life satisfaction <u>and</u> high GDP per capita <u>and</u> low inequality. In Section 3, we claim (based on our interpretation and knowledge of previous literature) that there are three likely causal pathways affecting the confidence citizens of a country place in the civil service: their perception of institutional performance (SYS, corr), the social context (GDPC, pcom, STRUST, ineq), and individual factors (SAT). The intermediate solution therefore allows for the interpretation that regardless of the perception of institutional performance in a country, high levels of confidence in civil service may exist given that the other factors are *positive in conjunction*. In other words, high perceived institutional performance results in high institutional trust. Low perceived institutional performance results in high institutional trust. Low perceived institutional performance results in high institutional trust is "beneficial" (people are rich and can therefore "afford" to trust), social trust is high, people are satisfied with their lives, and society is relatively homogeneous (in terms of wealth distribution).

These results are summarized in the figure below (Figure 4.2).

Figure 4.2

Graphical Presentation of Results



From the standard analysis, the presence of causal complexity in the creation of confidence in the civil service is established. Social trust, life satisfaction, low inequality, and high GDP per capita are all *insufficient but necessary parts of an unnecessary but sufficient cause* (INUS). Each of the factors are

necessary to form the conjunction STRUST*SAT*ineq*GDPC, but neither is sufficient to form said conjunction. Furthermore, the conjunction (causal pathway 2) is sufficient for the outcome, confidence in civil service, but it is unnecessary, as confidence in civil service can also be achieved by high institutional performance. In summary, the standard analysis highlights one necessary and sufficient factor (SYS) and four INUS conditions (STRUST, SAT; ineq, and GDPC).

5 VALIDITY

In quantitative methods, the presence of statistical significance of results is often used as an argument for the validity of an analysis. QCA identifies the factors that are likely to explain an outcome rather effects of these factors on the outcome. It produces no coefficients, and as such the notion of statistical significance is not a part of the tool-kit when assessing validity.¹⁵ With QCA being a fundamentally theory-driven approach, a theoretical argument about the validity of the findings is useful in order to evaluate their relevance. This is done by assessing the internal, external, and construct validity. As argued by Befani (2016), QCA procedures can be strong on all three forms of validity if applied correctly.

5.1 INTERNAL VALIDITY

Internal validity is concerned with the transparency and replicability of the procedures applied, and the appropriateness of the selected conditions in explaining the outcome. High internal validity hence implies that the analysis can be easily replicated, and that such a replication would result in the same findings. We argue that this form of validity must be considered high in this thesis. The choice of conditions to be analyzed and their coding are clearly outlined in Section 3. Moreover, the procedures and thresholds applied to produce the findings are clearly mentioned in the Section 4. We also believe the reliability of the dataset to be high due to the high reputation, popularity, and quality of EVS, the World Bank, and Transparency International.

5.2 EXTERNAL VALIDITY

External validity concerns the potential for generalization based on the results. When external validity is high, an identified relationship between a condition or configuration in the sample can be used to accurately describe the wider population.

We argue that the external validity is satisfactory to facilitate a certain degree of generalization in Section 6. Firstly, compared to common QCA practice, the number of cases is high¹⁶ while the

¹⁵ In fact, Wagemann and Schneider (2007, p. 29) argue that "[u]nlike in broad areas of statistical research, where certain levels of significance have reached a doctrine-like status, QCA researchers should resist as much as possible to follow conventions simply for the sake of being conventions and should, instead, explicitly argue for their decisions made on the level of consistency." Befani (2016) proposes tests she argues could resemble "statistical significance", but they appear to be completely untested in practice.

¹⁶ According to Befani (2016), a small-n QCA procedure includes 10 or fewer cases, a medium-n procedure includes between 10-30 cases, while a large-n analysis includes 30 or more cases.

number of conditions in the standard analysis is moderate. Generally, a large number of cases and a moderate number of condition is thought to strengthen the external validity of QCA procedures.

On the other hand, the dataset used in this thesis is admittedly limited to European countries and span over only two years, potentially reducing the ability for generalization. Even so, we argue that the deductive nature of our approach serves to mitigate this problem. Rather than choosing variables arbitrarily, we design our model to evaluate existing knowledge and theories. Furthermore, the theories evaluated all enjoy a reasonable degree of consensus surrounding their importance in the creation of trust. As a result, we argue that empirical support for carefully selected theories found in the QCA procedures provide strong indications of true causality.

5.3 CONSTRUCT VALIDITY

High construct validity implies that the variables used in the analysis are adequate proxies for the theoretical concept they are supposed to represent. High construct validity is consequently a prerequisite for generalization—if the variables do not accurately represent the meaning they are applied, then it is not possible to draw conclusions about reality from how they behave.

We believe the largest potential weakness of csQCA to be the calibration of binary conditions. This process was undertaken based on empirical criteria rather than qualitative case-by-case knowledge. Traditionally, theoretical calibration criteria have been more popular in QCA procedures. Even so, we struggle to see a reason how such an approach would improve the overall validity of this thesis. Firstly, the high number of countries (40), and the high number of observed individuals within each country (roughly 1 400 on average), ensure that even a hard cap derived from means should be highly accurate and representative. Secondly, theoretical calibration criteria would involve a large degree of subjective judgement. This would by itself reduce internal validity as the difficulties associated with replicability as expert multidisciplinary knowledge is required to justify the choices made in theory-driven calibration. Finally, this would dramatically increase the scope of the thesis. The number of cases would have to be decreased, and as such external validity would be negatively affected.

In summary, we argue that the thesis is very strong in regards to internal validity and that it exhibits a sufficiently high level of external validity to enable certain interpretations to be made about the wider reality. We believe the largest issue to be with construct validity, but argue that this could not have been improved without negatively impacting the other two forms. As a result, we conclude that the method applied is the most appropriate given the scope of the thesis.

6 CONCLUSIONS

6.1 DISCUSSION

The objective of this thesis was to identify the theories explaining the differences between European countries in terms of institutional trust. Within the theoretical framework applied in the thesis, the analysis revealed high institutional trust to emerge primarily from two causal pathways, either high perceived institutional performance or a combination of high social trust, high life satisfaction, high GDP per capita, and low corruption. Furthermore, a number of propositions were developed during the early stage of the analysis, namely that:

- I) High perceived institutional performance is the most necessary factor for the presence of high confidence in the civil service of a country.
- II) Low perceived institutional performance results in low confidence in the civil service.
- III) High perceived institutional performance is sufficient in most cases for the emergence of high trust in the civil service. Furthermore, confidence in civil service might also emerge in the presence of low income inequality and high life satisfaction.

It is worth noting the fact that Georgia and Russia, two former communist republics, exhibit high confidence in civil service. This might seem counterintuitive in the light of the substantial research of trust in post-communistic countries (Bjørnskov 2006; Pehlivanova 2009; Rothstein 2003; Sztompka 1999;). Although an in-depth analysis of these countries lays outside the purpose of this thesis, we imagine two potential explanations for this phenomenon:

- I) The countries in question are highly polarized, and most people are either highly enthusiastic about the system or highly pessimistic. This way, the "average trust" in the system could be relatively high although there is a large number of people exhibiting low trust in institutions.
- II) It could be due to dependent variable selection. We focus specifically on trust in the civil service, and this might vary substantially from trust in parliament or government (which have often been the focus of previous research), a distinction emphasized by Rothstein (2003). As mentioned in the introduction, we make a distinction between representative- and non-representative institutions, and we theorize that trust in the two might differ substantially, even within one country.

QCA, like any other statistical method, is unable to make absolute statements about causality. However, we argue that it is consistent with the boundaries set by the external validity of the thesis to make concluding assumptions about a causal link between a variable (condition) and the outcome if the relationship is supported by theory, and the concept in question is supported by patterns in our data. In other words, a causal relationship is likely if it is empirically identified as a key differentiator between cases, and its impact is theoretically and intuitively supported.

The role of perceived institutional performance, represented in the intermediate solution as satisfaction with the system, is empirically, intuitively, and theoretically sound. Being both highly necessary and sufficient, its impact is supported by the analysis. It is an important explanation of the positive as well as the negative outcome, and as such its presence or absence can be considered a crucial differentiator between the countries in the dataset. Reasonably, if trust is "a bet about the future contingent actions of others" (Sztompka 1999, p. 25)—and we assume that this bet is to some degree based on past experience¹⁷—then it naturally follows that trust in a certain institution must be a product of the past experiences with said institution (Hardin, 1996).

The second part of the intermediate solution (of the positive outcome), the conjunction of social trust, life satisfaction, GDP per capita, and low inequality, highlights a more complex causal relationship. Regardless of institutional performance, the nature of the social and individual setting can also distinguish societies with high institutional trust from societies with low institutional trust. It shows that while perceived institutional performance seems to be the most empirically supported theory, it is not the only theory of change with merit. Considering specific factors, GDP per capita and inequality are parts of the explanations of countries with high as well as low institutional trust. In our opinion, this provides empirical support for well-being theory and further underlines the potential importance of a favorable social context.

Moreover, we also find life satisfaction to be a relatively necessary factor by itself. Furthermore, utilizing De Morgan's Law, we find that low life satisfaction and high corruption were relatively sufficient for low institutional trust in conjunction. As such, we interpret the theories emphasizing the trust as stemming from the social context and the individual itself to be further important explanations of the cross-country differences in institutional trust.

On the other hand, the effect of social trust lacks empirical representation in the data. While several previous researchers have emphasized a causal relationship between social and institutional trust on the aggregate level, we find social trust to play little to no role individually and only a very

¹⁷ Apart from being intuitively sound, expectations being based on history is a common assumption within the field of economics. For example, consider rational and adaptive expectations frequently used in macroeconomic models or the "grim trigger" in game theory.

limited role overall as a necessary but insufficient part of an unnecessary but sufficient conjunction. We therefore argue that the importance traditionally assigned social trust is exaggerated. This could be due to research design. While social trust is undoubtedly correlated with institutional trust, we find the causal relationship between the two to be very weak. A likely explanation is that social trust facilitates the presence of many of the factors that are causally linked to institutional trust. For instance, previous research has often emphasized the importance of trust in the creation of wealth (represented in our dataset as the condition GDP/capita). Furthermore, as outlined in Section 3.2, theorists have argued that there is a plausible (although complex) causal relationship between wealth and institutional trust. In other words, we do not claim that social trust has no effect on institutional trust, but rather that the relationship between the two is primarily an indirect one, i.e. that social trust affect factors that in turn may affect institutional trust.

To conclude our evaluation of theoretical frameworks, we propose a revised theoretical structure based on our empirical findings, formulating a more coherent approach to institutional trust. The causal pathways can be distinguished as key differentiators between countries and are represented in Figure 6.1:

Figure 6.1:

Revised Theoretical Framework.



6.2 FURTHER RESEARCH AND POLICY IMPLICATIONS

Our ambition is that this thesis can contribute to an alternative direction within the analysis of complex behavioral patterns in economics. As argued in the Section 3.2, we see several problems with approaching human emotions with conventional quantitative methods. Using QCA, we discover and highlight a causal conjunction that we would have been unable to discover using conventional regression analysis and assuming individual, causal linearity. QCA and similar methods could provide a useful tool when accounting for human decision making in economics models.

Furthermore, we primarily see two interesting implications for further research. Firstly, our analysis pertains to a European context. To apply the same method, using QCA, in a different setting and compare findings would be a way to further examine the external validity. Secondly, having established a revised theoretical framework explaining differences between countries in terms of institutional trust, it would be interesting to apply regression analysis to assess the degree to which it explains these differences, either on the same or another dataset.

Finally, the results, and their interpretation, merit a brief evaluation of policy implications. As we see it, the central finding is that institutional trust can emerge independent of economic prosperity, the crucial component is that the citizens are satisfied with how the system is working and believe it to be working in their favor. Specifically, we find low corruption to be an important determinant of institutional trust. As discussed in the introduction of this thesis, and in the light of arguments presented in the introduction regarding the importance of functioning institutions, increasing public perception of institutional performance can be considered highly relevant in economic development. However, developing a prosperous economy is not an easy task. For instance, as seen in the Corruption Perceptions Index, emerging economies are often characterized by corruption. Relating to Rothstein's (2013) corruption-trust theory, our findings could imply that such countries would benefit from focusing on anti-corruption early on in their strive for development. A describing example, although admittedly outside of Europe, could be India, where a large challenge for a country experiencing strong growth is the low proportion of the population paying taxes. Expert knowledge of the country is of course necessary to gain a complete understanding of the reasons why. Nevertheless, if we for the sake of the argument assume that an important factor is that the population beliefs that the institutions are not working for them, and that a large part of the taxes they pay end up in the pockets of corrupt civil servants, they would of course be very hesitant to pay taxes. Following this logic, a country like India could benefit from focusing on rooting out corruption and improving the image of their institutions.

7 SUMMARY

Properly functioning institutions are essential for economic prosperity. However, the mere quality of institutions is not the only thing to matter. If the citizens of a society do not deem the institutions trustworthy, they will be unwilling to engage in transactions and contribute to the economy.

Trust is an abstract concept. Although there is substantial research on inter-personal trust, the picture is more complex when trying to understand differences between countries in terms of how much trust their citizens place in public institutions. Summarizing the theoretical background, we classify existing theories according to the following frameworks: social-psychological explanations, social and cultural model, and institutional performance model. Trying to make sense of a number of competing but not necessarily contradictory theories on the matter, and understanding which theories explain cross-country differences in institutional trust, we apply qualitative comparative analysis to a dataset consisting of selected variables from EVS, the World Bank database, and Transparency International.

We find high institutional trust to emerge primarily from two causal pathways, either high perceived institutional performance or a combination of high social trust, high life satisfaction, high GDP per capita, and low corruption. Due to acceptable levels of internal, external, and construct validity, we are able to make broader generalizations from this result and propose a revised theoretical framework. Firstly, we argue that perceived institutional performance is indeed causally linked to institutional trust. Furthermore, we claim that a favorable social and individual setting, regardless of perceived institutional performance, can casually affect trust in institutions.

To further strengthen these generalizations, we propose that further research apply the same method in a different setting, and that the revised theoretical framework is tested with conventional quantitative measures to assess the degree to which it explains cross-country differences.

8 **R**EFERENCES

Allport, G.W., 1961. Pattern and Growth in Personality. New York: Holt, Rinehart and Winston.

Algan, Y., Cahuc, P., 2010. Inherited Trust and Growth. *American Economic Review*, 100(5), pp. 2060–2092.

Befani, B., 2016. Pathways to Change: Evaluating Development Interventions with Qualitative Comparative Analysis (QCA). *Impact Evaluation using Qualitative Comparative Analysis (QCA)*. Stockholm, June 27, 2016. Stockholm: Expertgruppen för Biståndsanalys.

Berg-Schlosser, D., De Meur, G., Rihoux B., Ragin, C., 2008. Qualitative Comparative Analysis (QCA) as an Approach. In: Rihoux, B. and Ragin, C., eds. *Configurational Comparative Methods*. Thousand Oaks, CA: SAGE. pp. 1–18.

Bjørnskov, C., 2006. The Multiple Facets of Social Capital. *European Journal of Political Economy*, 22(1), pp. 22–40.

Cattell, R. B., 1965. The Scientific Analysis of Personality. Baltimore, MD: Penguin.

Craig, S., 1993. The Malevolent Leaders: Popular Discontent in America. Boulder, CO: Westview.

Delhey, J., Newton, K., 2005. Predicting Cross-National Levels of Social Trust: Global Pattern or Nordic Exceptionalism? *European Sociological Review*, 21(4), pp. 311–327

Delhey, J., Newton, K., 2003. The Origins of Social Trust in Seven Societies. *European Societies*, 5(2), pp. 93–137.

Doring, H., 1992. Higher Education and Confidence in Institutions. *West European Politics*, 15, pp. 126–146.

Easterly, W., 1999. Life During Growth. Journal of Economic Growth, 4(3), pp. 239-276.

Easterly, W., Levine, R., 1997. Africa's Growth Tragedy. *Quarterly Journal of Economics*, 112(4), pp. 1203–1250.

Erikson, E., 1950. Childhood and Society. New York, NY: Norton.

Fukuyama, F., 1995. *Trust: Human Nature and the Reconstitution of Social Order*. New York, NY: Free Press.

Hanifan, L. J., 1916. The Rural School Community Center. *Annals of the American Academy of Political and Social Science*, 67, pp. 130–138.

Hardin, R., 1993. The Street-Level epistemology of trust. Politics and Society, 21(4), pp. 505-529.

Hardin, R., 1996. Trustworthiness. Ethics, 107(1), pp. 26-42.

Hiraishi, K., Yamagata, S. Shikishima, C., Ando, J., 2008. Maintenance of Genetic Variation in Personality through Control of Mental Mechanisms: A Test of Trust, Extraversion, and Agreeableness. *Evolution and Human Behavior*, 29 (2), pp. 79–85.

House, J. S., Wolf, S., 1978. Effects of Urban Residence on Interpersonal Trust and Helping Behavior. *Journal of Personality and Social Psychology*, 36(9), pp. 1029–1043.

Knack, A., 2001. Trust, Associational Life, and Economic Performance [online]. Stephen Knack. Available at: https://mpra.ub.uni-muenchen.de/27247/> [Accessed April 28, 2017].

Knack, S., Zak, P.J., 2003. The Rule of Law, Freedom, and Prosperity. *Supreme Court Economic Review*, 10, pp. 921–107.

Katz, A., Vom Hau, M., Mahoney, J., 2005. Explaining the Great Reversal in Spanish America: Fuzzy-Set Analysis versus Regression Analysis. *Sociological Methods and Research*, 33(4), pp. 539–573.

Knack, S., Keefer, P., 1997. Does Social Capital Have an Economic Payoff? A Cross-Country Investigation. *Quarterly Journal of Economics*, 112 (4), pp. 1251–1288.

La Porta, R., Lopez de Silanes, F., Shleifer, A., Vishny, R.W., 1997. Trust in Large Organizations. *American Economic Review*, 87(2), pp. 333–338.

Newton, K., Norris, P., 1999. Confidence in Public Institutions: Faith, Culture or Performance? In: S. J. Pharr, R.D., Putnam, eds. *Disaffected Democracies: What's Troubling the Trilateral Countries?* Princeton, NJ: Princeton University Press.

Ostrom, E., 1998. A Behavioral Approach to the Rational Choice Theory of Collective Action: Presidential Address, American Political Science Association, 1997. *American Political Science Review*, 92(1), pp. 1–22.

Pehlivanova, P., 2009. The Decline of Trust in Post-Communist Societies. *Contemporary Issues*, 2(1), Political Science Research Center, Zagreb.

Putnam, R.D., 2000. Bowling Alone: The Collapse and Revival of American Community. New York, NY: Simon and Schuster.

Putnam, R.D., Leonardi, R., Nanetti, R.Y., 1993. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, NJ: Princeton University Press.

Ragin, C., 2008. *What is QCA*. [online] Available at: <http://eprints.ncrm.ac.uk/250/1/What_is_QCA.pdf> [Accessed March 26, 2017].

Rihoux, B., Ragin, C., 2009. Configurational Comparative Methods: Qualitative Comparative Analysis (QCA) and Related Techniques. Thousand Oaks, CA: SAGE.

Rothstein, B., 2005. Social Traps and the Problem of Trust. Cambridge: Cambridge University Press.

Rothstein, B., 2013. Corruption and Social Trust: Why the Fish Rots from the Head Down. *Social Research*, 80(4), pp. 1009–1032.

Rothstein, B., Stolle, D., 2001. Social Capital and Street-Level Bureaucracy: An Institutional Theory of Generalized Trust. Paper prepared for Trust in Government Conference, Center for the Study of Democratic Politics, Princeton University, Princeton, NJ, November 30, 2001.

Roth, F., 2009. Does Too Much Trust Hamper Economic Growth? Kyklos, 62(1), pp. 103-128.

Roth, F., 2009. The Effect of the Financial Crisis on Systemic Trust. *Intereconomics*, 44(4), pp. 203–208.

Röder, A., Mühlau, P., 2012. Low Expectations or Different Evaluations: What Explains Immigrants' High Levels of Trust in Host-Country Institutions? *Journal of Ethnic and Migration Studies*, 38(5), pp. 777–792

Sztompka, P., 1999. Trust: A Sociological Theory. Cambridge: Cambridge University Press.

Sønderskov, K.M., Dinesen, P.T., 2016. Trusting the State, Trusting Each Other? The Effect of Institutional Trust on Social Trust. *Political Behavior*, 38(1), pp. 179–202.

Uslaner, E.M., 1999. Democracy and Social Capital. In: Mark Warren, *Democracy and Trust*. Cambridge: Cambridge University Press, pp. 121–150.

Uslaner, E.M., 2000. Producing and Consuming Trust. Political Science Quarterly, 115(4): 569-590.

Uslaner, E.M., 2002. The Moral Foundations of Trust. Cambridge: Cambridge University Press.

Wagemann, C., Schneider, C.Q., 2007. Standards of Good Practice in Qualitative Comparative Analysis (QCA) and Fuzzy-Sets. [online] Available at: http://www.compasss.org/wpseries/WagemannSchneider2007.pdf> [Accessed June 14, 2017].

Whiteley, P.F., 2000. Economic Growth and Social Capital. Political Studies, 48, pp. 443-466.

Wright, J., 1976. The Dissent of the Governed: Alienation and Democracy in America. New York, NY: Academic Press

Zak, P. J., Knack, S., 2001. Trust and Growth. Economic Journal, 111(470), pp. 295-321.

9 Appendix

9.1 EUROPEAN VALUES STUDY QUESTIONS

	a great deal	quite a lot	not very much	none at all	DK	NA
The church	1	2	3	4	8	9
The armed forces	1	2	3	4	8	9
The education system	1	2	3	4	8	9
The press	1	2	3	4	8	9
Trade unions	1	2	3	4	8	9
The police	1	2	3	4	8	9
Parliament	1	2	3	4	8	9
Civil Service	1	2	3	4	8	9
The social security system	1	2	3	4	8	9
The European Union	1	2	3	4	8	9
NATO	1	2	3	4	8	9
United Nations Organization	1	2	3	4	8	9
Health care system	1	2	3	4	8	9
The justice system	1	2	3	4	8	9
Major companies	1	2	3	4	8	9
Environmental organizations	1	2	3	4	8	9
Political parties	1	2	3	4	8	9
Government	1	2	3	4	8	9

Q7: Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?

1-most people can be trusted

2-can't be too careful

3-don't know

4-no answer

Q11: all things considered, how satisfied are you with your life as a whole these days? Please use this card to help with your answer. Q65: People have different views about the system for governing this country. Here is a scale for rating how well things are going: 1 means very bad; 10 means very good

		5000	
dissatisfied	1	very bad	1
	2		2
	3		3
	4		4
	5		5
	6		6
	7		7
	8		8
	9		9
satisfied	10	very good	10
DK	88	DK	88
NA	99	NA	99

Q123: During the last five years, have you been dependent on social security at any social security at any time?

1-yes

2-no

3-don't know

4-no answer

9.2 CALIBRATION

	Data of mea	an values befo	re applying l	oinary codific	ation.			
Country	ITRUST	STRUST	SAT	SYS	SSEC	CORR	INEQ	GDPC
ALB	2.339636	.1056082	6.35037	4.22253	.1537356	3.4	29.98	4370.54
AUS	2.346154	.3677686	7.54672	4.62849	.068484	8.1	30.45	51386.38
ARM	2.290346	.2050238	5.66599	4.71257	.1983751	2.9	30.71	3919.976
BELG	2.540612	.346462	7.62732	4.51726	.0544489	7.1	28.7	44880.56
BULG	1.852167	.1785467	5.72512	3.22268	.0849762	3.6	33.57	7296.123
BELA	2.273131	.4484272	6.09337	5.90514	.052	2	27.83	6376.183
CRO	2.143051	.1972789	7.09115	3.97085	.0554804	4.4	33.71	15893.86
CYP	2.566701	.0919421	7.26854	5.85437	.1497976	6.4	31.71	35390.7
CZCH	2.206221	.301315	7.16768	4.65363	.1051454	5.2	26.29	22649.38
DEN	2.721056	.7604307	8.35729	5.81099	.0246667	9.3	28.89	64322.07
EST	2.594154	.3261745	6.62698	4.63525	.0794176	6.6	32	18094.55
FIN	2.380863	.6467847	7.67496	5.59294	.1528777	8.9	27.47	47107.16
FRA	2.600134	.2724832	7.064	4.02945	.082777	6.9	33.08	45413.07
GEO	2.458623	.2205271	5.46076	5.35364	.0714763	3.9	40.57	3174.949
GER	2.221605	.3882595	6.77402	5.34598	.1672305	7.9	31.29	45699.2
GRE	2.047043	.213436	6.84559	3.87745	.2339852	4.7	34.22	31997.28
HUN	2.300938	.2116788	6.31436	3.20215	.3938992	5.1	27.53	15669.26
ICE	2.630711	.5141026	8.0411	4.67934	.0572852	8.7	28.74	40461.89
IRE	2.628272	.3892276	7.81863	5.65877	.2212766	7.7	30.91	61235.4
ITA	2.263518	.3083791	7.16178	3.91582	.0446176	4.3	33.66	36976.84
LAT	2.549587	.255116	6.36716	4.27684	.1034955	5	37.41	16348.53
LITH	2.25822	.2987849	6.39101	3.68567	.124743	4.6	35.77	14961.57
LUX	2.775404	.3106606	7.88122	6.17286	.062069	8.3	32.61	112851.6
MOLD	2.297203	.1253333	6.52914	4.15997	.0996094	2.9	34.69	1695.973
MON	2.485794	.2493075	7.45224	5.25219	.0592543	3.4	30.49	7326.025
NETH	2.32691	.6173002	7.9736	5.64721	.1058065	8.9	29.93	56928.82
NOR	2.579387	.7509328	8.10285	5.94177	.0459559	7.9	27.14	96880.51
POL	2.147941	.2760085	7.215	4.44597	.0863698	4.6	33.72	14001.45
PORT	2.342399	.1717105	6.46667	3.65077	.098052	6.1	36.63	24815.61
ROM	2.145442	.1762114	6.75766	4.63445	.1	3.8	36.93	10136.47
RUSS	2.515043	.2985587	6.50269	5.22035	.1177658	2.1	41.42	11635.26
SERB	2.0574	.1184032	6.93913	4.05333	.0339905	3.4	28.18	6701.774
SLOVAK	2.530387	.1257862	7.05811	5.47361	.0912162	5	26.08	18650.36
SLOVEN	2.508121	.2415856	7.5154	4.72687	.0920471	6.7	23.72	27501.81
SPA	2.364347	.3432836	7.29175	4.89677	.1063545	6.5	34.8	35578.73
SWE	2.453023	.7069288	7.71969	5.91979	.0437445	9.2	26.61	46207.06
SWI	2.79184	.5542857	8.00473	6.43815	.0601742	9	33.96	72119.56
TUR	2.788166	.1104972	6.52187	4.83025	.0765632	4.4	38.97	8624.172
UKRA	2.151137	.2889972	6.0087	3.16351	.1461434	2.5	26.64	3891.038
UK	2.372846	.4031621	7.55135	4.23766	.212987	7.7	34.67	38010.1

	Data after	applying bin	ary codific	ation.					
Country	ITRUST	STRUST	SAT	SYS	SSEC	CORR	INEQ	GDPC	РСОММ
ALB	0	0	0	0	1	1	0	0	1
AUS	0	1	1	0	0	0	0	1	0
ARM	0	0	0	0	1	1	0	0	1
BELG	1	1	1	0	0	0	0	1	0
BULG	0	0	0	0	0	1	1	0	1
BELA	0	1	0	1	0	1	0	0	1
CRO	0	0	1	0	0	1	1	0	1
CYP	1	0	1	1	1	0	0	1	0
CZCH	0	1	1	0	0	1	0	0	1
DEN	1	1	1	1	0	0	0	1	0
EST	1	1	0	0	0	0	1	0	1
FIN	0	1	1	1	1	0	0	1	0
FRA	1	0	1	0	0	0	1	1	0
GEO	1	0	0	1	0	1	1	0	1
GER	0	1	0	1	1	0	0	1	0
GRE	0	0	0	0	1	1	1	1	0
HUN	0	0	0	0	1	1	0	0	1
ICE	1	1	1	0	0	0	0	1	0
IRE	1	1	1	1	1	0	0	1	0
ITA	0	1	1	0	0	1	1	1	0
LAT	1	0	0	0	0	1	1	0	1
LITH	0	0	0	0	1	1	1	0	1
LUX	1	1	1	1	0	0	1	1	0
MOLD	0	0	0	0	0	1	1	0	1
MON	1	0	1	1	0	1	0	0	1
NETH	0	1	1	1	0	0	0	1	0
NOR	1	1	1	1	0	0	0	1	0
POL	0	0	1	0	0	1	1	0	1
PORT	0	0	0	0	0	0	1	0	0
ROM	0	0	0	0	0	1	1	0	1
RUSS	1	0	0	1	1	1	1	0	1
SERB	0	0	0	0	0	1	0	0	1
SLOVAK	1	0	1	1	0	1	0	0	1
SLOVEN	1	0	1	0	0	0	0	0	1
SPA	0	1	1	1	0	0	1	1	0
SWE	1	1	1	1	0	0	0	1	0
SWI	1	1	1	1	0	0	1	1	0
TUR	1	0	0	1	0	1	1	0	0
UKRA	0	0	0	0	1	1	0	0	1
UK	0	1	1	0	1	0	1	1	0

ITRUST	Freq.	Percent	Cum.
1	8,162	13.03	13.03
2	25,001	39.92	52.95
3	25,189	40.22	93.16
4	4,281	6.84	100.00
	,		
Total	62,633	100.00	
STRUST	Freq.	Percent	Cum.
0	44,618	70.10	70.10
1	19,034	29.90	100.00
Total	63,652	100.00	
SAT	Freq.	Percent	Cum.
1	2,055	3.13	3.13
2	1,346	2.05	5.17
3	3,014	4.58	9.76
4	3,265	4.97	14.72
5	7,004	10.65	25.38
6	5,869	8.93	34.30
7	9,743	14.82	49.12
8	15,286	23.25	72.37
9	9,268	14.10	86.47
10	8,896	13.53	100.00
Total	65,746	100.00	
SSEC	Freq.	Percent	Cum.
0	57 796		<u> </u>
0	J/,/80 7 112	10 06	89.04
I	7,115	10.90	100.00
Total	64,899	100.00	
SYS	Freq.	Percent	Cum.
1	6,862	10.87	10.87
2	4,314	6.83	17.70
3	8,183	12.96	30.66
4	8,038	12.73	43.39
5	12,705	20.12	63.52
6	7,996	12.66	76.18
	1		

9.3 DISTRIBUTION OF ANSWERS TO EVS QUESTIONS

1	6,862	10.87	10.87
2	4,314	6.83	17.70
3	8,183	12.96	30.66
4	8,038	12.73	43.39
5	12,705	20.12	63.52
6	7,996	12.66	76.18
7	7,410	11.74	87.92
8	4,913	7.78	95.70
9	1,486	2.35	98.05
10	1,230	1.95	100.00
Total	63,137	100.00	

9.4 QCA NOTATION

- I) *: <AND>, i.e. logical intersection. In classical algebra: \cap
- II) +: < OR>, i.e. logical union. In classical algebra: U
- III) UPPER CASE LETTERS: <PRESENCE>, lower case letter: <absence

9.5 Countries not Included in the Dataset

Countries excluded in the dataset because of missing data for all conditions:
Northern Ireland
Kosovo
Malta
Northern Cyprus
Bosnia-Herzegovina
Macedonia

		CAUSAL	CONDITIONS			DUTCOME	
cases	STRUST	SAT	SYS	GDPC	INEQ _	ITRUST	Inclusion
ALB, ARM, HUN, SERB, UKRA	0	0	0	0	0	0	0/5
AUS, BELG, ICE	1	1	0	1	0	0	2/3
BELA	1	0	1	0	0	0	0/1
BULG, LAT, LITH, MOLD, PORT, ROM	0	0	0	0	1	0	1/6
CRO, POL	0	1	0	0	1	0	0/2
СҮР	0	1	1	1	0	1	1/1
CZCH	1	1	0	0	0	0	0/1
DEN, FIN, IRE, NETH, NOR, SWE	1	1	1	1	0	1	5/6
EST	1	0	0	0	1	1	1/1
FRA	0	1	0	1	1	1	1/1
GEO, RUSS, TUR	0	0	1	0	1	1	3/3
GER	1	0	1	1	0	0	0/1
GRE	0	0	0	-	1	0	0/1
ITA, UK	1	1	0	1	1	0	0/2
LUX, SPA, SWI	1	1	1	-	1	0	2/3
MON, SLOVAK	0	1	1	0	0	1	2/2
SLOVEN	0	1h	0	0	0	1	1/1

9.6 FINAL TRUTH TABLE